Appendix A:
Letter I - Shute, Mihaly & Weinberger Comment Letter Attachments

A.1 - Attachment A:
City of Fresno (1991) L WCF Program (Part IV) Narrative

ATTACHMENT A

City of
FRESNO

Parks, Recreation and Community
Services Department

Administration Division • 209-498-1145
2326 Fresno Street, Room 101, Fresno, California 93721-1824

Joe Wingfield
Director

September 29, 1992

CERTIFIED MAIL

Mr. Keith M. Steinhart, Project Officer
State of California
Department of Parks & Recreation
White Weather Dome
Post Office Box 942896
Sacramento, California 94296-0001

Dear Mr. Steinhart:

SUBJECT: LAND AND WATER CONSERVATION FUND
PROJECT NO. 06-01327 ROEDING PARK PICNIC
TABLES/BENCHES/BARBECUES REPLACEMENT

Enclosed for review and approval are plans and specifications for the subject Land and Water Conservation Fund project.

If additional information is needed please contact me at (209) 498-4919.

Sincerely,

LeRoy Milavich

LeRoy Milavich
Management Analyst III

js
1100/ADM

Enclosure

FILE COPY

City of
FRESNO

Parks, Recreation and
Community Services Department

Recreation and Community Services Division • 209-498-1117
2326 Fresno Street, Room 101, Fresno, California 93721

Joe Wingfield
Director

June 18, 1992

Kenneth E. Martin, Supervisor
Local Assistance Section
Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Martin:

SUBJECT: ROEDING PARK DEVELOPMENT
LWCF PROJECT NO. 06-01327

Enclosed are three executed copies of the subject project agreement as requested by your office.

Please phone me at (209) 498-4919 if I can be of assistance.

Sincerely,

LeRoy Milavich
Management Analyst III

983ADM

Enclosures

c: Rudy Castillo

L. .D AND WATER CONSERVATION FU..D PROJECT AGREEMENT

I. Definitions

A. The term "NPS" as used herein means the National Park Service, United States Department of the Interior.

B. The term "Director" as used herein means the Director of the National Park Service, or any representative lawfully delegated the authority to act for such Director.

C. The term "Liaison Officer" as used herein means the California Director of Parks and Recreation, or other State officer as designated by the Governor from time to time and authorized by the State Legislature.

D. The term "Manual" as used herein means the National Park Service Manual, formerly the Bureau of Outdoor Recreation Manual (Outdoor Recreation Grants-in-Aid Manual).

E. The term "Project" as used herein means the project or project segment which is the subject of this agreement as defined in the Project Proposal.

F. The term "Project Proposal" as used herein means the form and all supplemental attachments used to describe and estimate the cost of planning, acquisition, or development project filed with the Liaison Officer in support of an application for federal financial assistance.

G. The term "State" as used herein means the State of California, and/or its official representative, the Department of Parks and Recreation.

H. The term "Participant" as used herein means the recipient of the federal funds to be disbursed in accordance with the terms of this agreement.

I. The term "State Funds" as used herein means those moneys made available by the State as matching money for projects under the Land and Water Conservation Fund Act of 1965, 78 Stat. 897 (1964).

J. The term "Leased Land" or "Lease" as used herein means land leased from the Federal Government.

II. Continuing Assurances

The parties to the project agreement specifically recognize that the Land and Water Conservation Fund assistance project creates an obligation to maintain the property described in the project agreement consistent with the Land and Water Conservation Fund Act and the following requirements.

Further, it is acknowledged intent of the parties hereto that recipients of assistance will use moneys granted hereunder for the purposes of this program, and that assistance granted from the Fund will result in a net increase, commensurate at least with the State cost-share, in a participant's outdoor recreation. It is intended by both parties hereto that assistance from the Fund will be added to, rather than replace or be substituted for, State and local outdoor recreation funds.

A. The participant agrees, as recipient of this assistance, that it will meet the following specific requirements and the terms of the project agreement.

B. The participant agrees that the property described in the project agreement and the dated project boundary map made part of that agreement is being acquired or developed with Land and Water Conservation Fund assistance or is integral so such acquisition or development, and that, without the approval of the Liaison Officer, the Director, and/or the Secretary of the Interior, it shall not be converted to other than public outdoor recreation use but shall be maintained in public outdoor recreation in perpetuity or for the term of the lease in the case of leased property. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location. This replacement land becomes subject to Section 6(f) (3) protection. The approval of conversion shall be at the sole discretion of the Secretary, or his designee. Prior to the completion of this project, the participant, the Liaison Officer, and the Director may mutually alter the area described in the project agreement and the dated project boundary map to provide the most satisfactory public outdoor recreation unit, except that acquired parcels are afforded Section 6(f) (3) protection as Fund reimbursement is provided.

In the event the National Park Service provides Land and Water Conservation Fund assistance for the acquisition and/or development of property subject to reversionary interests with full knowledge of those reversionary interests, conversion of said property to other than public outdoor recreation uses as a result of such reversionary interest being exercised is approved. In receipt of this approval, the participant agrees to notify the State of the conversion as soon as possible and to seek approval of replacement property in accord with the conditions set forth in these provisions. The participant further agrees to effectuate such replacement within a reasonable period of time, acceptable to the State, after the conversion of property takes place. The provisions of this paragraph are also applicable to: leased properties acquired and/or developed with Fund assistance where such lease is terminated prior to its full term due to the existence of provisions in such lease known and agreed to by the State; and properties subject to other outstanding rights and interests that may result in a conversion when known and agreed to by the State.

C. The participant agrees that the benefit to be derived by the State from the full compliance by the participant with the terms of this agreement is the preservation, protection, and the net increase in the quality of public outdoor recreation facilities and resources with are available to the people of the State and of the United States, and such benefit exceeds to an immeasurable and unascertainable extent the amount of money furnished by the State by way of assistance under the terms of this agreement. The participant agrees that payment by the participant to the State of an amount equal to the amount of assistance extended under this agreement by the State would be inadequate compensation to the State for any breach by the participant of this agreement. The participant further agrees, that the appropriate remedy in the event of a breach by the participant of this agreement shall be the specific performance of this agreement.

D. The participant agrees to comply with the policies and procedures set forth in the National Park Service Grants-in-Aid manual. Provisions of said manual are incorporated into and made a part of the project agreement.

E. The participant agrees that the property and facilities described in the project agreement shall be operated and maintained as prescribed by manual requirements.

F. The participant agrees that a permanent record shall be kept in the participant's public property records and available for public inspection to the effect that the property described in the scope of the project agreement, and the dated project boundary map made part of that agreement, has been acquired or developed with Land and Water Conservation Fund assistance and that it cannot be converted to other than public outdoor recreation use without the written approval of the Liaison Officer, the Director, and/or the Secretary of the Interior.

G. Nondiscrimination

1. The participant shall comply with Title VI of the Civil Rights Act of 1964 (P.L.88-352) and in accordance with Title VI of that Act, no person in the United States shall, on the ground of race, religion, color, or national origin, excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of any property or facility acquired or developed pursuant to the project agreement. The participant shall immediately take any measures necessary to effectuate this provision. This assurance shall be binding on the participant or any political subdivision or other appropriate public agency to which Fund assistance or property acquired or developed with Fund assistance has been transferred for public recreation purposes.

2. The participant shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) prohibiting employment discrimination where (1) the primary purpose of a grant is to provide employment or (2) discriminatory employment practices will result in unequal treatment of persons who are or should be benefitting from the grant-aided activity.

3. The participant shall comply with the regulations and guidelines promulgated pursuant to the Civil Rights Act of 1964 by the Secretary of the Interior and the National Park Service.

4. The provisions of the first three paragraphs apply to any part of the recreation system within which the assisted facility or property exists.

5. The participant shall not discriminate against any person on the basis of residence, except to the extent that reasonable differences in admission or other fees may be maintained on the basis of residence as set forth in the manual.

III. Project Assurances

A. Applicable Federal Circulars

The State shall comply with applicable regulations, policies, guidelines and requirements including Office of Management and Budget Circulars No. A-102 (Uniform administrative requirements for grants-in-aid to State and local governments), A-A-87 (Cost principles for State and local governments), and A-128 (Audits of State and local government) as they relate to the application, acceptance and use of Federal funds for this federally assisted project.

B. Project Proposal

1. The project proposal for State assistance bearing the same project number as the agreement and associated documents is by this reference made a part of this agreement.

2. The participant possesses legal authority to apply for the grant, and to finance and construct the proposed facilities. A resolution, motion or similar action has been duly adopted or passed authorizing the filing of the project proposal, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the participant to act in connection with the project proposal and to provide such additional information as may be required.

3. The participant has the ability and intention to finance the non-state share of the costs for the project. Sufficient funds will be available to assure effective operation and maintenance of the facilities acquired or developed by the project.

C. Project Execution

1. It is understood by the parties hereto that this agreement shall not obligate State of California funds for the project costs described herein. The participant hereby promises, in consideration of the promises made by the Liaison Officer herein, to execute the project stage described herein, in accordance with the terms of this agreement. Any disbursement hereunder shall not be made unless and until funds therefor are received by the Liaison Officer from the National Park Service. This item shall not apply when the participant is an agency of the State of California.

2. The Liaison Officer hereby promises, in consideration of the promises made by the participant herein, to accept appropriated federal funds for the purposes of the project and disburse the same to reimburse the participant up to 50 percent of the eligible project cost not to exceed 50 percent of the direct project cost shown in this agreement; except for a surcharge for administrative costs to be applied to twice the federal share of direct eligible project costs. The surcharge is to be deducted from the reimbursements received from the Federal Government applicable to this project and will be computed at the federally approved surcharge rate in effect at the time the billing is submitted to the Federal Government.

3. The project period shall begin with the date of approval of the project agreement or the effective date of a waiver of retroactivity and shall terminate at the end of the stated or amended project period unless the project is completed or terminated sooner in which event the project period shall end on the date of completion or termination. For project elements added to a consolidated project, the project period will begin on the date the project element is approved.

4. The participant will cause work on the project to be commenced within a reasonable time after receipt of notification that funds have been approved and assure that the project will be prosecuted to completion with reasonable diligence.

5. The State will require the facility to be designed to comply with the Architectural Barriers Act of 1968 (Public Law 90-480), and DOI Section 504 Regulations (43 CFR Part 17). The State will be responsible for conducting inspections by the contractor.

6. The participant shall secure completion of the work in accordance with approved construction plans and specifications, and shall secure compliance with all applicable federal, state, local laws and regulations.

7. In the event the project covered by the project agreement, including future stages of the project, cannot be completed in accordance with the plans and specifications for the project; the participant shall bring the project to a point of recreational usefulness agreed upon by the participant and, the Director or his designee, and the Liaison Officer.

8. The participant will provide for and maintain competent and adequate architectural engineering supervision and inspection at the construction site to insure that the completed work conforms with the approved plans and specifications; that it will furnish progress reports and such other information as the NPS may require.

9. The participant will comply with the terms of Title II and Title III, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646), 94 Stat. 1894 (1970), and the applicable regulations and procedures implementing such Act for all real property acquisitions and where applicable shall assure that the Act has been complied with for property to be developed with assistance under the project agreement.

10. The participant will comply with the provisions of: Executive Order 11988, relating to evaluation of flood hazards: Executive Order 11288, relating to the prevention, control, and abatement or water pollution, and Executive Order 11990, relating to the protection of wetlands.

11. The participant will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973, Public Law 93-234, 87 Stat. 975, approved December 31, 1976. Section 102(a) requires, on and after March 2, 1975, the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any federal financial assistance for construction or acquisition purposes for use in any area that has been identified by the Secretary of the Department of Housing and Urban Development as an area having special flood hazards. The phrase "federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect federal assistance.

12. The participant will insure that the facilities under its ownership, lease or supervision which shall be utilized in the accomplishment of the project are not listed on the Environmental Protection Agency's (EPA) list of Violating Facilities, pursuant to 40 CFR, Part 15.20 and that it will notify the State and NPS of the receipt of any Communication from the Director of the EPA Office of Federal Activities indicating that a facility to be utilized in the project is under consideration for listing by the EPA. The participant agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act of 1970. The participant further agrees to insert this clause into any contract or subcontract in excess of $100,000.

13. The participant will assist the State and NPS in its compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 470), Executive Order 11593, and the Archeological and Historic Preservation Act of 1966 (16 U.S.C. 469a-1 et seq.) by (a) consulting with the State Historic Preservation Officer on the conduct of investigations, as necessary, to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are subject to effects (see CFR Part 800.8) by the activity, and notifying the federal grantor agency of the existence of any such properties, and by (b) complying with all requirements established by the federal grantor agency to avoid or mitigate adverse effects upon such properties.

D. Construction Contracted for by the Participant Shall Meet the Following Requirements:

1. Contracts for construction in excess of $10,000 shall be awarded through a process of competitive bidding involving formal advertising, with adequate purchase description, sealed bids, and public openings. Copies of all advertisements, bids, and a copy of the contract shall be retained for inspection by the Director and the State.

2. The participant shall inform all bidders on contracts for construction that federal funds are being used to assist in construction.

3. Written change orders shall be issued for all necessary changes in the facility g constructed under contract of $10,000 or more. Such change orders shall be made a part of the project file a should be kept available for audit.

4. Contracts for construction shall include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented by Department of Labor regulations (29 CFR, Part 3).

5. The participant will comply with other procurement standards of OMB Circular A-102, Attachment O, except for provisions related to compliance with Davis Bacon Act requirements (unless required by a program providing supplemental funding). Should supplemental funding be provided which requires compliance with Davis Bacon Act requirements, all construction contracts awarded by the grantee and subgrantee in excess of $2,000 shall include a provision for compliance with such Act (40 U.S.C. 276a to a-7) and as supplemented by Department of Labor regulations (29 CFR, Part 5).

6. The participant shall incorporate, or cause to be incorporated, into all construction contracts exceeding $10,000 (ten-thousand), the following provisions:

"During the performance of this contract the contractor agrees as follows:

"(1) The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color or national origin. Such action shall include, but not be limited to, the following: Employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

"(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, or national origin.

"(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 as amended (3 CFR 169 (1974), and shall post copies of notices in conspicuous places available to employees and applicants for employment.

"(4) The contractor will comply with all provisions of Executive Order No. 11246, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor.

"(5) The contractor will furnish all information and reports required by Executive Order No. 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency, the State, and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

"(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order No. 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246, as amended, or by rules, regulations, or orders of the Secretary of Labor, or as otherwise provided by law.

"(7) The contractor will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

7. The participant shall (1) comply with the above provisions in construction work carried out by itself, (2) assist and cooperate actively with the Secretary of the Interior and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the above contract provisions and with the rules, regulations, and relevant orders of the Secretary of Labor, (3) obtain and furnish to the Secretary of the Interior and to the Secretary of Labor such information as they may require for the supervision of such compliance, (4) enforce the obligation of contractors and subcontractors under such provisions, rules, regulations, and orders, (5) carry out sanctions and penalties for violation of such obligations imposed upon contractors and subcontractors by the State, or the Secretary of Labor, or the Secretary of the Interior pursuant to Part II, Subpart D, of Executive Order No. 11246, as amended, and (6) refrain from entering into any contract with a contractor debarred from government contracts under Part II, Subpart D, of Executive Order No. 11246, as amended. In addition, the participant agrees that if it fails or refuses to comply with these undertakings, the NPS may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant; refrain from extending any further assistance to the applicant under the program with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

E. Conflict of Interests

1. No official or employee of the participant, State, or Federal Government who is authorized in his official capacity to negotiate, make, accept, or approve, or take part in such decisions regarding a contract or subcontract in connection with this project shall have any financial or other personal interest in any such contract or subcontract.

2. No person performing services for the participant in connection with this project shall have a financial or other personal interest other than his employment or retention by the participant, in any contract or subcontract in connection with this project. No officer or employee of such person retained by the participant shall have any financial or other personal interest in any real property acquired for this project unless such interest is openly disclosed upon the public records of the participant, and such officer, employee or person has not participated in the acquisition for or on behalf of the participant.

3. No member of or delegate to Congress shall be admitted to any share or part of this agreement, or to any benefit to arise hereupon, unless such benefit shall be in the form of an agreement made with a corporation for its general benefit.

4. The participant, State, and the Director shall be responsible for enforcing the above conflict of interest provisions.

F. Hatch Act

The participant will comply with the provisions of the Hatch Act which provides that no officer or employee of the participant whose principal employment is in connection with any activity which is financed in whole or in part pursuant to this agreement shall take part in any of the political activity prescribed in the Hatch Political Activity Act, 5 U.S.C. Sec. 118k (1964), with the exceptions therein enumerated.

G. Project Costs

1. Project costs eligible for assistance shall be determined upon the basis of the criteria set forth in the manual and OMB Circular A-87.

2. The agreement may include the use of the indirect cost rate currently approved, in accordance with A-87, for the participant that is a party to this agreement.

H. Project Administration

1. The participant shall promptly submit such reports and documentation as the Director or Liaison Officer may request.

2. Any moneys advanced to the participant are "public moneys" and shall be deposited in a bank with FDIC insurance coverage and the balances exceeding the FDIC coverage shall be collaterally secured as provided for in 12 U.S.C. 265.

3. The participant shall use any funds received by way of advance payment from the State under the terms of this agreement solely for the project or project stage described in the agreement.

4. Properties and facilities acquired or developed with Fund assistance shall be available for inspection by the State or the NPS at such intervals as the Liaison Officer or the Director shall require.

I. Retention and Custodial Requirements for Records

1. Financial records, supporting documents, statistical records, and all other records pertinent to this grant shall be retained for a period of three years; except the records shall be retained beyond the three-year period if audit findings have not been resolved.

2. The retention periods starts from the date of the final expenditure report for the project or the consolidated project element.

3. State and local governments are authorized to substitute microfilm copies in lieu of original records.

4. The Liaison Officer, Secretary of the Interior, and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the participant and their subgrantees which are pertinent to a specific project for the purpose of making audit, examination, excerpts and transcripts.

J. Project Termination

1. The Liaison Officer of the Director may temporarily suspend State assistance under the project pending corrective action by the participant or pending a decision to terminate the grant by the NPS or the State.

2. The participant may unilaterally terminate the project or consolidated project element at any time prior to the first payment on the project or consolidated project element. After the initial payment, the project may be terminated, modified, or amended by the participant only by mutual agreement.

3. The Liaison Officer or the Director may terminate the project in whole, or in part, at any time before the date of completion, whenever it is determined that the grantee has failed to comply with the conditions of the grant. The Liaison Officer or Director will promptly notify the participate in writing of the determination and the reasons for the termination, together with the effective date. Payments made to the participant or recoveries by the State under projects terminated for cause shall be in accord with the legal rights and liabilities of the parties.

4. The Director, State, or participant, may terminate grants in whole, or in part at any time before the date of completion, when both parties agree that the continuation of the project would not produce beneficial results commensurate with the further expenditure of funds. The two parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination conditions, including the effective date and, in the case of partial termination, the portion after the effective date, and shall cancel as many outstanding obligations as possible. The State may allow full credit to the participant for the state share of the noncancellable obligations, properly incurred by the grantee prior to termination.

5. Terminations either for cause or for convenience requires that the project in question be brought to a state of recreational usefulness agreed upon by the participant, the Liaison Officer, or the Director, or that all funds provided by the National Park Service be returned.

K. Fund Acknowledgment

The participant will permanently display in a conspicuous place a bronze plaque which acknowledges Land and Water Conservation Fund assistance. The plaque will be provided by the State Department of Parks and Recreation and its installation by the participant will be required upon initial development of the property.

L. Hold Harmless

The participant shall indemnify the State of California and its officers, agents and employees against and hold the same free and harmless from any and all claims, demands, damages, losses, costs, and/or expenses of liability due to, or arising out of, either in whole or in part, whether directly or indirectly, the organization, development, construction, operation, or maintenance of the project.

M. The participant will comply with the provisions of OMB Circular A-128 establishing audit requirements for state and local governments that receive federal assistance.

STATE OF CALIFORNIA
Department of Parks and Recreation
PROJECT AGREEMENT
Land and Water Conservation Fund Program

Project Title Roeding Park Development

Participant City of Fresno

Project Period 5/14/92 to 6/30/96 Project Number 06-01327

Project Scope: Rehabilitation of picnic areas throughout the 142 acre Roeding Park.

The participant agrees to submit plans and specifications for the proposed development by January 29, 1993.

Stage Covered by this Agreement Complete

Project Cost:

Amount of Total Project Costs Eligible for Federal Funding	$ 100,000	(1)
Surcharge--State Administrative Assessment 6.5 % of Line (1) (subject to adjustment, see Section III.C.2)	$ 6,500	(2)
Total Eligible Project Costs Plus Surcharge (Line 1 plus Line 2)	$ 106,500	(3)
Federal Participation--up to 50% of Line (3), or up to 50% of actual costs, whichever is the lesser, not to exceed:	$ 53,250	(4)
Estimated Payment to Participant Deduct State Administrative Assessment: [Federal Participation (Line 4) Less Surcharge (Line 2), Subject to Adjustment]	$ 46,750	(5)

Continued on are 6 pages numbered 2 through 7 inclusively.

City of Fresno
PARTICIPANT

By Joe Wingfield
Title Director of Parks, Recreation and Community Services
Date 6-17-92

STATE DEPARTMENT OF PARKS AND RECREATION

By

Date

STATE OF CALIFORNIA
Department of Parks and Recreation
PROJECT AGREEMENT
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City of Fresno
PARTICIPANT

By Joe Wingfield
Title Director of Parks, Recreation and Community Services
Date 6-17-92

STATE DEPARTMENT OF PARKS AND RECREATION

By

Date

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A. The participant agrees, as recipient of this assistance, that it will meet the following specific requirements and the terms of the project agreement.

B. The participant agrees that the property described in the project agreement and the dated project boundary map made part of that agreement is being acquired or developed with Land and Water Conservation Fund assistance or is integral so such acquisition or development, and that, without the approval of the Liaison Officer, the Director, and/or the Secretary of the Interior, it shall not be converted to other than public outdoor recreation use but shall be maintained in public outdoor recreation in perpetuity or for the term of the lease in the case of leased property. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location. This replacement land becomes subject to Section 6(f) (3) protection. The approval of conversion shall be at the sole discretion of the Secretary, or his designee. Prior to the completion of this project, the participant, the Liaison Officer, and the Director may mutually alter the area described in the project agreement and the dated project boundary map to provide the most satisfactory public outdoor recreation unit, except that acquired parcels are afforded Section 6(f) (3) protection as Fund reimbursement is provided.

In the event the National Park Service provides Land and Water Conservation Fund assistance for the acquisition and/or development of property subject to reversionary interests with full knowledge of those reversionary interests, conversion of said property to other than public outdoor recreation uses as a result of such reversionary interest being exercised is approved. In receipt of this approval, the participant agrees to notify the State of the conversion as soon as possible and to seek approval of replacement property in accord with the conditions set forth in these provisions. The participant further agrees to effectuate such replacement within a reasonable period of time, acceptable to the State, after the conversion of property takes place. The provisions of this paragraph are also applicable to: leased properties acquired and/or developed with Fund assistance where such lease is terminated prior to its full term due to the existence of provisions in such lease known and agreed to by the State; and properties subject to other outstanding rights and interests that may result in a conversion when known and agreed to by the State.

C. The participant agrees that the benefit to be derived by the State from the full compliance by the participant with the terms of this agreement is the preservation, protection, and the net increase in the quality of public outdoor recreation facilities and resources with are available to the people of the State and of the United States, and such benefit exceeds to an immeasurable and unascertainable extent the amount of money furnished by the State by way of assistance under the terms of this agreement. The participant agrees that payment by the participant to the State of an amount equal to the amount of assistance extended under this agreement by the State would be inadequate compensation to the State for any breach by the participant of this agreement. The participant further agrees, that the appropriate remedy in the event of a breach by the participant of this agreement shall be the specific performance of this agreement.

D. The participant agrees to comply with the policies and procedures set forth in the National Park Service Grants-in-Aid manual. Provisions of said manual are incorporated into and made a part of the project agreement.

E. The participant agrees that the property and facilities described in the project agreement shall be operated and maintained as prescribed by manual requirements.

F. The participant agrees that a permanent record shall be kept in the participant's public property records and available for public inspection to the effect that the property described in the scope of the project agreement, and the dated project boundary map made part of that agreement, has been acquired or developed with Land and Water Conservation Fund assistance and that it cannot be converted to other than public outdoor recreation use without the written approval of the Liaison Officer, the Director, and/or the Secretary of the Interior.

G. Nondiscrimination

1. The participant shall comply with Title VI of the Civil Rights Act of 1964 (P.L.88-352) and in accordance with Title VI of that Act, no person in the United States shall, on the ground of race, religion, color, or national origin, excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of any property or facility acquired or developed pursuant to the project agreement. The participant shall immediately take any measures necessary to effectuate this provision. This assurance shall be binding on the participant or any political subdivision or other appropriate public agency to which Fund assistance or property acquired or developed with Fund assistance has been transferred for public recreation purposes.

2. The participant shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) prohibiting employment discrimination where (1) the primary purpose of a grant is to provide employment or (2) discriminatory employment practices will result in unequal treatment of persons who are or should be benefitting from the grant-aided activity.

3. The participant shall comply with the regulations and guidelines promulgated pursuant to the Civil Rights Act of 1964 by the Secretary of the Interior and the National Park Service.

4. The provisions of the first three paragraphs apply to any part of the recreation system within which the assisted facility or property exists.

5. The participant shall not discriminate against any person on the basis of residence, except to the extent that reasonable differences in admission or other fees may be maintained on the basis of residence as set forth in the manual.

III. Project Assurances

A. Applicable Federal Circulars

The State shall comply with applicable regulations, policies, guidelines and requirements including Office of Management and Budget Circulars No. A-102 (Uniform administrative requirements for grants-in-aid to State and local governments), A-A-87 (Cost principles for State and local governments), and A-128 (Audits of State and local government) as they relate to the application, acceptance and use of Federal funds for this federally assisted project.

B. Project Proposal

1. The project proposal for State assistance bearing the same project number as the agreement and associated documents is by this reference made a part of this agreement.

2. The participant possesses legal authority to apply for the grant, and to finance and construct the proposed facilities. A resolution, motion or similar action has been duly adopted or passed authorizing the filing of the project proposal, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the participant to act in connection with the project proposal and to provide such additional information as may be required.

3. The participant has the ability and intention to finance the non-state share of the costs for the project. Sufficient funds will be available to assure effective operation and maintenance of the facilities acquired or developed by the project.

C. Project Execution

1. It is understood by the parties hereto that this agreement shall not obligate State of California funds for the project costs described herein. The participant hereby promises, in consideration of the promises made by the Liaison Officer herein, to execute the project stage described herein, in accordance with the terms of this agreement. Any disbursement hereunder shall not be made unless and until funds therefor are received by the Liaison Officer from the National Park Service. This item shall not apply when the participant is an agency of the State of California.

2. The Liaison Officer hereby promises, in consideration of the promises made by the participant herein, to accept appropriated federal funds for the purposes of the project and disburse the same to reimburse the participant up to 50 percent of the eligible project cost not to exceed 50 percent of the direct project cost shown in this agreement; except for a surcharge for administrative costs to be applied to twice the federal share of direct eligible project costs. The surcharge is to be deducted from the reimbursements received from the Federal Government applicable to this project and will be computed at the federally approved surcharge rate in effect at the time the billing is submitted to the Federal Government.

3. The project period shall begin with the date of approval of the project agreement or the effective date of a waiver of retroactivity and shall terminate at the end of the stated or amended project period unless the project is completed or terminated sooner in which event the project period shall end on the date of completion or termination. For project elements added to a consolidated project, the project period will begin on the date the project element is approved.

4. The participant will cause work on the project to be commenced within a reasonable time after receipt of notification that funds have been approved and assure that the project will be prosecuted to completion with reasonable diligence.

5. The State will require the facility to be designed to comply with the Architectural Barriers Act of 1968 (Public Law 90-480), and DOI Section 504 Regulations (43 CFR Part 17). The State will be responsible for conducting inspections by the contractor.

6. The participant shall secure completion of the work in accordance with approved construction plans and specifications, and shall secure compliance with all applicable federal, state, local laws and regulations.

7. In the event the project covered by the project agreement, including future stages of the project, cannot be completed in accordance with the plans and specifications for the project; the participant shall bring the project to a point of recreational usefulness agreed upon by the participant and, the Director or his designee, and the Liaison Officer.

8. The participant will provide for and maintain competent and adequate architectural engineering supervision and inspection at the construction site to insure that the completed work conforms with the approved plans and specifications; that it will furnish progress reports and such other information as the NPS may require.

9. The participant will comply with the terms of Title II and Title III, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646), 94 Stat. 1894 (1970), and the applicable regulations and procedures implementing such Act for all real property acquisitions and where applicable shall assure that the Act has been complied with for property to be developed with assistance under the project agreement.

10. The participant will comply with the provisions of: Executive Order 11988, relating to evaluation of flood hazards: Executive Order 11288, relating to the prevention, control, and abatement or water pollution, and Executive Order 11990, relating to the protection of wetlands.

11. The participant will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973, Public Law 93-234, 87 Stat. 975, approved December 31, 1976. Section 102(a) requires, on and after March 2, 1975, the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any federal financial assistance for construction or acquisition purposes for use in any area that has been identified by the Secretary of the Department of Housing and Urban Development as an area having special flood hazards. The phrase "federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect federal assistance.

12. The participant will insure that the facilities under its ownership, lease or supervision which shall be utilized in the accomplishment of the project are not listed on the Environmental Protection Agency's (EPA) list of Violating Facilities, pursuant to 40 CFR, Part 15.20 and that it will notify the State and NPS of the receipt of any Communication from the Director of the EPA Office of Federal Activities indicating that a facility to be utilized in the project is under consideration for listing by the EPA. The participant agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act of 1970. The participant further agrees to insert this clause into any contract or subcontract in excess of $100,000.

13. The participant will assist the State and NPS in its compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 470), Executive Order 11593, and the Archeological and Historic Preservation Act of 1966 (16 U.S.C. 469a-1 et seq.) by (a) consulting with the State Historic Preservation Officer on the conduct of investigations, as necessary, to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are subject to effects (see CFR Part 800.8) by the activity, and notifying the federal grantor agency of the existence of any such properties, and by (b) complying with all requirements established by the federal grantor agency to avoid or mitigate adverse effects upon such properties.

D. Construction Contracted for by the Participant Shall Meet the Following Requirements:

1. Contracts for construction in excess of $10,000 shall be awarded through a process of competitive bidding involving formal advertising, with adequate purchase description, sealed bids, and public openings. Copies of all advertisements, bids, and a copy of the contract shall be retained for inspection by the Director and the State.

2. The participant shall inform all bidders on contracts for construction that federal funds are being used to assist in construction.

3. Written change orders shall be issued for all necessary changes in the facility being constructed under contracts of $10,000 or more. Such change orders shall be made a part of the project file and should be kept available for audit.

4. Contracts for construction shall include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented by Department of Labor regulations (29 CFR, Part 3).

5. The participant will comply with other procurement standards of OMB Circular A-102, Attachment O, except for provisions related to compliance with Davis Bacon Act requirements (unless required by a program providing supplemental funding). Should supplemental funding be provided which requires compliance with Davis Bacon Act requirements, all construction contracts awarded by the grantee and subgrantee in excess of $2,000 shall include a provision for compliance with such Act (40 U.S.C. 276a to a-7) and as supplemented by Department of Labor regulations (29 CFR, Part 5).

6. The participant shall incorporate, or cause to be incorporated, into all construction contracts exceeding $10,000 (ten-thousand), the following provisions:

"During the performance of this contract the contractor agrees as follows:

"(1) The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color or national origin. Such action shall include, but not be limited to, the following: Employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

"(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, or national origin.

"(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 as amended (3 CFR 169 (1974), and shall post copies of notices in conspicuous places available to employees and applicants for employment.

"(4) The contractor will comply with all provisions of Executive Order No. 11246, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor.

"(5) The contractor will furnish all information and reports required by Executive Order No. 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency, the State, and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

"(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order No. 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246, as amended, or by rules, regulations, or orders of the Secretary of Labor, or as otherwise provided by law.

"(7) The contractor will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

7. The participant shall (1) comply with the above provisions in construction work carried out by itself, (2) assist and cooperate actively with the Secretary of the Interior and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the above contract provisions and with the rules, regulations, and relevant orders of the Secretary of Labor, (3) obtain and furnish to the Secretary of the Interior and to the Secretary of Labor such information as they may require for the supervision of such compliance, (4) enforce the obligation of contractors and subcontractors under such provisions, rules, regulations, and orders, (5) carry out sanctions and penalties for violation of such obligations imposed upon contractors and subcontractors by the State, or the Secretary of Labor, or the Secretary of the Interior pursuant to Part II, Subpart D, of Executive Order No. 11246, as amended, and (6) refrain from entering into any contract with a contractor debarred from government contracts under Part II, Subpart D, of Executive Order No. 11246, as amended. In addition, the participant agrees that if it fails or refuses to comply with these undertakings, the NPS may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant; refrain from extending any further assistance to the applicant under the program with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

E. Conflict of Interests

1. No official or employee of the participant, State, or Federal Government who is authorized in his official capacity to negotiate, make, accept, or approve, or take part in such decisions regarding a contract or subcontract in connection with this project shall have any financial or other personal interest in any such contract or subcontract.

2. No person performing services for the participant in connection with this project shall have a financial or other personal interest other than his employment or retention by the participant, in any contract or subcontract in connection with this project. No officer or employee of such person retained by the participant shall have any financial or other personal interest in any real property acquired for this project unless such interest is openly disclosed upon the public records of the participant, and such officer, employee or person has not participated in the acquisition for or on behalf of the participant.

3. No member of or delegate to Congress shall be admitted to any share or part of this agreement, or to any benefit to arise hereupon, unless such benefit shall be in the form of an agreement made with a corporation for its general benefit.

4. The participant, State, and the Director shall be responsible for enforcing the above conflict of interest provisions.

F. Hatch Act

The participant will comply with the provisions of the Hatch Act which provides that no officer or employee of the participant whose principal employment is in connection with any activity which is financed in whole or in part pursuant to this agreement shall take part in any of the political activity prescribed in the Hatch Political Activity Act, 5 U.S.C. Sec. 118k (1964), with the exceptions therein enumerated.

G. Project Costs

1. Project costs eligible for assistance shall be determined upon the basis of the criteria set forth in the manual and OMB Circular A-87.

2. The agreement may include the use of the indirect cost rate currently approved, in accordance with A-87, for the participant that is a party to this agreement.

H. Project Administration

1. The participant shall promptly submit such reports and documentation as the Director or Liaison Officer may request.

2. Any moneys advanced to the participant are "public moneys" and shall be deposited in a bank with FDIC insurance coverage and the balances exceeding the FDIC coverage shall be collaterally secured as provided for in 12 U.S.C. 265.

3. The participant shall use any funds received by way of advance payment from the State under the terms of this agreement solely for the project or project stage described in the agreement.

4. Properties and facilities acquired or developed with Fund assistance shall be available for inspection by the State or the NPS at such intervals as the Liaison Officer or the Director shall require.

I. Retention and Custodial Requirements for Records

1. Financial records, supporting documents, statistical records, and all other records pertinent to this grant shall be retained for a period of three years; except the records shall be retained beyond the three-year period if audit findings have not been resolved.

2. The retention periods starts from the date of the final expenditure report for the project or the consolidated project element.

3. State and local governments are authorized to substitute microfilm copies in lieu of original records.

4. The Liaison Officer, Secretary of the Interior, and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the participant and their subgrantees which are pertinent to a specific project for the purpose of making audit, examination, excerpts and transcripts.

J. Project Termination

1. The Liaison Officer of the Director may temporarily suspend State assistance under the project pending corrective action by the participant or pending a decision to terminate the grant by the NPS or the State.

2. The participant may unilaterally terminate the project or consolidated project element at any time prior to the first payment on the project or consolidated project element. After the initial payment, the project may be terminated, modified, or amended by the participant only by mutual agreement.

3. The Liaison Officer or the Director may terminate the project in whole, or in part, at any time before the date of completion, whenever it is determined that the grantee has failed to comply with the conditions of the grant. The Liaison Officer or Director will promptly notify the participate in writing of the determination and the reasons for the termination, together with the effective date. Payments made to the participant or recoveries by the State under projects terminated for cause shall be in accord with the legal rights and liabilities of the parties.

4. The Director, State, or participant, may terminate grants in whole, or in part at any time before the date of completion, when both parties agree that the continuation of the project would not produce beneficial results commensurate with the further expenditure of funds. The two parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination conditions, including the effective date and, in the case of partial termination, the portion after the effective date, and shall cancel as many outstanding obligations as possible. The State may allow full credit to the participant for the state share of the noncancellable obligations, properly incurred by the grantee prior to termination.

5. Terminations either for cause or for convenience requires that the project in question be brought to a state of recreational usefulness agreed upon by the participant, the Liaison Officer, or the Director, or that all funds provided by the National Park Service be returned.

K. Fund Acknowledgment

The participant will permanently display in a conspicuous place a bronze plaque which acknowledges Land and Water Conservation Fund assistance. The plaque will be provided by the State Department of Parks and Recreation and its installation by the participant will be required upon initial development of the property.

L. Hold Harmless

The participant shall indemnify the State of California and its officers, agents and employees against and hold the same free and harmless from any and all claims, demands, damages, losses, costs, and/or expenses of liability due to, or arising out of, either in whole or in part, whether directly or indirectly, the organization, development, construction, operation, or maintenance of the project.

M. The participant will comply with the provisions of OMB Circular A-128 establishing audit requirements for state and local governments that receive federal assistance.

STATE OF CALIFORNIA
Department of Parks and Recreation
PROJECT AGREEMENT
Land and Water Conservation Fund Program

Project Title Roeding Park Development

Participant City of Fresno

Project Period 5/14/92 to 6/30/96 Project Number 06-01327

Project Scope: Rehabilitation of picnic areas throughout the 142 acre Roeding Park.

The participant agrees to submit plans and specifications for the proposed development by January 29, 1993.

Stage Covered by this Agreement Complete

Project Cost:

Amount of Total Project Costs Eligible for Federal Funding	$ 100,000	(1)
Surcharge--State Administrative Assessment 6.5 % of Line (1) (subject to adjustment, see Section III.C.2)	$ 6,500	(2)
Total Eligible Project Costs Plus Surcharge (Line 1 plus Line 2)	$ 106,500	(3)
Federal Participation--up to 50% of Line (3), or up to 50% of actual costs, whichever is the lesser, not to exceed:	$ 53,250	(4)
Estimated Payment to Participant Deduct State Administrative Assessment: [Federal Participation (Line 4) Less Surcharge (Line 2), Subject to Adjustment]	$ 46,750	(5)

Continued on are 6 pages numbered 2 through 7 inclusively.

City of Fresno
PARTICIPANT

By Jim Wingfield
Title Director of Parks, Recreation and Community Services
Date 6-17-92

STATE DEPARTMENT OF PARKS AND RECREATION

By

Date

LAND AND WATER CONSERVATION FUND PROJECT AGREEMENT

I. Definitions

A. The term "NPS" as used herein means the National Park Service, United States Department of the Interior.

B. The term "Director" as used herein means the Director of the National Park Service, or any representative lawfully delegated the authority to act for such Director.

C. The term "Liaison Officer" as used herein means the California Director of Parks and Recreation, or other State officer as designated by the Governor from time to time and authorized by the State Legislature.

D. The term "Manual" as used herein means the National Park Service Manual, formerly the Bureau of Outdoor Recreation Manual (Outdoor Recreation Grants-in-Aid Manual).

E. The term "Project" as used herein means the project or project segment which is the subject of this agreement as defined in the Project Proposal.

F. The term "Project Proposal" as used herein means the form and all supplemental attachments used to describe and estimate the cost of planning, acquisition, or development project filed with the Liaison Officer in support of an application for federal financial assistance.

G. The term "State" as used herein means the State of California, and/or its official representative, the Department of Parks and Recreation.

H. The term "Participant" as used herein means the recipient of the federal funds to be disbursed in accordance with the terms of this agreement.

I. The term "State Funds" as used herein means those moneys made available by the State as matching money for projects under the Land and Water Conservation Fund Act of 1965, 78 Stat. 897 (1964).

J. The term "Leased Land" or "Lease" as used herein means land leased from the Federal Government.

II. Continuing Assurances

The parties to the project agreement specifically recognize that the Land and Water Conservation Fund assistance project creates an obligation to maintain the property described in the project agreement consistent with the Land and Water Conservation Fund Act and the following requirements.

Further, it is acknowledged intent of the parties hereto that recipients of assistance will use moneys granted hereunder for the purposes of this program, and that assistance granted from the Fund will result in a net increase, commensurate at least with the State cost-share, in a participant's outdoor recreation. It is intended by both parties hereto that assistance from the Fund will be added to, rather than replace or be substituted for, State and local outdoor recreation funds.

A. The participant agrees, as recipient of this assistance, that it will meet the following specific requirements and the terms of the project agreement.

B. The participant agrees that the property described in the project agreement and the dated project boundary map made part of that agreement is being acquired or developed with Land and Water Conservation Fund assistance or is integral so such acquisition or development, and that, without the approval of the Liaison Officer, the Director, and/or the Secretary of the Interior, it shall not be converted to other than public outdoor recreation use but shall be maintained in public outdoor recreation in perpetuity or for the term of the lease in the case of leased property. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location. This replacement land becomes subject to Section 6(f) (3) protection. The approval of conversion shall be at the sole discretion of the Secretary, or his designee. Prior to the completion of this project, the participant, the Liaison Officer, and the Director may mutually alter the area described in the project agreement and the dated project boundary map to provide the most satisfactory public outdoor recreation unit, except that acquired parcels are afforded Section 6(f) (3) protection as Fund reimbursement is provided.

In the event the National Park Service provides Land and Water Conservation Fund assistance for the acquisition and/or development of property subject to reversionary interests with full knowledge of those reversionary interests, conversion of said property to other than public outdoor recreation uses as a result of such reversionary interest being exercised is approved. In receipt of this approval, the participant agrees to notify the State of the conversion as soon as possible and to seek approval of replacement property in accord with the conditions set forth in these provisions. The participant further agrees to effectuate such replacement within a reasonable period of time, acceptable to the State, after the conversion of property takes place. The provisions of this paragraph are also applicable to: leased properties acquired and/or developed with Fund assistance where such lease is terminated prior to its full term due to the existence of provisions in such lease known and agreed to by the State; and properties subject to other outstanding rights and interests that may result in a conversion when known and agreed to by the State.

C. The participant agrees that the benefit to be derived by the State from the full compliance by the participant with the terms of this agreement is the preservation, protection, and the net increase in the quality of public outdoor recreation facilities and resources with are available to the people of the State and of the United States, and such benefit exceeds to an immeasurable and unascertainable extent the amount of money furnished by the State by way of assistance under the terms of this agreement. The participant agrees that payment by the participant to the State of an amount equal to the amount of assistance extended under this agreement by the State would be inadequate compensation to the State for any breach by the participant of this agreement. The participant further agrees, that the appropriate remedy in the event of a breach by the participant of this agreement shall be the specific performance of this agreement.

D. The participant agrees to comply with the policies and procedures set forth in the National Park Service Grants-in-Aid manual. Provisions of said manual are incorporated into and made a part of the project agreement.

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F. The participant agrees that a permanent record shall be kept in the participant's public property records and available for public inspection to the effect that the property described in the scope of the project agreement, and the dated project boundary map made part of that agreement, has been acquired or developed with Land and Water Conservation Fund assistance and that it cannot be converted to other than public outdoor recreation use without the written approval of the Liaison Officer, the Director, and/or the Secretary of the Interior.

G. Nondiscrimination

1. The participant shall comply with Title VI of the Civil Rights Act of 1964 (P.L.88-352) and in accordance with Title VI of that Act, no person in the United States shall, on the ground of race, religion, color, or national origin, excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of any property or facility acquired or developed pursuant to the project agreement. The participant shall immediately take any measures necessary to effectuate this provision. This assurance shall be binding on the participant or any political subdivision or other appropriate public agency to which Fund assistance or property acquired or developed with Fund assistance has been transferred for public recreation purposes.

2. The participant shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) prohibiting employment discrimination where (1) the primary purpose of a grant is to provide employment or (2) discriminatory employment practices will result in unequal treatment of persons who are or should be benefitting from the grant-aided activity.

3. The participant shall comply with the regulations and guidelines promulgated pursuant to the Civil Rights Act of 1964 by the Secretary of the Interior and the National Park Service.

4. The provisions of the first three paragraphs apply to any part of the recreation system within which the assisted facility or property exists.

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III. Project Assurances

A. Applicable Federal Circulars

The State shall comply with applicable regulations, policies, guidelines and requirements including Office of Management and Budget Circulars No. A-102 (Uniform administrative requirements for grants-in-aid to State and local governments), A-A-87 (Cost principles for State and local governments), and A-128 (Audits of State and local government) as they relate to the application, acceptance and use of Federal funds for this federally assisted project.

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1. The project proposal for State assistance bearing the same project number as the agreement and associated documents is by this reference made a part of this agreement.

2. The participant possesses legal authority to apply for the grant, and to finance and construct the proposed facilities. A resolution, motion or similar action has been duly adopted or passed authorizing the filing of the project proposal, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the participant to act in connection with the project proposal and to provide such additional information as may be required.

3. The participant has the ability and intention to finance the non-state share of the costs for the project. Sufficient funds will be available to assure effective operation and maintenance of the facilities acquired or developed by the project.

C. Project Execution

1. It is understood by the parties hereto that this agreement shall not obligate State of California funds for the project costs described herein. The participant hereby promises, in consideration of the promises made by the Liaison Officer herein, to execute the project stage described herein, in accordance with the terms of this agreement. Any disbursement hereunder shall not be made unless and until funds therefor are received by the Liaison Officer from the National Park Service. This item shall not apply when the participant is an agency of the State of California.

2. The Liaison Officer hereby promises, in consideration of the promises made by the participant herein, to accept appropriated federal funds for the purposes of the project and disburse the same to reimburse the participant up to 50 percent of the eligible project cost not to exceed 50 percent of the direct project cost shown in this agreement; except for a surcharge for administrative costs to be applied to twice the federal share of direct eligible project costs. The surcharge is to be deducted from the reimbursements received from the Federal Government applicable to this project and will be computed at the federally approved surcharge rate in effect at the time the billing is submitted to the Federal Government.

3. The project period shall begin with the date of approval of the project agreement or the effective date of a waiver of retroactivity and shall terminate at the end of the stated or amended project period unless the project is completed or terminated sooner in which event the project period shall end on the date of completion or termination. For project elements added to a consolidated project, the project period will begin on the date the project element is approved.

4. The participant will cause work on the project to be commenced within a reasonable time after receipt of notification that funds have been approved and assure that the project will be prosecuted to completion with reasonable diligence.

5. The State will require the facility to be designed to comply with the Architectural Barriers Act of 1968 (Public Law 90-480), and DOI Section 504 Regulations (43 CFR Part 17). The State will be responsible for conducting inspections by the contractor.

6. The participant shall secure completion of the work in accordance with approved construction plans and specifications, and shall secure compliance with all applicable federal, state, local laws and regulations.

7. In the event the project covered by the project agreement, including future stages of the project, cannot be completed in accordance with the plans and specifications for the project; the participant shall bring the project to a point of recreational usefulness agreed upon by the participant and, the Director or his designee, and the Liaison Officer.

8. The participant will provide for and maintain competent and adequate architectural engineering supervision and inspection at the construction site to insure that the completed work conforms with the approved plans and specifications; that it will furnish progress reports and such other information as the NPS may require.

9. The participant will comply with the terms of Title II and Title III, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646), 94 Stat. 1894 (1970), and the applicable regulations and procedures implementing such Act for all real property acquisitions and where applicable shall assure that the Act has been complied with for property to be developed with assistance under the project agreement.

10. The participant will comply with the provisions of: Executive Order 11988, relating to evaluation of flood hazards: Executive Order 11288, relating to the prevention, control, and abatement or water pollution, and Executive Order 11990, relating to the protection of wetlands.

11. The participant will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973, Public Law 93-234, 87 Stat. 975, approved December 31, 1976. Section 102(a) requires, on and after March 2, 1975, the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any federal financial assistance for construction or acquisition purposes for use in any area that has been identified by the Secretary of the Department of Housing and Urban Development as an area having special flood hazards. The phrase "federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect federal assistance.

12. The participant will insure that the facilities under its ownership, lease or supervision which shall be utilized in the accomplishment of the project are not listed on the Environmental Protection Agency's (EPA) list of Violating Facilities, pursuant to 40 CFR, Part 15.20 and that it will notify the State and NPS of the receipt of any Communication from the Director of the EPA Office of Federal Activities indicating that a facility to be utilized in the project is under consideration for listing by the EPA. The participant agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act of 1970. The participant further agrees to insert this clause into any contract or subcontract in excess of $100,000.

13. The participant will assist the State and NPS in its compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 470), Executive Order 11593, and the Archeological and Historic Preservation Act of 1966 (16 U.S.C. 469a-1 et seq.) by (a) consulting with the State Historic Preservation Officer on the conduct of investigations, as necessary, to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are subject to effects (see CFR Part 800.8) by the activity, and notifying the federal grantor agency of the existence of any such properties, and by (b) complying with all requirements established by the federal grantor agency to avoid or mitigate adverse effects upon such properties.

D. Construction Contracted for by the Participant Shall Meet the Following Requirements:

1. Contracts for construction in excess of $10,000 shall be awarded through a process of competitive bidding involving formal advertising, with adequate purchase description, sealed bids, and public openings. Copies of all advertisements, bids, and a copy of the contract shall be retained for inspection by the Director and the State.

2. The participant shall inform all bidders on contracts for construction that federal funds are being used to assist in construction.

3. Written change orders shall be issued for all necessary changes in the facility being constructed under contracts of $10,000 or more. Such change orders shall be made a part of the project file and should be kept available for audit.

4. Contracts for construction shall include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented by Department of Labor regulations (29 CFR, Part 3).

5. The participant will comply with other procurement standards of OMB Circular A-102, Attachment O, except for provisions related to compliance with Davis Bacon Act requirements (unless required by a program providing supplemental funding). Should supplemental funding be provided which requires compliance with Davis Bacon Act requirements, all construction contracts awarded by the grantee and subgrantee in excess of $2,000 shall include a provision for compliance with such Act (40 U.S.C. 276a to a-7) and as supplemented by Department of Labor regulations (29 CFR, Part 5).

6. The participant shall incorporate, or cause to be incorporated, into all construction contracts exceeding $10,000 (ten-thousand), the following provisions:

   "During the performance of this contract the contractor agrees as follows:

   "(1) The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color or national origin. Such action shall include, but not be limited to, the following: Employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

   "(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, or national origin.

   "(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 as amended (3 CFR 169 (1974), and shall post copies of notices in conspicuous places available to employees and applicants for employment.

   "(4) The contractor will comply with all provisions of Executive Order No. 11246, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor.

   "(5) The contractor will furnish all information and reports required by Executive Order No, 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency, the State, and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

   "(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order No. 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246, as amended, or by rules, regulations, or orders of the Secretary of Labor, or as otherwise provided by law.

   "(7) The contractor will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

7. The participant shall (1) comply with the above provisions in construction work carried out by itself, (2) assist and cooperate actively with the Secretary of the Interior and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the above contract provisions and with the rules, regulations, and relevant orders of the Secretary of Labor, (3) obtain and furnish to the Secretary of the Interior and to the Secretary of Labor such information as they may require for the supervision of such compliance, (4) enforce the obligation of contractors and subcontractors under such provisions, rules, regulations, and orders, (5) carry out sanctions and penalties for violation of such obligations imposed upon contractors and subcontractors by the State, or the Secretary of Labor, or the Secretary of the Interior pursuant to Part II, Subpart D, of Executive Order No. 11246, as amended, and (6) refrain from entering into any contract with a contractor debarred from government contracts under Part II, Subpart D, of Executive Order No. 11246, as amended. In addition, the participant agrees that if it fails or refuses to comply with these undertakings, the NPS may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant; refrain from extending any further assistance to the applicant under the program with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

E. Conflict of Interests

1. No official or employee of the participant, State, or Federal Government who is authorized in his official capacity to negotiate, make, accept, or approve, or take part in such decisions regarding a contract or subcontract in connection with this project shall have any financial or other personal interest in any such contract or subcontract.

2. No person performing services for the participant in connection with this project shall have a financial or other personal interest other than his employment or retention by the participant, in any contract or subcontract in connection with this project. No officer or employee of such person retained by the participant shall have any financial or other personal interest in any real property acquired for this project unless such interest is openly disclosed upon the public records of the participant, and such officer, employee or person has not participated in the acquisition for or on behalf of the participant.

3. No member of or delegate to Congress shall be admitted to any share or part of this agreement, or to any benefit to arise hereupon, unless such benefit shall be in the form of an agreement made with a corporation for its general benefit.

4. The participant, State, and the Director shall be responsible for enforcing the above conflict of interest provisions.

F. Hatch Act

The participant will comply with the provisions of the Hatch Act which provides that no officer or employee of the participant whose principal employment is in connection with any activity which is financed in whole or in part pursuant to this agreement shall take part in any of the political activity prescribed in the Hatch Political Activity Act, 5 U.S.C. Sec. 118k (1964), with the exceptions therein enumerated.

G. Project Costs

1. Project costs eligible for assistance shall be determined upon the basis of the criteria set forth in the manual and OMB Circular A-87.

2. The agreement may include the use of the indirect cost rate currently approved, in accordance with A-87, for the participant that is a party to this agreement.

H. Project Administration

1. The participant shall promptly submit such reports and documentation as the Director or Liaison Officer may request.

2. Any moneys advanced to the participant are "public moneys" and shall be deposited in a bank with FDIC insurance coverage and the balances exceeding the FDIC coverage shall be collaterally secured as provided for in 12 U.S.C. 265.

3. The participant shall use any funds received by way of advance payment from the State under the terms of this agreement solely for the project or project stage described in the agreement.

4. Properties and facilities acquired or developed with Fund assistance shall be available for inspection by the State or the NPS at such intervals as the Liaison Officer or the Director shall require.

I. Retention and Custodial Requirements for Records

1. Financial records, supporting documents, statistical records, and all other records pertinent to this grant shall be retained for a period of three years; except the records shall be retained beyond the three-year period if audit findings have not been resolved.

2. The retention periods starts from the date of the final expenditure report for the project or the consolidated project element.

3. State and local governments are authorized to substitute microfilm copies in lieu of original records.

4. The Liaison Officer, Secretary of the Interior, and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the participant and their subgrantees which are pertinent to a specific project for the purpose of making audit, examination, excerpts and transcripts.

J. Project Termination

1. The Liaison Officer of the Director may temporarily suspend State assistance under the project pending corrective action by the participant or pending a decision to terminate the grant by the NPS or the State.

2. The participant may unilaterally terminate the project or consolidated project element at any time prior to the first payment on the project or consolidated project element. After the initial payment, the project may be terminated, modified, or amended by the participant only by mutual agreement.

3. The Liaison Officer or the Director may terminate the project in whole, or in part, at any time before the date of completion, whenever it is determined that the grantee has failed to comply with the conditions of the grant. The Liaison Officer or Director will promptly notify the participate in writing of the determination and the reasons for the termination, together with the effective date. Payments made to the participant or recoveries by the State under projects terminated for cause shall be in accord with the legal rights and liabilities of the parties.

4. The Director, State, or participant, may terminate grants in whole, or in part at any time before the date of completion, when both parties agree that the continuation of the project would not produce beneficial results commensurate with the further expenditure of funds. The two parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination conditions, including the effective date and, in the case of partial termination, the portion after the effective date, and shall cancel as many outstanding obligations as possible. The State may allow full credit to the participant for the state share of the noncancellable obligations, properly incurred by the grantee prior to termination.

5. Terminations either for cause or for convenience requires that the project in question be brought to a state of recreational usefulness agreed upon by the participant, the Liaison Officer, or the Director, or that all funds provided by the National Park Service be returned.

K. Fund Acknowledgment

The participant will permanently display in a conspicuous place a bronze plaque which acknowledges Land and Water Conservation Fund assistance. The plaque will be provided by the State Department of Parks and Recreation and its installation by the participant will be required upon initial development of the property.

L. Hold Harmless

The participant shall indemnify the State of California and its officers, agents and employees against and hold the same free and harmless from any and all claims, demands, damages, losses, costs, and/or expenses of liability due to, or arising out of, either in whole or in part, whether directly or indirectly, the organization, development, construction, operation, or maintenance of the project.

M. The participant will comply with the provisions of OMB Circular A-128 establishing audit requirements for state and local governments that receive federal assistance.

City of
FRESNO

Parks, Recreation and Community
Services Department

Administration Division • 209-488-1145
1900 Mariposa Mall, Suite 202 • Fresno, California 93721

Joe Wingfield
Director

April 28, 1992

Steade R. Craigo, AIA
Acting State Historic
Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
Post Office Box 942896
Sacramento, California 94296-0001

Dear Mr. Craigo:

SUBJECT: YOUR REFERENCE NPS920319W
LWCF GRANT, ROEDING PARK

The City of Fresno was recently notified by the State Department of Parks and Recreation that a LWCF grant applicant for $100,000 (50% local match) was approved for replacing approximately 59 six, eight, and ten-foot picnic tables and benches; five serving tables; and six barbecues at existing picnic groves, along with approximately 48 tables and benches scattered throughout the park.

The new tables, benches, and serving tables will be constructed of metal covered with a PVC plastic material and secured to cement slabs. The new barbecues will be cast iron installed on cement foundations.

Roeding Park was constructed and opened to the public in 1929 and since then the tables/benches, serving tables, and barbecues have been repaired, reconditioned and/or replaced as needed. This project will not displace any existing structures or excavate beyond the depth of five inches into the ground for purpose of constructing the foundations for tables, benches, and barbecues. If in the process of excavation any potential cultural resources are identified, work would cease and the State Historic Preservation Office notified immediately.

If I may provide additional information, please call me at (209) 488-1145.

Sincerely,

Joe Wingfield

Joe Wingfield
Director

jk
ADM870
c: Rudy Castillo
Keith Steinhardt

FILE COPY

City of
FRESNO

Parks, Recreation and Community
Services Department

Administration Division • 209-488-1145
1900 Mariposa Mall, Suite 202 • Fresno, California 93721

Joe Wingfield
Director

April 28, 1992

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Sincerely,

Joe Wingfield

Joe Wingfield
Director

jk
ADM870
c: Rudy Castillo
Keith Steinhardt

City of
FRESNO

Parks, Recreation and Community
Services Department

Administration Division • 209-488-1145
1900 Mariposa Mall, Suite 202 • Fresno, California 93721

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April 28, 1992

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If I may provide additional information, please call me at (209) 488-1145.

Sincerely,

Joe Wingfield

Joe Wingfield
Director

jk
ADM870
c: Rudy Castillo
Keith Steinhardt

READING COPY

TO COUNCIL FOR INFORMATION
Date 4-20-92 By MAB

City of
FRESNO

PARKS, RECREATION AND COMMUNITY SERVICES DEPARTMENT

RECEIVED
APR 23 1992
PARKS & RECREATION

DATE: April 14, 1992

TO: MICHAEL A BIERMAN, City Manager

FROM: JOE WINGFIELD, Director

SUBJECT: APPROVAL OF LAND AND WATER CONSERVATION FUND PROGRAM GRANT FOR REPLACEMENT OF ROEDING PARK PICNIC TABLES, BENCHES, AND BARBECUES; AND URBAN PARK AND RECREATION RECOVERY PROGRAM GRANT FOR SUMMER YOUTH PROGRAM

On December 3, 1991 the City Council authorized submittal of a $100,000 Land and Water Conservation Fund Program (LWCF) grant application to the State Parks and Recreation Department to replace all the old picnic tables at Roeding Park.. The LWCF program requires the grant recipient to provide a 50% local match. The FY 92 Department budget includes $50,000 for this purpose.

The City was recently notified that the grant proposal was selected for funding in FY 92 and that the City can proceed with the project. A total of 59 six-, eight-, and ten-foot picnic table and benches, five serving tables and six barbecues will be replaced at the picnic groves along with 48 tables and benches scattered throughout the park. Access for the disabled will be provided where topography and design permit.

Also a grant application for $50,000 was submitted to United States Department of the Interior, Urban Park and Recreation Recovery (UPARR) program Innovation Grants to fund a juvenile delinquency prevention effort in cooperation with the Police Department. The program would include a Police Athletic League, parental involvement for support of activities, and a community service component to involve youth in neighborhood clean-up and cultural/self-esteem building activities. The program will target the residents living in the neighborhoods around Romain and Frank H. Ball Playgrounds.

The Mayor's Office was recently notified that the City was selected to receive the Innovative Grant in the amount of $50,000 as requested. Before funds can be expended, a full grant application must be submitted and subsequent execution of a contract. The project should begin operations in mid-June to coincide with the beginning of summer vacation.

js
117RCPT

Attachment

c: James Katen

United States Department of the Interior

NATIONAL PARK SERVICE
P.O. Box 37127
Washington, D.C. 20013-7127

TAKE PRIDE IN AMERICA

9 APR 1992

IN REPLY REFER TO:

L3217(784)

RECEIVED

'92 APR 13 P4:20

MAYOR/CITY COUNCIL
CITY OF FRESNO

The Honorable Karen Humphrey
Mayor of Fresno
2326 Fresno St.
Fresno, CA 93721

Dear Mayor Humphrey:

I am happy to inform you that the city of Fresno has been selected to receive an Innovation grant offer in the amount of $50,000 under the Urban Park and Recreation Recovery (UPARR) program.

Through your Recovery Action Program and the acceptance of this grant offer, you are committing your jurisdiction to the continued revitalization of its recreation resources and programs. This includes the obligation to maintain public outlays for parks and recreation in accordance with the local commitment provisions of the UPARR Act. Following through on those commitments will accomplish the major objective of the UPARR program which is to stimulate increased community support for cost-effective programs that meet the most pressing recreation needs of your citizens.

Our Regional Office will contact you in the near future to work out the details of the actual grant agreement and contract.

I extend my congratulations on this grant offer, and my best wishes for the success of your continuing recreation revitalization efforts.

Sincerely,

James M Ridenour

James M. Ridenour
Director

City of
FRESNO

Parks, Recreation and Community
Services Department

Administration Division • 209-488-1145
1900 Mariposa Mall, Suite 202 • Fresno, California 93721

Joe Wingfield
Director

December 17, 1991

Keith M. Steinhart, Project Officer
State of California
Department of Parks and Recreation
Post Office Box 942896
Sacramento, California 94296-0001

Dear Mr. Steinhart:

SUBJECT: ROEDING PARK PICNIC TABLE/BENCH
REPLACEMENT PROJECT

Please find enclosed the City of Fresno's FY 92 Land and Water Conservation Fund (LWCF) Program application for grant assistance to replace picnic tables, benches, serving tables, and barbecues at Roeding Park.

The project is being resubmitted from FY 91 with minor changes to the application narrative and budget. The project scope remains the same. Also enclosed are two (2) completed copies of the LWCF Application Form, a Council Resolution approving application for FY 92, and a completed Addendum to CEQA.

Sincerely,

LeRoy Milavich
Management Analyst III

jk
ADM590

Enclosures

c: Joe Wingfield
Rudy Castillo

LAND AND WATER CONSERVATION FUND PROGRAM APPLICATION

This Form and Required Attachments Must Be Submitted for Each Project Site

TYPE OF PROJECT *(check one below)*

☐ Acquisition
☐ Development

PROJECT NAME	AMOUNT OF GRANT REQUESTED
Roeding Park Picnic Table and Barbecue Replacement	$50,000
	ESTIMATED TOTAL PROJECT COST: $100,000

GRANT APPLICANT *(Agency and address-incl. zip code)*	COUNTY	NEAREST CITY
Fresno City Parks, Recreation and Community Services Department 1900 Mariposa Mall, Suite 202 Fresno, California 93721	Fresno	Fresno
	PROJECT ADDRESS: 890 West Belmont, Fresno, California	
	NEAREST CROSS STREET: Belmont Avenue & Highway 99	

CONGRESSIONAL DIST. NO.	SENATE DIST. NO.	ASSEMBLY DIST. NO.
18	15	32

Grant Applicant's Representative Authorized in Resolution

Name *(type)*	Title	Phone
Joe Wingfield *Joe Wingfield*	Director	(209) 488-1145

Person with day-to-day responsibility for project *(if different from authorized representative)*

Name *(type)*	Title	Phone
LeRoy Milavich (Grant Administration)	Management Analyst	(209) 488-1145
Rudy Castillo (Project Administration)	Parks Manager	(209) 488-1551

Brief description of project

The project will replace 59 six, eight and ten-foot picnic tables and benches, 5 serving tables, and 6 barbecues at 4 picnic groves in Roeding Park, as well as 48 tables and benches scattered throughout the park. The project will provide handicapped accessibility to groves previously not accessible, as existing tables are not suited for use with wheelchairs. The project will also provide concrete slab base in lieu of dirt surface.

For Dev. projects Land Tenure — Project is: 157 acres:

X Acres owned in fee simple by Grant Applicant

____ Acres available under a ____ year lease

____ Acres other interest *(explain)* ____

For Acquisition projects Projects land will be ____ acres

____ Acquired in fee simple by Grant Applicant

____ Acquired in other than fee simple *(explain)* ____

I certify that the information contained in this project application form, including required attachments, is accurate and that this project is consistent with the park and recreation element of the applicable city or county general plan or the district park and recreation plan and will satisfy a high priority need.

Signed ____ Grant Applicant's Authorized Representative as shown in Resolution ____ Date

DPR 823 (1/89) (over)

LAND AND WATER CONSERVATION FUND PROGRAM APPLICATION

This Form and Required Attachments Must Be Submitted for Each Project Site

TYPE OF PROJECT *(check one below)*

☐ Acquisition
☐ Development

PROJECT NAME	AMOUNT OF GRANT REQUESTED
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	ESTIMATED TOTAL PROJECT COST: $100,000

GRANT APPLICANT *(Agency and address-incl. zip code)*	COUNTY	NEAREST CITY
Fresno City Parks, Recreation and Community Services Department 1900 Mariposa Mall, Suite 202 Fresno, California 93721	Fresno	Fresno
	PROJECT ADDRESS: 890 West Belmont, Fresno, California	
	NEAREST CROSS STREET: Belmont Avenue & Highway 99	

CONGRESSIONAL DIST. NO.	SENATE DIST. NO.	ASSEMBLY DIST. NO.
18	15	32

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Name *(type)*	Title	Phone
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Person with day-to-day responsibility for project *(if different from authorized representative)*

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Signed ____ Grant Applicant's Authorized Representative as shown in Resolution ____ Date

RESOLUTION NO. 91-478

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, APPROVING THE APPLICATION FOR LAND AND WATER CONSERVATION FUND PROGRAM TO REPLACE PICNIC TABLES, BENCHES, SERVING TABLES, AND BARBECUES AT ROEDING PARK

WHEREAS, the Congress under Public Law 88-578 has authorized the establishment of a Federal Land and Water Conservation Fund Grant-In-Aid Program, providing matching funds to the State of California and its political subdivisions for acquiring lands and developing facilities for public outdoor recreation purposes; and

WHEREAS, the State Department of Parks and Recreation is responsible for the administration of the program within the State, setting up necessary rules and procedures governing application by local agencies under the program; and

WHEREAS, said adopted procedures established by the State Department of Parks and Recreation require the applicant to certify by resolution the approval of applications and the availability of local matching funds prior to submission of said applications to the State; and

WHEREAS, the proposed Roeding Park Picnic Table/Bench Replacement Project is consistent with the Statewide Comprehensive Recreation Resources Plan: California Outdoor Recreation Plan - 1988; and

WHEREAS, the project must be compatible with the land use plans of those jurisdictions immediately surrounding the project.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby:

PASSED 12/3/91
EFFECTIVE

91-478

1. Approves the filing of an application for Land and Water Conservation Fund assistance; and
2. Certifies that said agency has matching funds from the General Fund or the Community Development Block Grant Program and can finance 100 percent of the project, half of which will be reimbursed; and
3. Certifies that the project is compatible with the land use plans of those jurisdictions immediately surrounding the project; and
4. Appoints the Director of Parks, Recreation and Community Services Department, or his representative designee, as agent of the City to conduct all negotiations, execute, and submit all documents including but not limited to applications, agreements, amendments, billing statements, and so on which may be necessary for the completion of the aforementioned project.

* * * * * * * *

CLERK'S CERTIFICATE

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno certify that the foregoing Resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the 3rd day of December, 1991.

JACQUELINE L. RYLE
City Clerk

By Cindy Hamby
Deputy

APPROVED AS TO FORM
CITY ATTORNEY'S OFFICE
BY: [signature]
DEPUTY

ADM356/197P
4-12-91

City of Fresno
Parks, Recreation and Community Services Department

ROEDING PARK PICNIC/BENCH REPLACEMENT PROJECT

Construction Cost Estimate

Picnic Tables/Benches	$ 63,700
Serving Tables	3,000
Barbecues	1,800
Concrete Pads	23,500
Installation, Construction	5,700
Plans, Specifications, Contracts and Inspection by City Staff	2,300
TOTAL	$100,000

NOTE: Wheelchair access will be provided to tables at picnic groves and scattered table sites.

LAND AND WATER CONSERVATION AMOUNT REQUIRED $ 50,000

ADM590
12-11-91

LWCF PROGRAM (PART IV) NARRATIVE

ROEDING PARK PICNIC TABLE/BENCH REPLACEMENT PROJECT

1. OBJECTIVES AND NEED FOR ASSISTANCE

The proposed project will improve existing facilities and enhance recreation opportunities at Roeding Park by replacing deteriorated wooden picnic tables/benches, serving tables, and barbecues. The tables and benches are damaged, worn, and splintered and have outlived their useful life. The barbecues have rusted and are beyond reasonable cost repair. The tables and benches are presently located on dirt foundations and will be replaced on concrete slabs. Also, the new picnic facilities will incorporate wheelchair access which is absent from the existing tables and benches.

The proposed project ranks in the Priority One category of recreation needs in the California Recreation Plan 1998 by providing picnic opportunities. Roeding Park, a 157-acre regional park, also supports a number of other high priority recreation needs through other existing park improvements, events, and opportunities:

a. Chaffee Zoological Gardens

b. Playland Children's Amusement Park

c. Storyland

d. Walking/jogging trails

e. Bicycling

f. Exercise par course for disabled and seniors

g. Nature walks/bird watching

h. Fishing lakes for children

i. Public music concerts

j. Special events for children; i.e., Easter egg hunts, school Zoo excursions and picnics, wheelchair tennis tournaments

The proposed project will also address several issues which are discussed in the State Recreation Plan.

a. <u>Increased Competition for Parks and Recreation Funding</u>

To provide needed income to maintain the picnic shelters and tree groves at Roeding Park, a picnic table use fee was

Program Narrative (continued)

implemented in FY 91. The fee is based on the cost to maintain the tables, benches, barbecues, and associated improvements. Because of the fee, the Department is able to provide adequate maintenance of the facilities, especially on the busy weekend and holiday periods.

b. Maintaining Existing Park and Recreation Reserves

The replacement of the picnic tables, benches, serving tables, and barbecues at Roeding Park is included in the Department's Five-Year Capital Improvement Plan. The capital plan is an element of the Department's Master Plan for Parks and Recreation which was adopted by the City Council in June 1989.

As noted by the attached photographs, the existing picnic improvements are deteriorated beyond reasonable economic repair and need replacement. The new picnic tables, benches, serving tables, and barbecues will be attractive yet durable, strong, and uniform in design and construction, providing for less costly repair and maintenance.

c. Keeping Park Secure and Comfortable for Public Use

In FY 91, a picnic table use fee program was implemented to raise revenue to help offset maintenance cost of picnic facilities and other park improvements. Maintenance staff are available on weekends and holidays to clean picnic facilities between reservation periods, including restrooms, and to provide assistance to park users. The presence of staff also provides security until closing time (10:00 p.m.) when the park is secured. Additionally, the new picnic improvements; namely, placing the tables/benches on cement slabs, will provide picnic facilities which are safer and easier to clean. Also, ongoing maintenance will be less costly since the existing wood material will be replaced with durable PVC plastic-coated metal tables and benches.

At this time, indications are that the public is accepting the fee program and, in general, the picnic facilities and park are left in a cleaner condition. This can be partially attributed to the presence of staff, primarily on weekends and holidays to clean the facilities and provide assistance and security for the public.

As indicated, the proposed project is included in the Department's Five-Year Capital Improvement Plan, an element

Program Narrative (continued)

of the Master Plan for Parks and Recreation; additionally, the picnic facilities are included in the master site plan for Roeding Park. The annual operating budget for Roeding includes funds to provide daily park maintenance and facility repairs (turf, irrigation, restrooms, roads, shrubs, trees, tennis courts, buildings, etc.). The budget is reviewed annually and modified to meet new demands for service resources (expenditures and revenues).

The estimated cost for the Roeding Park Picnic Table/Bench Replacement Project is $100,000.

2. LOCAL NEED FOR PROJECT

Roeding Park serves visitors from the Fresno-Clovis Metropolitan Area as well as throughout the Central Valley from Modesto to Bakersfield. The park attracts visitors to the Chaffee Zoological Gardens, Rotary Playland, and Storyland as well as large organized and small spontaneous picnics. Frequently, visitors from outside of the Fresno area choose this park as a convenient location for family reunions or other gatherings due to its proximity to Freeway 99 and its many attractions. It is estimated that in excess of 1.3 million people visit Roeding Park annually. Between the months of April and September, approximately 90 percent of the picnic tables are reserved in advance for weekend use. This has continued despite implementation of the picnic table use fee in July 1991.

Replacement of the picnic tables and benches will reduce risk in injury from splinters and cracked boards, improve cleanliness, reduce both routine and periodic maintenance, and provide handicapped accessibility.

Placement of the tables on concrete slabs will improve visitor appeal, increase ease of maintenance of the area for cleaning and litter removal, and provide access to the picnic areas sooner following wet weather. The current fee schedule for picnic areas adjusts fees downward for tables on dirt surface.

Replacing the tables with metal in lieu of wooden tables will reduce the incidence of vandalism from graffiti or carving of the surfaces.

3. APPROACH

The project would replace the wooden picnic tables/benches and barbecues at Roeding Park which have been determined to be beyond repair due to wood rot, splitting, warping, and wear. Most of the tables/benches are secured on dirt surface, and new tables would be installed on concrete slabs. Roeding Park has

Program Narrative (continued)

six picnic groves--Umbrella, Eucalyptus, Cedar, Redwood, Maple, and Ash. The tables/benches at Umbrella Grove were replaced in FY 89, and those at Eucalyptus Grove are being replaced this fiscal year. Approval of this grant request would provide for the replacement of 59 six, eight and ten-foot picnic tables and benches, five serving tables, and six barbecues located at the four remaining picnic groves, along with 48 tables and benches scattered throughout the park. A number of picnic tables at the groves and scattered sites would be designed for wheelchair access.

The specifications for this project are complete and incorporate design features for handicapped accessibility, durability, and prevention of injury from wood splinters. The new tables would be constructed of metal covered with a PVC plastic.

4. GEOGRAPHIC LOCATION

Roeding Park, a 157-acre regional facility, is located at 890 West Belmont Avenue between Motel Drive and Freeway 99 and Olive and Belmont Avenues (see attached location map).

5. RELATIONSHIP BETWEEN PROJECT AND OTHER FEDERALLY FUNDED WORK

None

6. AGREEMENTS

Roeding Park is owned and maintained by the City of Fresno. The picnic tables/benches, serving tables, and barbecues will be cleaned on a daily basis by City Parks Division staff and repaired as the need arises. The City of Fresno is solely responsible for the maintenance of Roeding Park.

7. ADDRESSES

City of Fresno
Parks, Recreation and Community Services Department
1900 Mariposa Mall, Suite 202
Fresno, California 93721
Telephone: (209) 488-1145

LeRoy Milavich, Management Analyst III
City of Fresno
Parks, Recreation and Community Services Department
1900 Mariposa Mall, Suite 202
Fresno, California 93721
Telephone: (209) 488-1145

Program Narrative (continued)

(Day-to-Day Contact)
Rudy Castillo, Parks Manager
City of Fresno
Parks, Recreation and Community Services Department
Parks Division
890 West Belmont Avenue
Fresno, California 93728-2891
Telephone: (209) 488-1551

(Legal)
Harvey Wallace, City Attorney
City of Fresno
2326 Fresno Street
Fresno, California 93721
Telephone: (209) 498-1326

(Fiscal)
James Dirlam, Finance Director
City of Fresno
2348 Mariposa Mall
Fresno, California 93721

8. LEGISLATIVE DISTRICT OF PROJECT SITE

State Senatorial District No. 15
State Assembly District No. 32
U. S. Congressional District No. 18

9. RELOCATION OF PERSON AND BUSINESSES

No relocation activity is required.

10. OVERHEAD UTILITY LINES

There are no overhead electrical lines or telephone lines in the project area.

Addendum to CEQA

The procedure for updating CEQA documents previously submitted to the California Department of Parks and Recreation, Local Assistance Section, is as follows:

1) If the project is substantially the same as the one previously submitted, and was exempt from CEQA, the applicant shall determine if it is still exempt and attach that determination to the resubmitted application.

2) If the project is substantially the same as the one previously submitted, and Section 15164 of Title 14, Div. 6 of the California Code of Regulations does not apply, the representative of the applicant's planning agency will certify by signing and attaching to the resubmitted application the following statement:

   I certify, to the best of my knowledge, that Section 15164 of Title 14, Div. 6 of the California Code of Regulations does not apply to the project described in the Land and Water Conservation Fund Application for Local Assistance grant resubmitted on Nov 26, 1997.
   Date

   Signed Raymond R. Beach
   Representative of Applicant's Planning Agency

3) If the project is substantially the same as the one previously submitted, and Section 15164 does apply, an addendum to the EIR or negative declaration shall be prepared by the applicant and attached to the resubmitted application along with the State Clearinghouse comments and a current Notice of Determination that was filed with the county clerk.

4) If the project previously submitted has changed then a subsequent EIR/negative declaration per section 15162 or supplement to an EIR/negative declaration per section 15163 shall be attached to the resubmitted application along wiht the State Clearinghouse comments and a current Notice of Determination that was filed with the county clerk. If the changed project is exempt the applicant shall attach to the resubmitted application the new exemption form showing the county clerk's filed date stamp.

CITY OF FRESNO
CATEGORICAL EXEMPTION

Environmental Assessment No. 91-43

THE PROJECT DESCRIBED HEREIN IS DETERMINED TO BE CATEGORICALLY EXEMPT FROM THE PREPARATION OF ENVIRONMENTAL DOCUMENTS PURSUANT TO ARTICLE 19 OF THE STATE CEQA GUIDELINES.

APPLICANT: City of Fresno
Parks, Recreations and Community Services Department
Leroy Milavich

PROJECT LOCATION: Roeding Park
890 West Belmont
Fresno, California 93728

PROJECT DESCRIPTION: The project would replace the wooden picnic tables/benches and barbecues at Roeding Park which have been determined to be beyond repair due to wood rot, splitting, warping, and wear. Most of the tables/benches are secured on dirt surface and new tables would be installed on concrete slabs. Roeding Park has six picnic groves--Umbrella, Eucalyptus, Cedar, Redwood, Maple, and Ash. The tables/benches at Umbrella Grove were replaced in FY 89, and those at Eucalyptus Grove are being replaced this fiscal year. A total of 59 six, eight and ten-foot picnic tables and fences, five serving tables, and six barbecues would be replaced at the four remaining picnic groves, along with 48 tables and benches scattered throughout the park. A number of picnic tables at the groves and scattered sites would be designed for wheelchair access.

This project is exempt under Section 15302 of the State CEQA Guidelines.

EXPLANATION: Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.

Date: April 29, 1990

Prepared by: Joan Da Cruz
Planner II

Submitted by: Rayburn R. Beach
Senior Planner
City of Fresno
Development Department
2326 Fresno Street
Fresno, CA 93721
(209) 498-1361

RECEIVED
APR 31 AM 9:00
CITY CLERK
FRESNO, CALIF.

Date Received for Filing
by City Clerk

vs/584+/ENV8g

RESOLUTION NO. 91-478

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, APPROVING THE APPLICATION FOR LAND AND WATER CONSERVATION FUND PROGRAM TO REPLACE PICNIC TABLES, BENCHES, SERVING TABLES, AND BARBECUES AT ROEDING PARK

WHEREAS, the Congress under Public Law 88-578 has authorized the establishment of a Federal Land and Water Conservation Fund Grant-In-Aid Program, providing matching funds to the State of California and its political subdivisions for acquiring lands and developing facilities for public outdoor recreation purposes; and

WHEREAS, the State Department of Parks and Recreation is responsible for the administration of the program within the State, setting up necessary rules and procedures governing application by local agencies under the program; and

WHEREAS, said adopted procedures established by the State Department of Parks and Recreation require the applicant to certify by resolution the approval of applications and the availability of local matching funds prior to submission of said applications to the State; and

WHEREAS, the proposed Roeding Park Picnic Table/Bench Replacement Project is consistent with the Statewide Comprehensive Recreation Resources Plan: California Outdoor Recreation Plan - 1988; and

WHEREAS, the project must be compatible with the land use plans of those jurisdictions immediately surrounding the project.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby:

PASSED 12/3/91
EFFECTIVE

91-478

1. Approves the filing of an application for Land and Water Conservation Fund assistance; and
2. Certifies that said agency has matching funds from the General Fund or the Community Development Block Grant Program and can finance 100 percent of the project, half of which will be reimbursed; and
3. Certifies that the project is compatible with the land use plans of those jurisdictions immediately surrounding the project; and
4. Appoints the Director of Parks, Recreation and Community Services Department, or his representative designee, as agent of the City to conduct all negotiations, execute, and submit all documents including but not limited to applications, agreements, amendments, billing statements, and so on which may be necessary for the completion of the aforementioned project.

* * * * * * * *

CLERK'S CERTIFICATE

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno certify that the foregoing Resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the 3rd day of December, 1991.

JACQUELINE L. RYLE
City Clerk

By Cindy Hamby
Deputy

APPROVED AS TO FORM
CITY ATTORNEY'S OFFICE
BY: DEPUTY

ADM356/197P
4-12-91

City of
FRESNO REPORT TO THE CITY COUNCIL

AGENDA ITEM NO.
COUNCIL MEETING 12-3-91
APPROVED BY
DEPARTMENT DIRECTOR Joe Wingfield
CITY MANAGER

DATE: November 20, 1991

FROM: JOE WINGFIELD, Director
Parks, Recreation and Community
Services Department

BY: LEROY MILAVICH
Management Analyst III

SUBJECT: APPROVE RESOLUTION AUTHORIZING THE FILING OF AN APPLICATION FOR 1991/92 LAND AND WATER CONSERVATION FUND PROGRAM

BACKGROUND

The City was informed by the California Department of Parks and Recreation that the Land and Water Conservation Fund (LWCF) program will provide limited funding for park and recreation open space acquisition and development in FY 92. The LWCF program is federally funded and administered by the State. Funds are awarded on a competitive basis with the recipient providing a 50% local match.

Approximately $900,000 will be available from the LWCF program in FY 91, split 40% and 60%, respectively, between Northern and Southern California. The City of Fresno is in Northern California and will be competing for approximately $360,000. The deadline for submitting applications is December 20, 1991. If approved, LWCF funds would be awarded in FY 93.

The Department proposes to resubmit a grant application submitted in FY 91, but not approved, to replace the wooden picnic tables and benches and barbecues at Roeding Park which have been determined to be beyond repair due to wood rot, splitting, warping, and wear. Most of the tables and benches are secured on dirt surface and the new tables would be installed on concrete slabs. Roeding Park has six picnic groves--Umbrella, Eucalyptus, Cedar, Redwood, Maple, and Ash. The tables and benches at Umbrella Grove were replaced in FY 89, and those at Eucalyptus Grove were replaced in FY 91. The tables and benches in the remaining groves are of comparable age and condition to those replaced and also need replacement. The Department charges a reservation fee for the use of all picnic tables located in picnic groves at Roeding Park. The fee is in effect between April and September.

A total of 59 six-, eight- and ten-foot picnic tables and benches, five serving tables, and six barbecues would be replaced at the four remaining picnic groves, along with 48 tables and benches scattered

FILE COPY

throughout the park. A number of picnic tables at the groves and scattered sites would be designed for wheelchair access. The estimated cost of tables, benches, barbecues, concrete slabs, and contractual installation is $100,000.

The new picnic tables and benches would be constructed of metal covered with a PVC plastic material and would be secured to a cement slab. This type of table and bench was installed at Umbrella Grove in FY 89 and is proving to be durable, easy to maintain and less susceptible to vandalism than prior wooden or cement tables. The new barbecues would be cast iron installed on a cement foundation.

The replacement of picnic tables and benches at Roeding Park is included in the Department's Five-Year Capital Improvement Program and has a first-year funding priority. As indicated, the LWCF program requires a 50% local match. Based upon the estimated project cost of $100,000, the City must provide $50,000. The required match was appropriated by Council in the FY 92 budget.

THE ISSUE

Should the Council authorize submittal of an application for grant funds under the Land and Water Conservation Fund program for the replacement of picnic tables and benches, serving tables, and barbecues at Roeding Park?

CONCLUSIONS AND RECOMMENDATIONS

The proposed LWCF program grant would provide needed funds to replace 107 picnic tables and benches, five serving tables, and six barbecues at Roeding Park. A number of the tables at the picnic groves and scattered sites would be designed for wheelchair access.

It is recommended that the City Council:

1. Approve the attached resolution authorizing the filing of an application for LWCF assistance; and

2. Authorize the Director of Parks, Recreation and Community Services, or his representative designee, as agent of the City for the grant project.

FISCAL IMPACT OF RECOMMENDATION

Council appropriated $50,000 in FY 92 from the General Fund to match the LWCP program grant. A new appropriation will not be required.

jk
ADM675
Attachment

COPY

RESOLUTION NO. _____

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, APPROVING THE APPLICATION FOR LAND AND WATER CONSERVATION FUND PROGRAM TO REPLACE PICNIC TABLES, BENCHES, SERVING TABLES, AND BARBECUES AT ROEDING PARK

WHEREAS, the Congress under Public Law 88-578 has authorized the establishment of a Federal Land and Water Conservation Fund Grant-In-Aid Program, providing matching funds to the State of California and its political subdivisions for acquiring lands and developing facilities for public outdoor recreation purposes; and

WHEREAS, the State Department of Parks and Recreation is responsible for the administration of the program within the State, setting up necessary rules and procedures governing application by local agencies under the program; and

WHEREAS, said adopted procedures established by the State Department of Parks and Recreation require the applicant to certify by resolution the approval of applications and the availability of local matching funds prior to submission of said applications to the State; and

WHEREAS, the proposed Roeding Park Picnic Table/Bench Replacement Project is consistent with the Statewide Comprehensive Recreation Resources Plan: California Outdoor Recreation Plan - 1988; and

WHEREAS, the project must be compatible with the land use plans of those jurisdictions immediately surrounding the project.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby:

1. Approves the filing of an application for Land and Water Conservation Fund assistance; and
2. Certifies that said agency has matching funds from the General Fund or the Community Development Block Grant Program and can finance 100 percent of the project, half of which will be reimbursed; and
3. Certifies that the project is compatible with the land use plans of those jurisdictions immediately surrounding the project; and
4. Appoints the Director of Parks, Recreation and Community Services Department, or his representative designee, as agent of the City to conduct all negotiations, execute, and submit all documents including but not limited to applications, agreements, amendments, billing statements, and so on which may be necessary for the completion of the aforementioned project.

* * * * * * * *

CLERK'S CERTIFICATE

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno certify that the foregoing Resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the _____ day of _____, 1991.

JACQUELINE L. RYLE
City Clerk

By _____
Deputy

ADM356/197P
4-12-91

RESOLUTION NO. 91-168

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, APPROVING THE APPLICATION FOR LAND AND WATER CONSERVATION FUND PROGRAM TO REPLACE PICNIC TABLES, BENCHES, SERVING TABLES, AND BARBECUES AT ROEDING PARK

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WHEREAS, the proposed Roeding Park Picnic Table/Bench Replacement Project is consistent with the Statewide Comprehensive Recreation Resources Plan: California Outdoor Recreation Plan - 1988; and

WHEREAS, the project must be compatible with the land use plans of those jurisdictions immediately surrounding the project.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby:

PASSED 4/23/91
EFFECTIVE

91-168 311

1. Approves the filing of an application for Land and Water Conservation Fund assistance; and
2. Certifies that said agency has matching funds from the General Fund or the Community Development Block Grant Program and can finance 100 percent of the project, half of which will be reimbursed; and
3. Certifies that the project is compatible with the land use plans of those jurisdictions immediately surrounding the project; and
4. Appoints the Director of Parks, Recreation and Community Services Department, or his representative designee, as agent of the City to conduct all negotiations, execute, and submit all documents including but not limited to applications, agreements, amendments, billing statements, and so on which may be necessary for the completion of the aforementioned project.

* * * * * * * *

CLERK'S CERTIFICATE

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno certify that the foregoing Resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the 23rd day of April, 1991.

JACQUELINE L. RYLE
City Clerk

By Jacqueline L. Ryle
Deputy

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

By: Nancy A. Campbell
Deputy

ADM356/197P
4-12-91

112

RESOLUTION NO. 91-168

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, APPROVING THE APPLICATION FOR LAND AND WATER CONSERVATION FUND PROGRAM TO REPLACE PICNIC TABLES, BENCHES, SERVING TABLES, AND BARBECUES AT ROEDING PARK

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WHEREAS, the project must be compatible with the land use plans of those jurisdictions immediately surrounding the project.

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PASSED 4/23/91
EFFECTIVE

91-168

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* * * * * * * *

CLERK'S CERTIFICATE

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COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno certify that the foregoing Resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the 23rd day of April, 1991.

JACQUELINE L. RYLE
City Clerk

By Jacqueline L. Ryle
Deputy

APPROVED AS TO FORM
CITY ATTORNEY'S OFFICE

By: Nancy A. Campbell
Deputy

ADM356/197P
4-12-91

112

City of
FRESNO

Parks, Recreation and Community
Services Department

Administration Division • 209-498-1145
1900 Mariposa Mall, Suite 202 • Fresno, California 93721

June 13, 1991

CERTIFIED MAIL

Mr. Steinhart, Project Officer
White Weather Dome
Department of Parks and Recreation
Post Office Box 942896
Sacramento, California 94296-0001

Dear Mr. Steinhart:

SUBJECT: LAND WATER CONSERVATION FUND GRANT APPLICATION
ROEDING PARK PICNIC TABLE/BENCH REPLACEMENT

In response to your letter dated May 30, 1991 regarding the subject grant application, we have revised the program narrative (Part IV) and enclose two copies for inclusion with the grant application.

Thank you for your assistance and if further information is needed, please call me at (209) 488-1145.

Sincerely,

Leroy Milavich
Management Analyst III

js
80/RCPT

LWCF PROGRAM (PART IV) NARRATIVE

ROEDING PARK PICNIC TABLE/BENCH REPLACEMENT PROJECT

1. OBJECTIVES AND NEED FOR ASSISTANCE

The proposed project will improve existing facilities and enhance recreation opportunities at Roeding Park by replacing deteriorated wooden picnic tables/benches, serving tables, and barbecues. The tables and benches are damaged, worn, and splintered and have outlived their useful life. The barbecues have rusted and are beyond reasonable cost repair. The tables and benches are presently located on dirt foundations and will be replaced on concrete slabs. Also, the new picnic facilities will incorporate wheelchair access which is absent from the existing tables and benches.

The proposed project ranks in the Priority One category of recreation needs in the California Recreation Plan 1998 by providing picnic opportunities. Roeding Park, a 157-acre regional park, also supports a number of other high priority recreation needs through other existing park improvements, events, and opportunities:

a. Chaffee Zoological Gardens

b. Playland Children's Amusement Park

c. Storyland

d. Walking/jogging trails

e. Bicycling

f. Exercise par course for disabled and seniors

g. Nature walks/bird watching

h. Fishing lakes for children

i. Public music concerts

j. Special events for children; i.e., Easter egg hunts, school Zoo excursions and picnics, wheelchair tennis tournaments

The proposed project will also address several issues which are discussed in the State Recreation Plan.

a. Increased Competition for Parks and Recreation Funding

To provide needed income to maintain the picnic shelters and tree groves at Roeding Park, a picnic table use fee was

Program Narrative (continued)

implemented in FY 91. The fee is based on the cost to maintain the tables, benches, barbecues, and associated improvements. Because of the fee, the Department is able to provide adequate maintenance of the facilities, especially on the busy weekend and holiday periods.

b. Maintaining Existing Park and Recreation Reserves

The replacement of the picnic tables, benches, serving tables, and barbecues at Roeding Park is the No. 1 ranking project in the Department's Five-Year Capital Improvement Program. As noted by the attached photographs, the existing picnic improvements are deteriorated beyond reasonable economic repair and need replacement.

The new picnic tables, benches, serving tables, and barbecues will be attractive yet durable, strong, and uniform in design and construction, providing for less costly repair and maintenance.

c. Keeping Park Secure and Comfortable for Public Use

In FY 91, a picnic table use fee program was implemented to raise revenue to help offset maintenance cost of picnic facilities and other park improvements. Maintenance staff are available on weekends and holidays to clean picnic facilities between reservation periods, including restrooms, and to provide assistance to park users. The presence of staff also provides security until closing time (10:00 p.m.) when the park is secured. Additionally, the new picnic improvements; namely, placing the tables/benches on cement slabs, will provide picnic facilities which are safer and easier to clean. Also, ongoing maintenance will be less costly since the existing wood material will be replaced with durable PVC plastic-coated metal tables and benches.

At this time, indications are that the public is accepting the fee program and, in general, the picnic facilities and park are left in a cleaner condition. This can be partially attributed to the presence of staff, primarily on weekends and holidays to clean the facilities and provide assistance and security for the public.

As indicated, the proposed project is included in the Department's Five-Year Capital Improvement Plan; additionally, the picnic facilities are included in the master site plan for Roeding Park. The annual operating budget for Roeding includes funds to provide daily park

Program Narrative (continued)

maintenance and facility repairs (turf, irrigation, restrooms, roads, shrubs, trees, tennis courts, buildings, etc.). The budget is reviewed annually and modified to meet new demands for service resources (expenditures and revenues).

The estimated cost for the Roeding Park Picnic Table/Bench Replacement Project is $90,000.

2. LOCAL NEED FOR PROJECT

Roeding Park serves visitors from the Fresno-Clovis Metropolitan Area as well as throughout the Central Valley from Modesto to Bakersfield. The park attracts visitors to the Chaffee Zoological Gardens, Rotary Playland, and Storyland as well as large organized and small spontaneous picnics. Frequently, visitors from outside of the Fresno area choose this park as a convenient location for family reunions or other gatherings due to its proximity to Freeway 99 and its many attractions. It is estimated that in excess of 1.3 million people visit Roeding Park annually. Between the months of April and September, approximately 90 percent of the picnic tables are reserved in advance for weekend use. This has continued despite implementation of the picnic table use fee in July 1991.

Replacement of the picnic tables and benches will reduce risk in injury from splinters and cracked boards, improve cleanliness, reduce both routine and periodic maintenance, and provide handicapped accessibility.

Placement of the tables on concrete slabs will improve visitor appeal, increase ease of maintenance of the area for cleaning and litter removal, and provide access to the picnic areas sooner following wet weather. The current fee schedule for picnic areas adjusts fees downward for tables on dirt surface.

Replacing the tables with metal in lieu of wooden tables will reduce the incidence of vandalism from graffiti or carving of the surfaces.

3. APPROACH

The project would replace the wooden picnic tables/benches and barbecues at Roeding Park which have been determined to be beyond repair due to wood rot, splitting, warping, and wear. Most of the tables/benches are secured on dirt surface, and new tables would be installed on concrete slabs. Roeding Park has six picnic groves--Umbrella, Eucalyptus, Cedar, Redwood, Maple, and Ash. The tables/benches at Umbrella Grove were replaced in

Program Narrative (continued)

FY 89, and those at Eucalyptus Grove are being replaced this fiscal year. Approval of this grant request would provide for the replacement of 59 six, eight and ten-foot picnic tables and benches, five serving tables, and six barbecues located at the four remaining picnic groves, along with 48 tables and benches scattered throughout the park. A number of picnic tables at the groves and scattered sites would be designed for wheelchair access.

The specifications for this project are complete and incorporate design features for handicapped accessibility, durability, and prevention of injury from wood splinters. The new tables would be constructed of metal covered with a PVC plastic.

4. GEOGRAPHIC LOCATION

Roeding Park, a 157-acre regional facility, is located at 890 West Belmont Avenue between Motel Drive and Freeway 99 and Olive and Belmont Avenues (see attached location map).

5. RELATIONSHIP BETWEEN PROJECT AND OTHER FEDERALLY FUNDED WORK

None

6. AGREEMENTS

Roeding Park is owned and maintained by the City of Fresno. The picnic tables/benches, serving tables, and barbecues will be cleaned on a daily basis by City Parks Division staff and repaired as the need arises. The City of Fresno is solely responsible for the maintenance of Roeding Park.

7. ADDRESSES

City of Fresno
Parks, Recreation and Community Services Department
1900 Mariposa Mall, Suite 202
Fresno, California 93721
Telephone: (209) 488-1145

LeRoy Milavich, Management Analyst III
City of Fresno
Parks, Recreation and Community Services Department
1900 Mariposa Mall, Suite 202
Fresno, California 93721
Telephone: (209) 488-1145

Program Narrative (continued)

(Day-to-Day Contact)
Rudy Castillo, Parks Manager
City of Fresno
Parks, Recreation and Community Services Department
Parks Division
890 West Belmont Avenue
Fresno, California 93728-2891
Telephone: (209) 488-1551

(Legal)
Harvey Wallace, City Attorney
City of Fresno
2326 Fresno Street
Fresno, California 93721
Telephone: (209) 498-1326

(Fiscal)
James Dirlam, Finance Director
City of Fresno
2348 Mariposa Mall
Fresno, California 93721

8. LEGISLATIVE DISTRICT OF PROJECT SITE

State Senatorial District No. 15
State Assembly District No. 32
U. S. Congressional District No. 18

9. RELOCATION OF PERSON AND BUSINESSES

No relocation activity is required.

10. OVERHEAD UTILITY LINES

There are no overhead electrical lines or telephone lines in the project area.

LWCF PROGRAM (PART IV) NARRATIVE

ROEDING PARK PICNIC TABLE/BENCH REPLACEMENT PROJECT

1. OBJECTIVES AND NEED FOR ASSISTANCE

The proposed project will improve existing facilities and enhance recreation opportunities at Roeding Park by replacing deteriorated wooden picnic tables/benches, serving tables, and barbecues. The tables and benches are damaged, worn, and splintered and have outlived their useful life. The barbecues have rusted and are beyond reasonable cost repair. The tables and benches are presently located on dirt foundations and will be replaced on concrete slabs. Also, the new picnic facilities will incorporate wheelchair access which is absent from the existing tables and benches.

The proposed project ranks in the Priority One category of recreation needs in the California Recreation Plan 1998 by providing picnic opportunities. Roeding Park, a 157-acre regional park, also supports a number of other high priority recreation needs through other existing park improvements, events, and opportunities:

a. Chaffee Zoological Gardens

b. Playland Children's Amusement Park

c. Storyland

d. Walking/jogging trails

e. Bicycling

f. Exercise par course for disabled and seniors

g. Nature walks/bird watching

h. Fishing lakes for children

i. Public music concerts

j. Special events for children; i.e., Easter egg hunts, school Zoo excursions and picnics, wheelchair tennis tournaments

The proposed project will also address several issues which are discussed in the State Recreation Plan.

a. <u>Increased Competition for Parks and Recreation Funding</u>

To provide needed income to maintain the picnic shelters and tree groves at Roeding Park, a picnic table use fee was

Program Narrative (continued)

implemented in FY 91. The fee is based on the cost to maintain the tables, benches, barbecues, and associated improvements. Because of the fee, the Department is able to provide adequate maintenance of the facilities, especially on the busy weekend and holiday periods.

b. Maintaining Existing Park and Recreation Reserves

The replacement of the picnic tables, benches, serving tables, and barbecues at Roeding Park is the No. 1 ranking project in the Department's Five-Year Capital Improvement Program. As noted by the attached photographs, the existing picnic improvements are deteriorated beyond reasonable economic repair and need replacement.

The new picnic tables, benches, serving tables, and barbecues will be attractive yet durable, strong, and uniform in design and construction, providing for less costly repair and maintenance.

c. Keeping Park Secure and Comfortable for Public Use

In FY 91, a picnic table use fee program was implemented to raise revenue to help offset maintenance cost of picnic facilities and other park improvements. Maintenance staff are available on weekends and holidays to clean picnic facilities between reservation periods, including restrooms, and to provide assistance to park users. The presence of staff also provides security until closing time (10:00 p.m.) when the park is secured. Additionally, the new picnic improvements; namely, placing the tables/benches on cement slabs, will provide picnic facilities which are safer and easier to clean. Also, ongoing maintenance will be less costly since the existing wood material will be replaced with durable PVC plastic-coated metal tables and benches.

At this time, indications are that the public is accepting the fee program and, in general, the picnic facilities and park are left in a cleaner condition. This can be partially attributed to the presence of staff, primarily on weekends and holidays to clean the facilities and provide assistance and security for the public.

As indicated, the proposed project is included in the Department's Five-Year Capital Improvement Plan; additionally, the picnic facilities are included in the master site plan for Roeding Park. The annual operating budget for Roeding includes funds to provide daily park

Program Narrative (continued)

maintenance and facility repairs (turf, irrigation, restrooms, roads, shrubs, trees, tennis courts, buildings, etc.). The budget is reviewed annually and modified to meet new demands for service resources (expenditures and revenues).

The estimated cost for the Roeding Park Picnic Table/Bench Replacement Project is $90,000.

2. LOCAL NEED FOR PROJECT

Roeding Park serves visitors from the Fresno-Clovis Metropolitan Area as well as throughout the Central Valley from Modesto to Bakersfield. The park attracts visitors to the Chaffee Zoological Gardens, Rotary Playland, and Storyland as well as large organized and small spontaneous picnics. Frequently, visitors from outside of the Fresno area choose this park as a convenient location for family reunions or other gatherings due to its proximity to Freeway 99 and its many attractions. It is estimated that in excess of 1.3 million people visit Roeding Park annually. Between the months of April and September, approximately 90 percent of the picnic tables are reserved in advance for weekend use. This has continued despite implementation of the picnic table use fee in July 1991.

Replacement of the picnic tables and benches will reduce risk in injury from splinters and cracked boards, improve cleanliness, reduce both routine and periodic maintenance, and provide handicapped accessibility.

Placement of the tables on concrete slabs will improve visitor appeal, increase ease of maintenance of the area for cleaning and litter removal, and provide access to the picnic areas sooner following wet weather. The current fee schedule for picnic areas adjusts fees downward for tables on dirt surface.

Replacing the tables with metal in lieu of wooden tables will reduce the incidence of vandalism from graffiti or carving of the surfaces.

3. APPROACH

The project would replace the wooden picnic tables/benches and barbecues at Roeding Park which have been determined to be beyond repair due to wood rot, splitting, warping, and wear. Most of the tables/benches are secured on dirt surface, and new tables would be installed on concrete slabs. Roeding Park has six picnic groves--Umbrella, Eucalyptus, Cedar, Redwood, Maple, and Ash. The tables/benches at Umbrella Grove were replaced in

Program Narrative (continued)

FY 89, and those at Eucalyptus Grove are being replaced this fiscal year. Approval of this grant request would provide for the replacement of 59 six, eight and ten-foot picnic tables and benches, five serving tables, and six barbecues located at the four remaining picnic groves, along with 48 tables and benches scattered throughout the park. A number of picnic tables at the groves and scattered sites would be designed for wheelchair access.

The specifications for this project are complete and incorporate design features for handicapped accessibility, durability, and prevention of injury from wood splinters. The new tables would be constructed of metal covered with a PVC plastic.

4. GEOGRAPHIC LOCATION

Roeding Park, a 157-acre regional facility, is located at 890 West Belmont Avenue between Motel Drive and Freeway 99 and Olive and Belmont Avenues (see attached location map).

5. RELATIONSHIP BETWEEN PROJECT AND OTHER FEDERALLY FUNDED WORK

None

6. AGREEMENTS

Roeding Park is owned and maintained by the City of Fresno. The picnic tables/benches, serving tables, and barbecues will be cleaned on a daily basis by City Parks Division staff and repaired as the need arises. The City of Fresno is solely responsible for the maintenance of Roeding Park.

7. ADDRESSES

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Parks, Recreation and Community Services Department
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LeRoy Milavich, Management Analyst III
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Program Narrative (continued)

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U. S. Congressional District No. 18

9. RELOCATION OF PERSON AND BUSINESSES

No relocation activity is required.

10. OVERHEAD UTILITY LINES

There are no overhead electrical lines or telephone lines in the project area.

City of FRESNO REPORT TO THE CITY COUNCIL

AGENDA ITEM NO.
COUNCIL MEETING 4-23-91
APPROVED BY
DEPARTMENT DIRECTOR Joe Wingfield
CITY MANAGER

DATE: April 15, 1991

FROM: JOE WINGFIELD, Director
Parks, Recreation and Community Services Department

BY: ROSEMARY DEGRACIA, Management Analyst III
Parks Division

SUBJECT: APPROVE RESOLUTION AUTHORIZING THE FILING OF AN APPLICATION FOR 1990/91 LAND AND WATER CONSERVATION FUND PROGRAM

BACKGROUND

The City was informed by the California Department of Parks and Recreation that the Land and Water Conservation Fund (LWCF) program will provide limited funding for park and recreation open space acquisition and development in FY 91. The LWCF program is federally funded and administered by the State. Funds are awarded on a competitive basis with the recipient providing a 50 percent local match.

Approximately $1,606,236 will be available from the LWCF program in FY 91, split 40 percent and 60 percent, respectively, between Northern and Southern California. The City of Fresno is in Northern California and will be competing for approximately $642,495. The deadline for submitting applications is May 10, 1991.

The Department proposes to submit an application to fund replacement of the wooden picnic tables and benches and barbecues at Roeding Park which have been determined to be beyond repair due to wood rot, splitting, warping, and wear. Also, most of the tables and benches are secured on dirt surface and new tables would be installed on concrete slabs. Roeding Park has six picnic groves--Umbrella, Eucalyptus, Cedar, Redwood, Maple, and Ash. The tables and benches at Umbrella Grove were replaced in FY 89, and those at Eucalyptus Grove are being replaced this fiscal year. The tables and benches in the remaining groves are of comparable age and condition to those replaced and also need replacement. The FY 91 budget included a reservation fee for the use of all picnic tables located in picnic groves at Roeding Park. The fee is in effect between April and September.

A total of 59 six, eight and ten-foot picnic tables and benches, five serving tables, and six barbecues would be replaced at the four remaining picnic groves, along with 48 tables and benches scattered throughout the park. A number of picnic tables at the groves and scattered sites would be designed for wheelchair access. The estimated cost of tables, benches, barbecues, concrete slabs, and contractual installation is $90,000.

FILE COPY

The new picnic tables and benches would be constructed of metal covered with a PVC plastic material and would be secured to a cement slab. This type of table and bench was installed at Umbrella Grove in FY 89 and is proving to be durable, easy to maintain and less susceptible to vandalism than prior wooden or cement tables. The new barbecues would be cast iron installed on a cement foundation.

The replacement of picnic tables and benches at Roeding Park is included in the Department's Five-Year Capital Improvement Program and has a first-year funding priority.

As indicated, the LWCF program requires a 50 percent local match. Based upon the estimated project cost of $90,000, the City must provide $45,000. It is proposed that the source of the matching requirement be designated as the General Fund or the Community Development Block Grant (CDBG) Program, the exact source to be identified during the FY 92 budget process and appropriated accordingly.

THE ISSUE

Should the Council authorize submittal of an application for grant funds under the Land and Water Conservation Fund Program for the replacement of picnic tables and benches, serving tables, and barbecues at Roeding Park?

CONCLUSIONS AND RECOMMENDATIONS

The proposed LWCF program grant would provide needed funds to replace 107 picnic tables and benches, five serving tables, and six barbecues at Roeding Park. A number of the tables at the picnic groves and scattered sites would be designed for wheelchair access.

It is recommended that the City Council approve the attached resolution authorizing the filing of an application for LWCF assistance, designate General Fund or CDBG program funds to provide the 50 percent local match, and authorize the Director of Parks, Recreation and Community Services, or his representative designee, as agent of the City for the grant project.

FISCAL IMPACT OF RECOMMENDATION

To provide the 50 percent local match requirement for the Land and Water Conservation Fund Program, $45,000 from the General Fund or the Community Development Block Grant Program would be appropriated in the FY 92 budget.

va
5311D/0096D

Attachment

RESOLUTION NO. _____

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, APPROVING THE APPLICATION FOR LAND AND WATER CONSERVATION FUND PROGRAM TO REPLACE PICNIC TABLES, BENCHES, SERVING TABLES, AND BARBECUES AT ROEDING PARK

WHEREAS, the Congress under Public Law 88-578 has authorized the establishment of a Federal Land and Water Conservation Fund Grant-In-Aid Program, providing matching funds to the State of California and its political subdivisions for acquiring lands and developing facilities for public outdoor recreation purposes; and

WHEREAS, the State Department of Parks and Recreation is responsible for the administration of the program within the State, setting up necessary rules and procedures governing application by local agencies under the program; and

WHEREAS, said adopted procedures established by the State Department of Parks and Recreation require the applicant to certify by resolution the approval of applications and the availability of local matching funds prior to submission of said applications to the State; and

WHEREAS, the proposed Roeding Park Picnic Table/Bench Replacement Project is consistent with the Statewide Comprehensive Recreation Resources Plan: California Outdoor Recreation Plan - 1988; and

WHEREAS, the project must be compatible with the land use plans of those jurisdictions immediately surrounding the project.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby:

1. Approves the filing of an application for Land and Water Conservation Fund assistance; and
2. Certifies that said agency has matching funds from the General Fund or the Community Development Block Grant Program and can finance 100 percent of the project, half of which will be reimbursed; and
3. Certifies that the project is compatible with the land use plans of those jurisdictions immediately surrounding the project; and
4. Appoints the Director of Parks, Recreation and Community Services Department, or his representative designee, as agent of the City to conduct all negotiations, execute, and submit all documents including but not limited to applications, agreements, amendments, billing statements, and so on which may be necessary for the completion of the aforementioned project.

* * * * * * * *

CLERK'S CERTIFICATE

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno certify that the foregoing Resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the _____ day of _____, 1991.

JACQUELINE L. RYLE
City Clerk

By _____
Deputy

APPROVED AS TO FORM
CITY ATTORNEY'S OFFICE

By: _____
Deputy

ADM356/197P
4-12-91

A.2 - Attachment B: City of Fresno (2000) Land and Water Conservation Fuivd Program Narrative

ATTACHMENT B

City of FRESNO

DEVELOPMENT DEPARTMENT
Planning Division

Application for Environmental Assessment

Applicant Name	City of Fresno Parks, Rec & Comm Svcs	Contact Person	LeRoy Milavich
Address	2326 Fresno St, Rm 101	Extension No.	4919
Telephone No	498-1145	6-DIGIT ~~FAMIS~~ #170504 ORG PS	~~4 DIGIT SUBOBJECT~~ NO. 58004 PROJECT

FUND #10101

1. PROJECT DESCRIPTION (Detail Exact Nature of Project):

Replace old and deteriorated children's play equipment in Roeding Park, a 157-acre regional park. New equipment will meet all State and Federal rules and regulations and access developmentally challenged persons.

2. PROJECT LOCATION (Attach Vicinity Map): 890 West Belmont, Fresno, CA

3. SOURCE OF FUNDING:

- ☐ Private Funding
- ☒ Community Development Block Grant (CDBG)
- ☐ Federal Highway Administration (FHWA)
- ☐ Other: _____

4. INDICATE POSSIBLE RELATED DEVELOPMENT ENTITLEMENTS TO BE REQUESTED NOW OR LATER

- ☐ Plan Amendment
- ☐ Rezone
- ☐ Conditional Use Permit
- ☐ Ordinance Amendment
- ☐ Tentative Tract Map
- ☐ Site Plan
- ☐ Parcel Map
- ☐ Variance
- ☐ Other (Identify): _____

PLEASE NOTE: IT IS MANDATORY THAT THIS AFFIDIVAT BE COMPLETED PRIOR TO ACCEPTANCE OF THIS ENVIRONMENTAL ASSESSMENT APPLICATION.

"I, LeRoy Milavich, applicant/authorized representative for the above-requested environmental assessment, hereby authorize the Accounts Payable Section, Accounting Division, of the Department of Administrative Services to automatically transfer funds from 6-digit ~~FAMIS~~ Acct. No. 170504, ~~4-digit Subobject~~ Project No. 58004, to the Development Department FAMIS/Subobject Account No. appropriate for the particular Environmental Assessment category without further authorization from the city department I am a part of, or representative for."

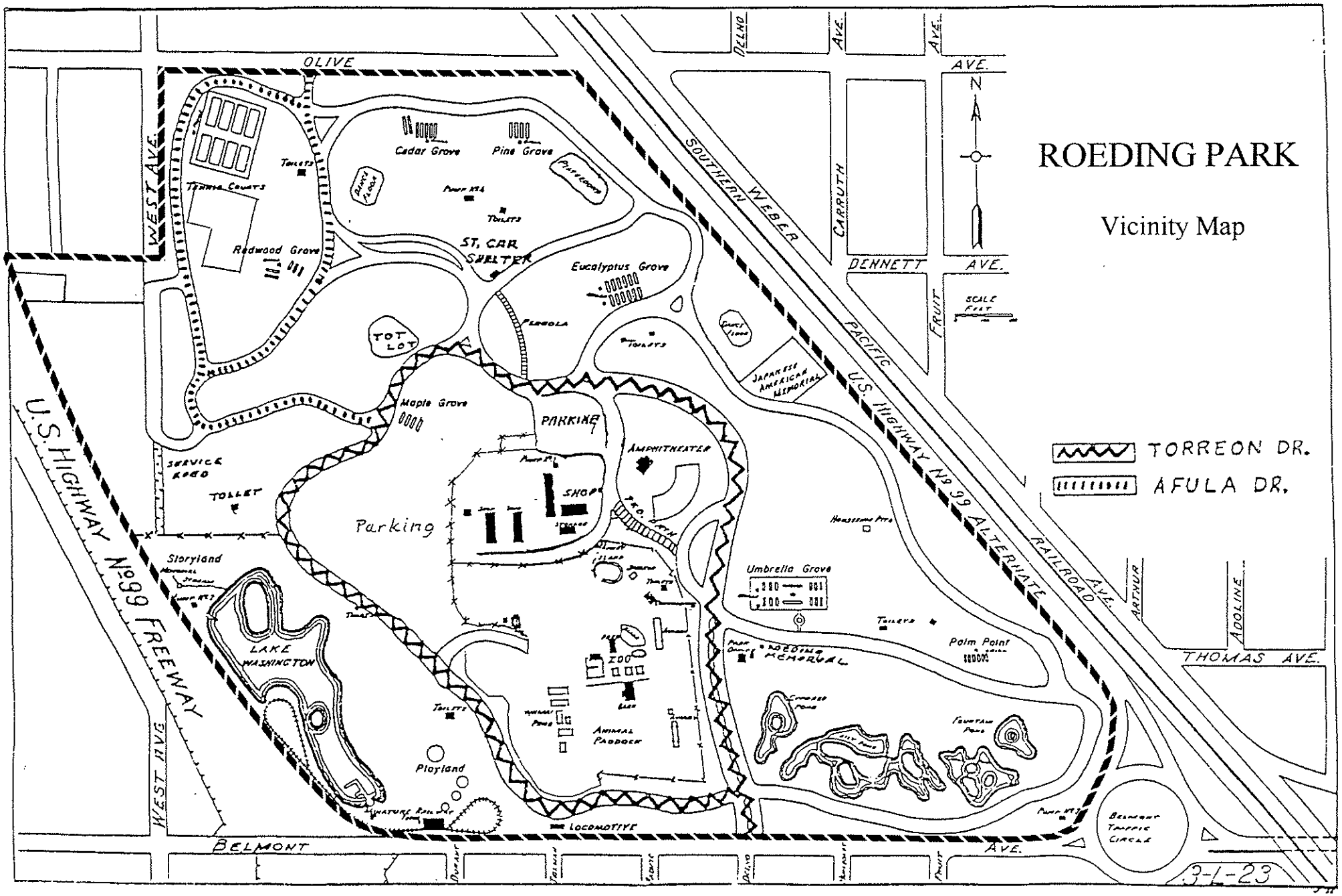
LeRoy Milavich

Signature of Authorization

DEVELOPMENT DEPARTMENT --- PROJECT EVALUATION SECTION STAFF ONLY

Cashier Memo No.:_____ E.A. No.:_____ Fee Paid:_____ Date:_____ Received By:_____

950428-3073 = CAT EXEMPT $620.00 950428-3072 = NEG DEC $2870.00 950428-3071 = MIT NEG DEC $5227.50

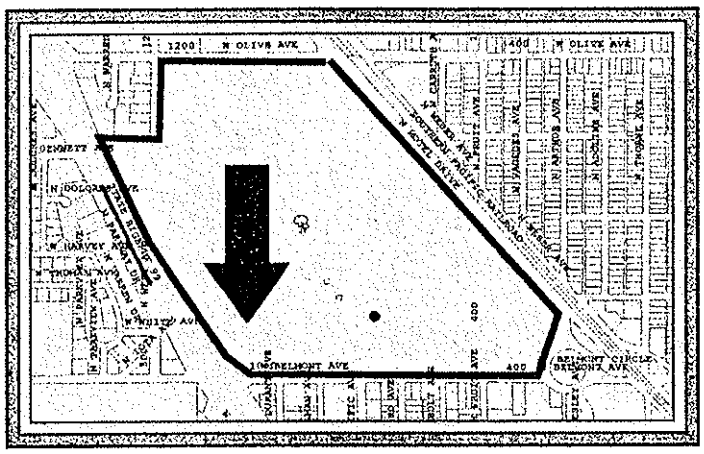

ROEDING PARK
Vicinity Map
TORREON DR.
AFULA DR.
OLIVE
WEST AVE.
BELMONT
AVE.
DELNO
CARRUTH
DENNETT
FRUIT
ARTHUR
ADDLINE
THOMAS AVE.
SOUTHERN PACIFIC RAILROAD
U.S. HIGHWAY No 99 ALTERNATE
U.S. HIGHWAY No 99 FREEWAY
Cedar Grove
Pine Grove
Redwood Grove
Eucalyptus Grove
Maple Grove
Umbrella Grove
Palm Point
TENNIS COURTS
TOILETS
ST. CAR SHELTER
TOT LOT
PERGOLA
PARKING
Parking
SHOP
AMPHITHEATER
SERVICE ROAD
TOILET
Storyland
LAKE WASHINGTON
Playland
ZOO
ANIMAL PADDOCK
LOCOMOTIVE
ROEDING MEMORIAL
JAPANESE AMERICAN MEMORIAL
BELMONT TRAFFIC CIRCLE
SCALE FEET
3-1-23

ROEDING REGIONAL PARK PLAYGROUND IMPROVEMENTS

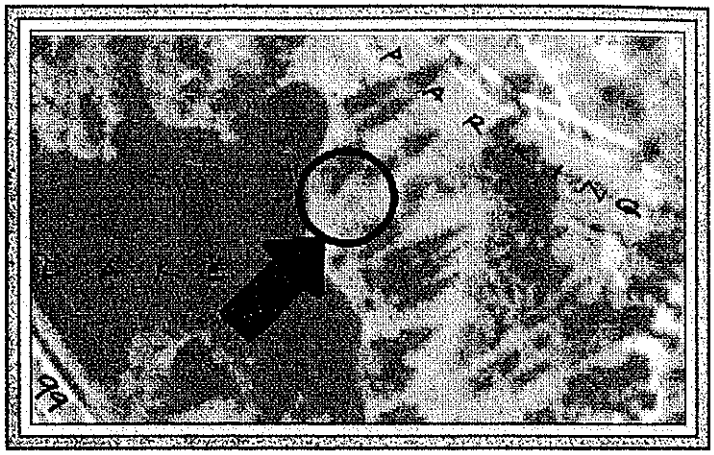
Preliminary Project Estimate of Probable Construction Costs

Constraints/Opportunities and Design Parameters

Roeding Park is one of the City of Fresno's two regional parks, and provides a 157 acre urban oasis of lakes and a myriad of recreational opportunities in a heavily urbanized area of the City of Fresno. Roeding Park also provides a Zoo for public enjoyment, and several privately managed amusement areas. The park serves over 500,000 visitors per year who visit the park to enjoy the large open expanses of green space, use the picnic pavilions, and enjoy the lakes in the park. However, the park is seriously lacking in playground facilities. Only one public playground is available for use by the general public in the extreme northeast end of the park.. By constructing a modern playground with a multitude of enjoyable play opportunities, the park will offer additional playground opportunities that will meet the requirements of the the American Society for Testing Materials (ASTM) standards, Consumer Product Safety Commission (CPSC) guidelines, and the Federal Americans with Disabilities Act of 1990 (ADA).



Roeding Park: Arrow denotes location of the proposed playground near the southwest section of the park.



Roeding Park/Detailed View: Arrow denotes location of the proposed playground near the lake adjacent to parking

Estimate of Probable Construction Costs

Contractor mobilization	$2,000
Demolition of existing facility	$3,500
New playground equipment	$75,000
ASTM/CPSC/ADA compliance	$2,500
(Includes resilient surfacing, new sand, and concrete to provide access to equipment)	
Picnic tables and barbeques	$3,000
Construction contingency	$2,000
Sub-total estimated construction costs	**$86,500**

Anticipated Administrative Costs

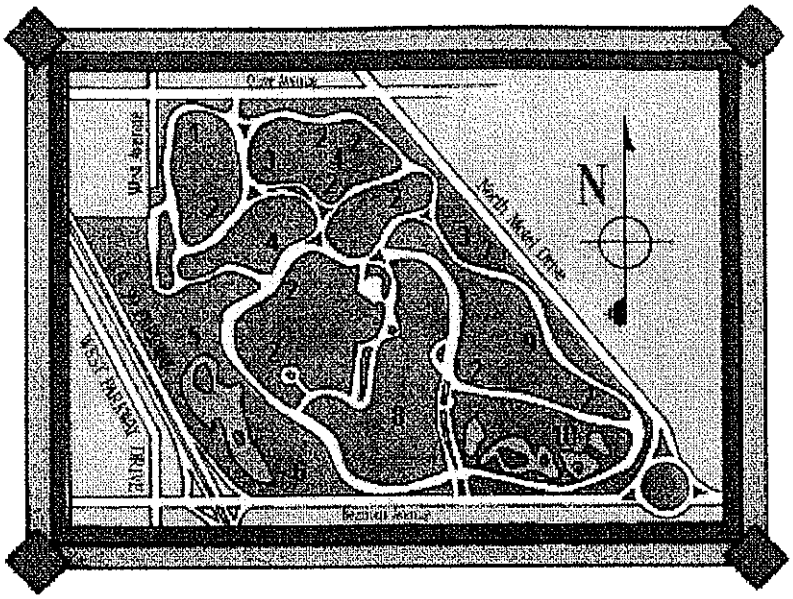
Preparation of plans, specifications, and bid documents (City of Fresno Parks Department)	$500
Environmental analysis, planning department review, building department plan check (City of Fresno)	$3,200
Bidding process (includes purchasing department, city attorney, and printing costs of bid documents)	$2,000
Administrative fee charged by the State of California to administer the grant (2%)	$2,000
Construction management fees (City of Fresno Construction Management Division)	$8,000
Sub-total estimated administrative costs	**$15,700**

TOTAL PRELIMINARY ESTIMATE OF PROBABLE CONSTRUCTION AND ADMINISTRATIVE COSTS (figure rounded up) $102,000

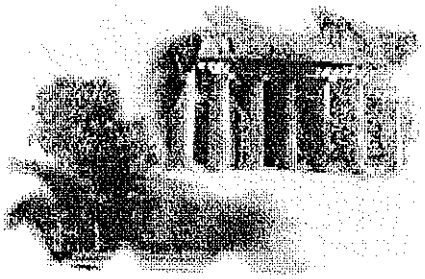
FRESNO PARKS, RECREATION AND COMMUNITY SERVICES

Roeding Park

Whatever you have in mind for fun or relaxation, Roeding Park is just the place to spend the afternoon! Beautifully landscaped with cool blue lakes, huge groves of trees, rolling green lawns, and dotted by flower gardens, the park contains eight championship tennis courts, two dance pavilions, horseshoe pits, slides and playgrounds, and many picnic areas, complete with picnic tables, and barbecue pits.



1 Tennis Courts
2 Picnic Tables with Grills
3 Folk Dance Pavilions
4 Children's Playground
5 Rotary Storyland
6 Rotary Playland
7 Japanese War Memorial
8 Chaffee Zoo
9 Horseshoe Pits
10 Fishing Lakes



For more information on Roeding Park Entrance Fees and Picnic Shelter Reservations click here.

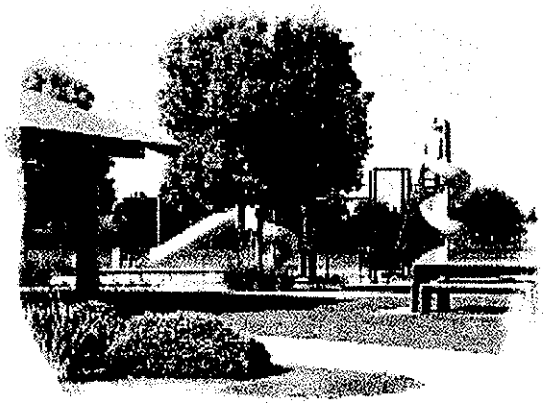
APPLICATION PROPOSAL

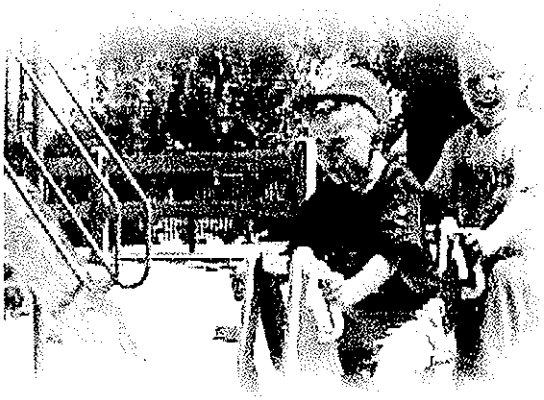
TO THE

STATE OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

FOR THE

LAND & WATER CONSERVATION FUND PROGRAM





Submitted by the

CITY OF FRESNO PARKS, RECREATION & COMMUNITY SERVICES DEPARTMENT

LAND AND WATER CONSERVATION FUND PROGRAM APPLICATION

Project Name: Roeding Park Children's Play Equipment Replacement and Installation of Picnic Tables, Benches, and Barbeques

Table of Contents

1. LWCF Application Form (2 copies)
2. Fresno City Council Resolution No. 2000-157 (1 copy)
3. Program Narrative (2 copies)
4. Development Cost Estimate (2 copies)
5. Source of Funds (1 copy)
6. Location Map (2 copies) - EXHIBIT A
7. 6(f)(3) Boundary Map (2 copies) - EXHIBIT B
8. Site Plan Map (2 copies) - EXHIBIT C
9. Floor Plans of Buildings *(Not Applicable)*
10. Evidence of CEQA Compliance - Notice of Exemption (2 copies)
11. Evidence of NEPA Compliance - Environmental Certification (2 copies)
12. Certification of Compliance - Relocation Act (PL 91-646) (1 copy)
13. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion (1 copy)
14. Certification Regarding Lobbying, DI 1963 (1 copy)
15. Civil Rights Assurances, DI-1350 (1 copy)
16. SHPO Memorandum of Understanding (2 copies)
17. Approved Lease or Operating Agreement *(Not Applicable)*
18. Corps of Engineers Permit *(Not Applicable)*
19. Other Required Permits *(Not Applicable)*
20. Photographs of Site

Submitted by

City of FRESNO

Parks, Recreation and Community Services
2326 Fresno Street, Room 101
Fresno, CA 93721-1824
Telephone 559/498-1145 FAX 559/498-1588

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LAND AND WATER CONSERVATION FUND PROGRAM APPLICATION

This Form and Required Attachments Must Be Submitted for Each Project Site

TYPE OF PROJECT (check one below)

■ Acquisition
■ Development

PROJECT NAME	Amount of Grant Requested
Roeding Park Children's Play Equipment Replacement and Installation of Picnic Tables, Benches, and Barbecues	$50,000.00
	ESTIMATED TOTAL PROJECT COST $100,000.00

GRANT APPLICANT (Agency and address-include zip code)	COUNTY	NEAREST CITY
City of Fresno Parks, Recreation and Community Services 2326 Fresno Street, Room 101 Fresno, CA 93721-1824	Fresno	Fresno
	PROJECT ADDRESS: 890 West Belmont, Fresno, CA 93728	
	NEAREST CROSS STREET: Belmont Avenue and Highway 99	

CONGRESS. DIST. NO.	SENATE DIST. NO.	ASSEMBLY DIST. NO.
19	16	31

Grant Applicant's Representative Authorized in Resolution

Name (type)	Title	Phone
Ronald P. Primavera	Parks, Recreation and Community Services Director	559/498-1145

Person with day-to-day responsibility for project (if different from authorized representative)

Name (type)	Title	Phone
LeRoy Milavich	Management Analyst III	559/498-4919

Brief Description of Project

Project proposes to replace the children's play equipment in the largest of two play areas in Roeding Park, a 157-acre regional park serving the Fresno-Clovis Metropolitan Area and the Central Valley with an annual attendance of in excess of one million visitors. The project will also install three picnic tables and barbeques adjacent to the play area and three benches around the perimeter of the play area. The play equipment, picnic tables, and benches will be constructed of durable plastic and plastic-coated metal. The barbeques will be constructed of cast iron. All improvements will be accessible to the developmentally challenged.

For Development Projects Land Tenure – Project is: 157 acres:	For Acquisition Projects land will be _____ acres
157 Acres owned in fee simple by Grant Applicant	_____ Acquired in fee simple by Grant Applicant
_____ Acres available under a _____ year lease	_____ Acquired in other than fee simple (explain)_____
_____ Acres other interest (explain)_____	

I certify that the information contained in this project application form, including required attachments, is accurate and that this project is consistent with the park and recreation element of the applicable city or county general plan or the district park and recreation plan and will satisfy a high priority need.

Signed R. Primavera
Grant Applicant's Authorized Representative as shown in Resolution

6/15/00
Date

RESOLUTION NO. 2000-157

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA APPROVING THE APPLICATION FOR LAND AND WATER CONSERVATION FUNDS

PROJECT: *REPLACEMENT OF CHILDREN'S PLAY EQUIPMENT AT ROEDING PARK*

WHEREAS, the Congress under Public Law 88-578 has authorized the establishment of a Federal Land and Water Conservation Fund Grant-In-Aid Program, providing matching funds to the State of California and its political subdivisions for acquiring lands and developing facilities for public outdoor recreation purposes; and

WHEREAS, the State Department of Parks and Recreation is responsible for administration of the program in the State, setting up necessary rules and procedures governing application by local agencies under the program; and

WHEREAS, said adopted procedures established by the State Department of Parks and Recreation require the applicant to certify by resolution the approval of applications and the availability of local matching funds prior to submission of said applications to the State; and

WHEREAS, the proposed *Replacement of Children's Play Equipment at Roeding Park* project is consistent with the Statewide Comprehensive Recreation Resources Plan: California Outdoor Recreation Plan - 1994; and

WHEREAS, the project must be compatible with the land use plans of those jurisdictions immediately surrounding the project.

NOW, THEREFORE BE IT RESOLVED that the Council of the City of Fresno does hereby:

Section 1. Approve the filing of an application for Land and Water Conservation Fund assistance; and

Section 2. Certify that said agency has matching funds from the following source(s): appropriated FY 1999 Community Development Block Grant funds; and can finance 100 percent of the project, half of which will be reimbursed; and

Section 3. Certify that the project is compatible with the land use plans of those jurisdictions immediately surrounding the project; and

Adopted 5/23/00
Approved 5/23/00
Effective 5/23/00

2000-157

Section 4. Appoint the Parks, Recreation and Community Services Director, or his/her designated authorized representative, as agent of the City of Fresno to conduct all negotiations and execute and submit all documents, including, but not limited to, applications, agreements, amendments, billing statements, and so on, which may be necessary for the completion of the aforementioned project.

* * * * * * * * * * * * * *

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, REBECCA E. KLISCH, City Clerk of the City of Fresno, certify that the foregoing resolution was adopted by the Council of the City of Fresno, at a regular meeting held on the 23rd day of May, 2000.

AYES : Bredefeld, Mathys, Quintero, Steitz, Boyajian
NOES : None
ABSENT : Perea, Ronquillo
ABSTAIN : None

Mayor Approval: N/A, 2000

Mayor Approval/No Return: N/A, 2000

Mayor Veto: N/A, 2000

Council Override Vote: N/A, 2000

REBECCA E. KLISCH
City Clerk

BY: Elvira Sommerville
Deputy

APPROVED AS TO FORM
CITY ATTORNEY'S OFFICE

BY: Robert G
Deputy

RC:cs[10999cs/rc.1]-5/16/00

LAND AND WATER CONSERVATION FUND
PROGRAM NARRATIVE

ROEDING PARK CHILDREN'S PLAY EQUIPMENT REPLACEMENT AND INSTALLATION OF PICNIC TABLES, BENCHES, AND BARBEQUES

a. Local Project Selection Criteria

Roeding Park, a 157-acre regional park, serves visitors from the Fresno-Clovis Metropolitan Area as well as throughout the Central San Joaquin Valley from Modesto to Bakersfield. The park attracts visitors to the Chaffee Zoological Gardens, Rotary Playland and Storyland, a ten-court tennis complex and provides facilities for large organized and small spontaneous picnics. Frequently, visitors from outside of the Fresno area choose this park as a convenient location for family reunions or other gatherings due to its proximity to Freeway 99 and its many attractions. Also, Roeding Park serves the immediate adjacent residential areas as a neighborhood park since the closest park is more than two miles away. It is estimated that in excess of one million people visit Roeding Park annually.

View of Roeding Park

Existing Playground near the Pine Grove Picnic Shelter

Roeding Park has two designated children's play areas: the play equipment in the largest of the two areas was removed one year ago because of extreme wear and safety concerns and would be replaced with approval of this LWCF grant request. The remaining children's play area is smaller and unable to meet the demand for this type of recreation activity. It is not unusual to see children, especially on busy weekends and holidays, waiting along the play area curbing for an opportunity to access the equipment. The proposed design will enhance the areas surrounding the playground by installing several groups of picnic tables with barbeques and additional benches around the play area to provide increased seating for parents supervising their children and park visitors enjoying a picnic.

According to census data, the area around Roeding Park is comprised of predominately low- and moderate-income families. The adjacent neighborhoods have been designated as an area eligible to receive local Redevelopment Agency funding and Federal Community Development Block Grant Program funding, which is the source of this LWCF Program grant application local match share. Also, based on picnic shelter and picnic grove reservation information, approximately 75% of park users are ethnic minorities, (Mexican-American, African-American, and Asians).

Roeding Park also has a wheelchair exercise course and a senior citizen exercise course and, along with the tennis court complex, is a popular park for the developmentally challenged and senior citizens to visit and participate in recreation opportunities designed for their needs. The existing play area is not accessible to disabled users, and has no handicapped parking spaces designated for near the playground for disabled users who wish to access the play area. The proposed enhancements to the existing play area, including play equipment, picnic tables, and benches would be designed and installed so that the site is universally accessible to all users by complying with the Federal Americans with Disabilities Act of 1990 (ADA), the guidelines required for such facilities by the Consumer Product Safety Commission (CPRS), the Standards required by the American Society for Testing Materials (ASTM), and the California State Titles 22 (Health and Safety Code) and Title 24 (Access Law). Public transportation is readily provided to the site as Roeding Park is easily accessed by public transportation (Fresno Area Express) which has a route within the park, motor vehicles, bicycles or foot traffic.

View of Existing Exercise Par Course

With proper maintenance, the children's play equipment and picnic improvements have a life expectancy of approximately 25 years. Since Roeding Park receives the highest annual usage (in excess of one million visitors), out of all existing park facilities included within the City of Fresno Park and Recreation Master Plan (which includes two regional parks, six community parks, 30 neighborhood parks and nine pocket parks), the cost benefit ratio for an investment of $100,000 (including the local match share) is $4,000 per year, which is a very cost-effective expenditure considering the enjoyment this project will bring to the thousands of parents and children each year. The replacement of the children's play equipment is identified as a high priority need in the Five-Year Capital Improvement Plan for the City Parks, Recreation and Community Service Department.

View of a Newly Constructed Playground in the City of Fresno

b. ***Objectives***

According to the Statewide Comprehensive Recreation Resource Plan, entitled California Recreation Plan - 1994, the proposed project is a Priority 5 and Priority 4, respectively, for the children's play equipment and the picnic tables, benches, and barbeques.

The previous children's play equipment was removed because of severe wear and public safety concerns. The equipment was over 20 years old and made from wood material for which replacement parts were no longer available. Also, the old equipment did not meet the current requirements of the ADA, CPRS, ASTM, and the State requirements for play equipment. The new play equipment will be made from durable modern materails, including poly coated steel, high tensil ABS plastic and steel while complying with all current standards, guidelines, and laws specific to playgrounds and picnic areas while providing a rich play environment for children of all abilities from 2-12 years old. Since Roeding Park already has an exercise course designed specifically for the developmentally challenged, use of the new play equipment by this special population is anticipated to be high. The entire site will be accessed with a new walkway from the street in order to provide access for disabled users. The existing curbing surrounding the site will be enhanced with a new sidewalk so that the whole picnic/playground environment is universally accessible circuitously.

The proposed picnic tables, barbeques and benches are proposed to be located directly adjacent to the new playground in groups and in singles. This will provide opportunities for families to gather around the playground as well as individual users to use single tables. The large existing Oak and Camphor trees on the West side of the site will be augmented with new tree plantings all around the site to further provide shade for the area. The picnic tables, benches, and barbeques will also be fully accessible to the developmentally challenged.

Picnicking in Roeding Park

As indicated earlier, of all City parks, Roeding receives the highest annual usage with an estimated attendance in excess of one million visitors. The new children's play equipment and picnic improvements will not only increase the popularity of the park but provide a more enjoyable park visit as well. To provide a safer play environment, the equipment will be designed in separate modules with each offering specific challenges to meet the needs and expectations of the respective age group–from toddlers (2-5 years old) to pre-teens (5-12 years old). Our objective will be to design a safe, challenging, and attractive children's play area which will be thoroughly enjoyed and remembered by all, especially the children.

Between the months of March and October, it is almost impossible to find an unoccupied picnic table at Roeding Park during the weekends and holidays. A reservation system is used to secure picnic shelters and picnic groves–individual picnic tables are occupied on a first-come, first-serve basis. The addition of additional tables surrounding the play equipment along with barbeques and benches will provide needed picnic improvements,

while the benches around the children's play area will offer a more comfortable and relaxed atmosphere for parents supervising their children.

The replacement of the children's play equipment and the addition of picnic tables, barbecues and benches at Roeding Park is included in the Department's Five-Year Capital Improvement Program and has a first-year funding priority. The requested LWCF Program grant of $50,000 (along with the committed $50,000 local match share) would provide the necessary funding to move this project forward. The completion time frame would be one year after execution of the LWCF grant agreement.

c. Approach

This project proposes to replace the children's play equipment, add picnic tables, barbecues and benches in the largest of two play areas in Roeding Park, a 157-acre regional park serving the Fresno-Clovis Metropolitan Area and the Central San Joaquin Valley with an annual attendance of in excess of one million visitors. The play equipment, picnic tables, benches and barbecues will be constructed of durable modern materials which will withstand the usage and increase the life of the equipment while reducing maintenance requirements for parks staff. All the improvements will be accessible to the developmentally challenged.

Playgrounds Improve the Quality of Life!

A request for an environmental impact assessment has been submitted and a Categorical Exemption finding is anticipated.

The project will begin immediately after execution of an agreement with the State Department of Parks and Recreation and be completed within one year. Project design and construction inspection will be provided by the City of Fresno.

d. Geographic Location

The project location is within Roeding Park, a 157-acre regional park located at 890 West Belmont Avenue in the City of Fresno (see attached Location and Boundary Maps). The project will primarily serve the Fresno-Clovis Metropolitan Area with a population of approximately 650,000; but based on park picnic shelter and picnic grove reservation information, visitors throughout the San Joaquin Central Valley frequent the park. In excess of one million people visit the park annually.

e. Relationship Between Project and Other Federally Funded Work

Roeding Park was constructed in 1945 and, over the years, has been a recipient of several grants from the Land and Water Conservation Fund Program. In FY 1980, a $127,000 grant was awarded to rehabilitate the tennis courts; in FY 1987, a grant of $92,250 was awarded to make additional improvements to the tennis court; and in FY 1988, an award of $60,734 was received to construct the Australian Exhibit at the Chaffee Zoological Gardens located in Roeding Park.

f. Agreements

Upon completion of the project, the play equipment and picnic improvement will be maintained by the City of Fresno Parks, Recreation and Community Services Department. The Parks Division currently maintains Roeding Park along with 589 acres of additional park open space located at 46 other sites. The Parks Division has a permanent maintenance staff of five full-time employees and seven seasonal workers assigned to Roeding Park. A daily maintenance schedule is followed to ensure proper attention is given to all park improvements. A Parks Supervisor I is assigned full-time to Roeding Park to provide supervision for all work and activity taking place in the park.

g. Elected Representatives

Jim Costa - State Senatorial District No. 16
Sarah Reyes - State Assembly District No. 31
George Radanovich - U. S. Congressional District No. 19

h. Toxins

No toxins have been identified in Roeding Park which will adversely impact the proposed project.

i. Relocation of Persons and Businesses

The proposed project will not displace persons or businesses.

j. Overhead Utility Lines

Overhead electrical or telephone lines do not exist in Roeding Park.

k. Flood Hazard Area

Roeding Park is not located in a Flood Hazard Area.

ROEDING REGIONAL PARK PICNIC & PLAYGROUND IMPROVEMENTS

Development Cost Estimate With Percentages by Type of Activity

Constraints/Opportunities and Design Parameters

Roeding Park is one of the City of Fresno's two regional parks, and provides a1157 acre urban oasis of lakes and a myriad of recreational opportunities in a heavily urbanized area of the City of Fresno. Roeding Park also provides a Zoo for public enjoyment, and several privately managed amusement areas. The park serves over 500,000 visitors per year who visit the park to enjoy the large open expanses of green space, use the picnic pavilions, and enjoy the lakes in the park. However, the park is seriously lacking in playground facilities. Only one public playground is available for use by the general public in the extreme northeast end of the park.. By constructing a modern playground with a multitude of enjoyable play opportunities, the park will offer additional playground opportunities that will meet the requirements of the American Society for Testing Materials (ASTM) standards, Consumer Product Safety Commission (CPSC) guidelines, the Federal Americans with Disabilities Act of 1990 (ADA), and California State Title 22 and 24 requirements.

Estimate of Probable Construction Costs	**Quantity**	%
Contractor mobilization	$1,000	1
Miscellaneous Demolition/Ground Preparation costs	$1,000	1
New playground equipment	$70,000	70
ASTM/CPSC/ADA compliance (Resilient surfacing, new sand, and concrete to provide access to equipment)	$2,500	2.5
Picnic tables and barbeques	$4,800	5
Construction contingency	$5,000	5
Sub-total estimated construction costs	**$84,300**	**84.5**
Anticipated Administrative Costs		
Preparation of plans, specifications, and bid documents (City of Fresno Parks Department)	$500	.5
Environmental analysis & planning department review, building department plan check (City of Fresno)	$3,200	3
Bidding process (includes purchasing department, city attorney, and printing costs of bid documents)	$2,000	2
Administrative fee charged by the State of California to administer the grant (2%)	$2,000	2
Construction management fees (City of Fresno Construction Management Division)	$8,000	8
Sub-total estimated administrative costs	**$15,700**	**15.5**
TOTAL DEVELOPMENT COST ESTIMATE	**$100,000**	**100**

SOURCE OF FUNDS

The City of Fresno's source of funds that will be used to finance 100% of the project is Community Development Block Grant Program.

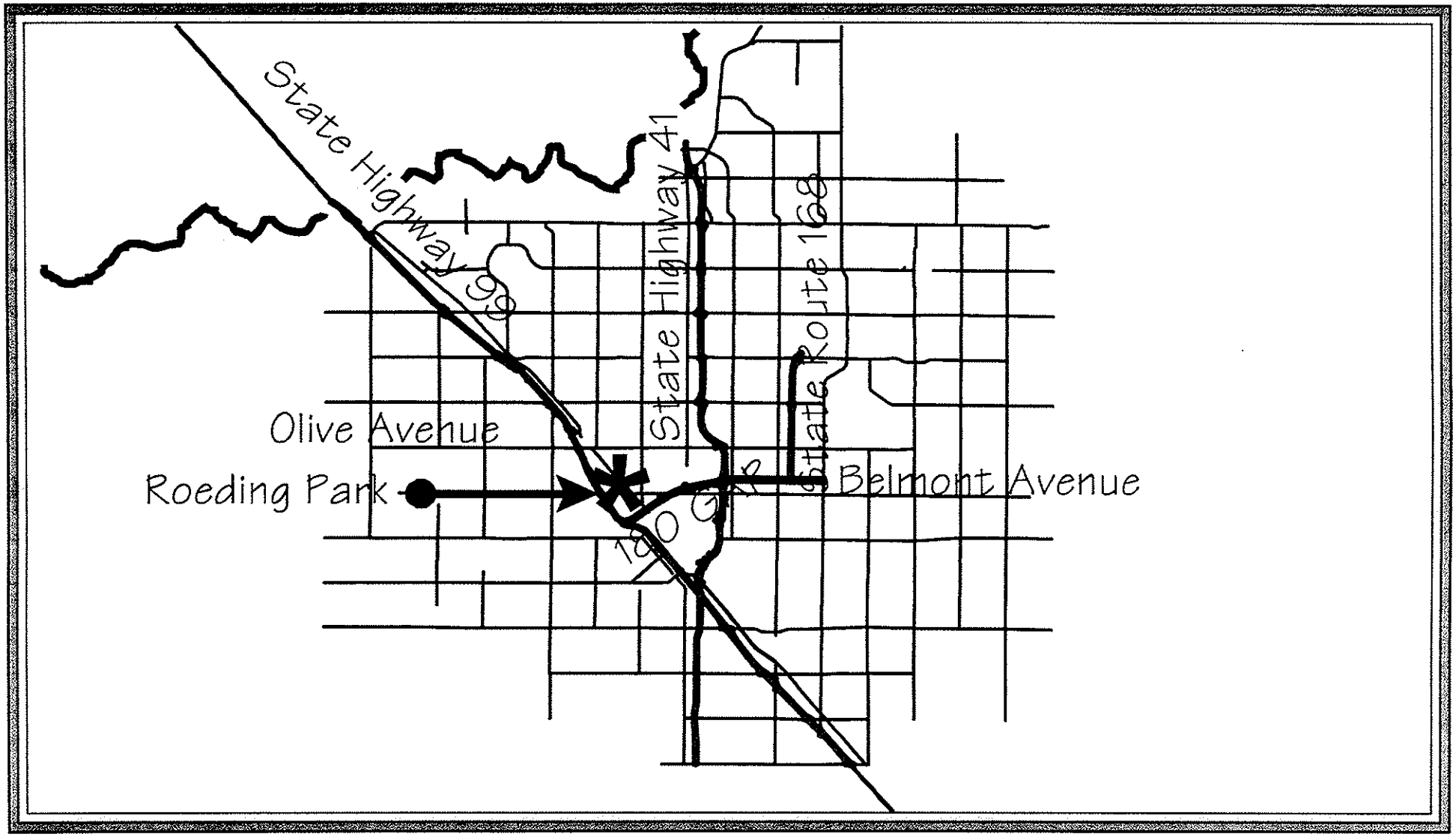


Exhibit A: Roeding Park Area Location Map

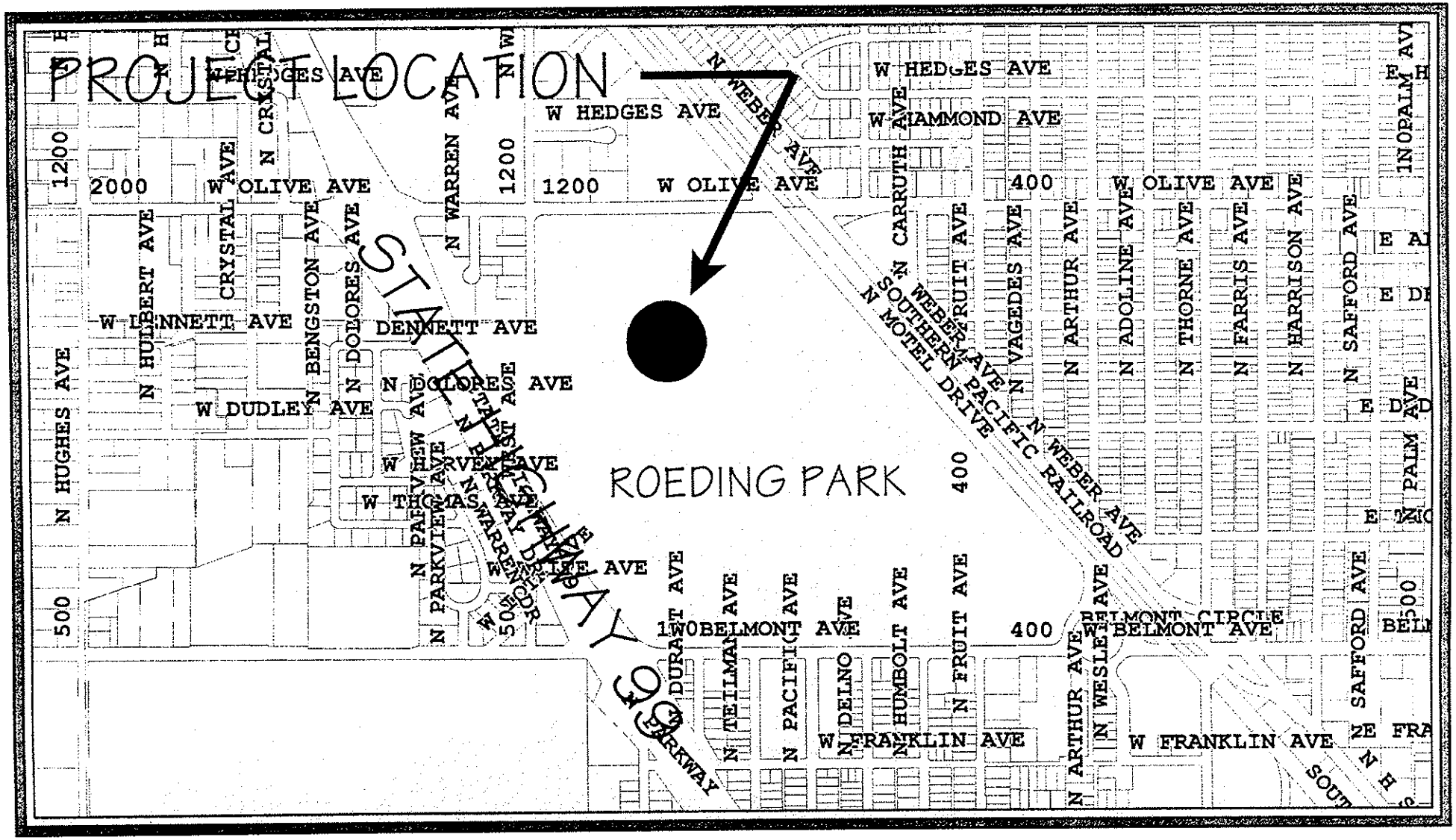


Exhibit B: 6 (f)(3) - Boundary Map

Proposed Picnic/ Playground Area @ Roeding Park

Ronald P. Primavera - Director
Parks, Recreation & Community Services
Authorized Representative
Date: June 14, 2000

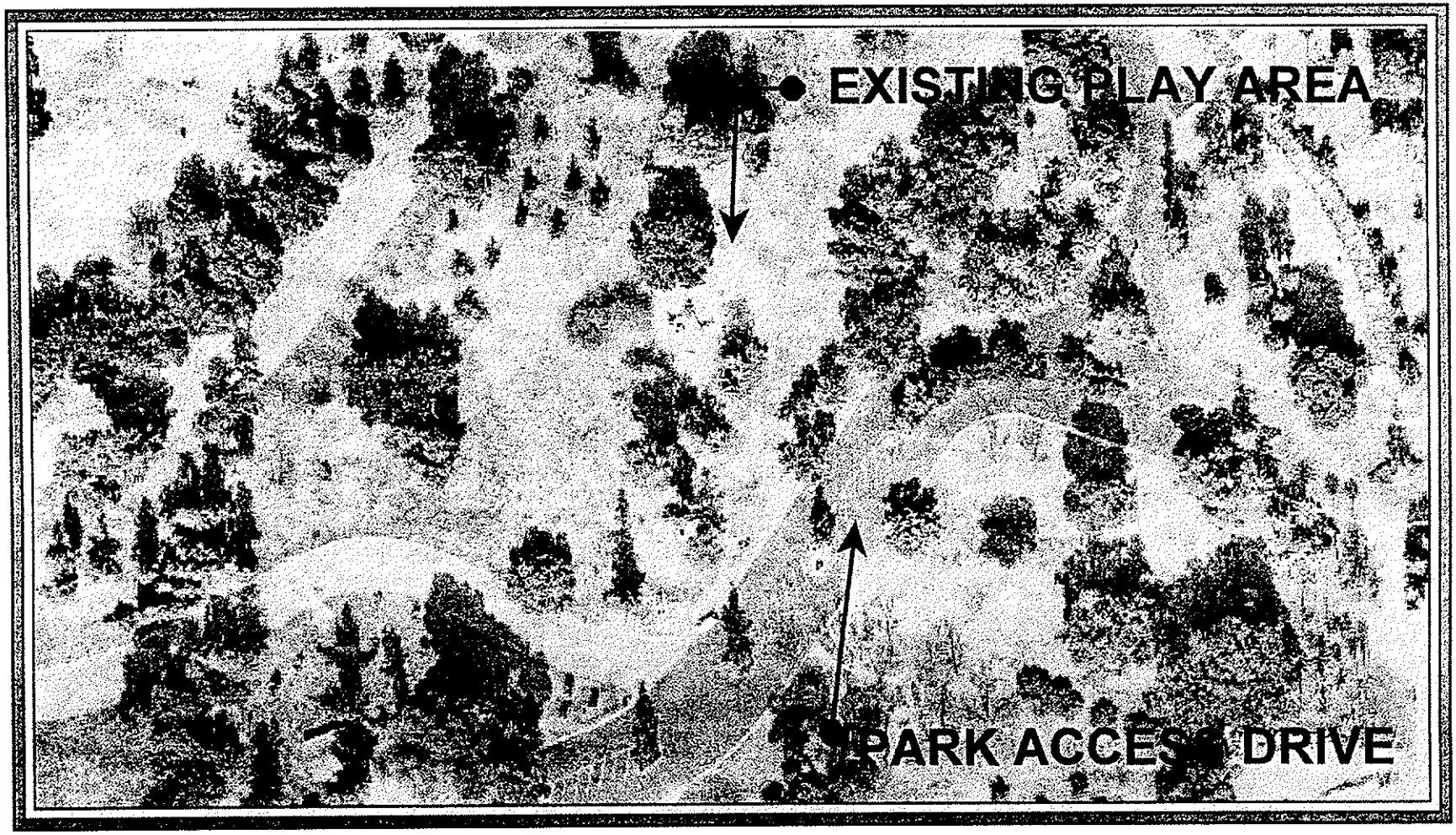


EXHIBIT C: SITE MAP

The existing wooden playground equipment was removed by the Parks Department because the equipment had outlived it's effective age and was slowly falling apart to a condition that would not be acceptable to current playground safety standards as required by industry, federal, and state standards. The existing site is bounded by a concrete mow strip, the play area is filled with sand, and large Oak and Camphor trees provide shade in the afternoon. Access to the site is provided by park access roads off of Belmont Avenue and Olive Avenue, and access for disabled users will be provided by a proposed walkway from the park access road to the site. Additional handicap parking will also be constructed.

City of
FRESNO

DEVELOPMENT DEPARTMENT

June 2, 2000

TO: LEROY MILAVICH, Management Analyst III
Parks, Recreation and Community Services Department

FROM: GILBERT J. HARO, Planning Manager
Development Department

SUBJECT: NEPA AND CEQA REVIEW OF ENVIRONMENTAL ASSESSMENT NO. EA-00-031 REGARDING REPLACEMENT OF CHILDREN'S PLAYGROUND EQUIPMENT AT ROEDING PARK FACILITY LOCATED AT 890 WEST BELMONT AVENUE

A preliminary determination has been made that this project, as proposed, is categorically excluded from review UNDER Section 58.35 (a) (1) of 24 CFR 58 of the Federal Register as it pertains to the National Environmental Policy Act (NEPA), and under Section 58.34 (a)(12) of 24 CFR 58 converts to an exemption from the requirements of NEPA. Therefore, an environmental exemption has been issued, a copy of which is attached. Also attached is a copy of the required "Statutory Worksheet" which verifies the conversion of the project to exempt status under the provisions of NEPA.

Moreover, a preliminary determination has also been made that your project, as proposed, is categorically exempt from review under Section 15302/ Class 2 of the California Environmental Quality Act (CEQA). Therefore, an environmental exemption has been issued, a copy of which is attached.

Should you need further assistance, or have questions, please call Donn B. Beedle, at telephone extension 2716.

Attachments

CITY OF FRESNO
CATEGORICAL EXEMPTION
ENVIRONMENTAL ASSESSMENT NO. EA-00-031

THE PROJECT DESCRIBED HEREIN IS DETERMINED TO BE CATEGORICALLY EXEMPT FROM THE PREPARATION OF ENVIRONMENTAL DOCUMENTS PURSUANT TO ARTICLE 19 OF THE STATE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) GUIDELINES.

APPLICANT: Leroy Milavich, Management Analyst III
City of Fresno,
Parks, Recreation and Community Services Department

PROJECT LOCATION: 890 West Belmont Avenue, Fresno California
(Roeding Park facility)

PROJECT DESCRIPTION: Remove old and deteriorated children's playground equipment and replace with new children's playground equipment for infant, tot and preteen use in accordance with state and federal rules and regulations pertaining to access by developmentally challenged persons. The project does not involve any increase in size or capacity over the current site and equipment. The project involves the expenditure of Community Development Block Grand Funds (CBDG).

This project is exempt under Section 15302 / Class 2 of the California Environmental Quality Act Guidelines.

EXPLANATION: Under the Section 15302 / Class 2 exemption, the replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site and have the same purpose and capacity as the replaced structure is exempt from CEQA requirements.

As noted in the project description, the proposed project essentially replaces existing play equipment with new equipment that has similar capacity and purpose, and, thus complies with the above-referenced exemption

Date: June 2, 2000

Prepared By: Donn B. Beedle
Associate Planner

Submitted by:
Gilbert J. Haro
Planning Manager
City of Fresno
Development Department
(559) 498-4441

CITY OF FRESNO
EXEMPTION FROM THE PROVISIONS OF THE NATIONAL ENVIRONMENTAL POLICY ACT

ENVIRONMENTAL ASSESSMENT NO. EA-00-031

THE PROJECT DESCRIBED HEREIN IS DETERMINED TO BE EXEMPT FROM THE PREPARATION OF ENVIRONMENTAL DOCUMENTS PURSUANT TO 24CFR58.34(a)(12) OF THE FEDERAL REGISTER, ENVIRONMENTAL REVIEW PROCEDURES, PERTAINING TO THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA).

APPLICANT: Leroy Milavich, Management Analyst III
Parks, Recreation and Community Services Department, City of Fresno

PROJECT LOCATION: 890 West Belmont Avenue, Fresno, California
(Roeding Park facility)

PROJECT DESCRIPTION: Remove old and deteriorated children's playground equipment and replace with new children's playground equipment for infant, tot and preteen use in accordance with state and federal rules and regulations pertaining to access by developmentally challenged persons. The project does not involve any increase in size or capacity over the current site and equipment. The subject site is within the Roeding Park facility located along the north side of West Belmont Avenue, between Freeway 99 and North Motel Drive (890 West Belmont Avenue). The project involves the expenditure of Community Development Block Grant Funds (CBDG).

A Statutory Worksheet (attached) has been completed for the project pursuant to the provisions of Section 58.35(a)(1) of 24 CFR 58 of the Federal Register. In accordance with Section 58.34(a)(12) of 24 CFR 58, this project converts to Exempt because it will not result in a violation of any statutes or authorities, nor requires a permit or license.

EXPLANATION: Section 58.35(a)(1) provides that certain activities are categorically excluded under NEPA including the acquisition, repair, improvement, reconstruction, or rehabilitation of public facilities.

Section 58.34(a)(12) further provides that these types of projects that will not result in a violation of any statute or do not require consultation or mitigation convert to exempt status from the provisions of the National Environmental Policy Act.

Date: June 2, 2000

Prepared By: Donn B. Beedle,
Associate Planner

Submitted by:
Gilbert J. Haro
Planning Manager
City of Fresno
Development Department
(559) 498-4441

STATUTORY WORKSHEET

Use this Worksheet for projects which are Categorically Excluded, per Section 58.35.

STATUTES EXECUTIVE ORDERS REGULATIONS

PROJECT NAME and DESCRIPTION (LIST ALL PROJECT ACTIVITIES AND APPLICABLE SECTION OF 58.35):

Environmental Assessment No. EA-00-031: Remove old and deteriorated children's play equipment, consisting of swings, slides and climbing apparatus (installed approximately 20 years ago) and replace it with new swings, slides, and climbing bars for infant, tot, and preteen use in accordance state and federal rules and regulations pertaining to access by developmentally challenged persons. The replacement equipment will be installed within the same area that contains the existing equipment–a tot lot–and does not involve any increase in size or capacity over the current site and equipment. The area comprising the proposed project is within a city regional park (Roeding Park) located along the north side of West Belmont Avenue, between Freeway 99 and North Motel Drive (890 West Belmont Avenue). The proposed project will involve the expenditure of Community Development Block Grant Funds (CDBG).

For projects that are CATEGORICALLY EXCLUDED, per Section 58.35(a), complete this Worksheet as follows: Write "A" in the Status Column when the project, by its nature, cannot affect the resources under consideration; OR write "B" when compliance triggers formal consultation procedures with oversight agencies, or requires mitigation. The compliance documentation must contain verifiable source documents and relevant base data. For activities that are CATEGORICALLY EXCLUDED, per 58.35(b), complete the project description and record conversion to exemption below.

Compliance Factors: Statutes, Executive Orders,and Regulations [24 CFR 58]	A/B	Compliance Documentation
Historic Preservation [36 CFR 800]	A	The project involves the replacement of children's play equipment that was installed approximately 20 years ago and does not involve the expansion of the subject site. Therefore, no further review is required.
Floodplain Management [24 CFR 55, Executive Order 11988]	A	As noted above, the subject site is within the Roeding Park complex. Although the southeasterly portion of the park has been designated by FEMA maps as being within Zone B--a 100-year floodplain--the subject site is entirely within Zone C--an area of minimal flooding. Staff from the Fresno Metropolitan Flood Control District has indicated that the project will not generate any concerns.
Wetland Protection (Executive Order 11990]	A	The project location does not include new construction or remodeling within or adjacent to a wetland.
Coastal Zone Management Act [Section 307(c), (d)]	A	The project location, as well as the entire City of Fresno, is not in the proximity of a coastal zone.
Sole Source Aquifers [40 DFR 149]	A	The project need not be referred to EPA for evaluation according to the HUD-EPA Region IX sole source Aquifer MOU of 1990.
Endangered Species Act [50 CFR 402]	A	The project will not impact any endangered species or critical habitat as the area is located within established urban areas.
Wild and Scenic Rivers Act [Section 7(b) and (c)]	A	The project is not located within one mile of a wild or scenic river.
Clean Air Act [Sections 176(c), (d), and 40 CFR 6, 51, 93]	B	Although the project could temporarily increase emissions of PM10, as a result of temporary construction activity as the result of the installation of play equipment, the generation of this pollutant will subside after the construction phase is over and will be subject to certain aspects of District Regulations VIII. The project is not expected to generate additional pollutants as a result of the "day to day" activities of the tot lot.
Farmland Protection Policy Act [7 CFR 658]	A	The project does not include the use or destruction of any prime or unique farmland.

Environmental Justice [Executive Order 12898]	A	There are no extraordinary circumstances or conditions affecting the locations of the project areas. The proposed park improvements will provide a needed recreation activity.
HUD ENVIRONMENTAL STANDARDS Noise Abatement and Control [24 CFR 51B]	A	The project does not involve development of noise-sensitive uses.
Explosive and Flammable Operations [24 CFR 51C]	A	The project will not expose people or buildings to explosive or flammable operations.
Toxic Chemicals and Radioactive Materials [HUD Policy Notice 79-33]	A	The project does not involve new development for habitation
Airport Clear Zones and Accidents Potential Zones [24 CFR 51D]	A	According to the Airport Environs Specific Plan, the project does not lie within an Airport Clear Zone, Accident Potential Zone, or primary review area.

Check the box which applies to this project:

(X) The project converts to Exempt, per Section 58.34(a)(12), because: it will not result in a violation of any statutes or authorities, nor requires a permit or license (all the statutes listed above have the letter "A" marked in the column); OR it is "not subject to Section 58.5". Funds may be drawn down for this (now) EXEMPT activity.

( ) This project cannot convert to Exempt. One or more statutes require consultation or mitigation. Complete consultation/mitigation requirements, publish NOI/RROF and complete draw-down procedures, per Section 58.70 and 58.71.

( ) This project or activity may have a significant environmental impact, and thus requires preparation of an Environmental Assessment. Complete the EA and applicable public notification.

PREPARER SIGNATURE: Dann B. Beedle DATE: June 2, 2000

PREPARER NAME: Dann B. Beedle

DBB:eajz\K\Common\EA\EA-00-031-StatWrksheet

00 JUN 7 PM 3:50

CERTIFICATION OF COMPLIANCE
WITH PL 91-646 (for Development Projects Only)

In order to assure compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646), each application for a development project shall include evidence of exemption or a certification of compliance with PL 91-646.

A. Exemptions to Certification

If your project falls into one of the following exemptions to the Certification of Compliance with PL 91-646, please circle the applicable category, and sign in the space provided. If not, please proceed to Section B.

Exemption Categories

1. If the acquisition occurred prior to January 2, 1971, no certification is required.

2. If the acquisition was done WITH FEDERAL FUNDING ASSISTANCE, NO CERTIFICATION IS REQUIRED.

3. If the acquisition and/or last displacement of occupants (without federal assistance) occurred more than five (5) years ago and no planning activity has been initiated (at the time of acquisition or displacement) to obtain the federal grant being applied for, no certification is required.

4. The acquisition was exempt from PL 91-646 because:

Ronald P. Primavera
Parks, Recreation and Community Services Director

R Primavera — 6/15/00

Authorized Representative — Date

B. Certifications

Please complete the applicable certification for your development project.

1. If the land to be developed was acquired (without federal assistance), within the preceding two years of this application, the application must include two copies of a certification by the applicant's legal counsel that Public Law 91-646 was complied with.

The applicant (Agency Name) hereby assures and certifies that the provisions of PL 91-646 were complied with in the acquisition of property identified in the Land and Water Conservation Fund application for the:

(Project Name) _____

And further certifies that:

A) The property was appraised prior to negotiations.

B) The property owner or his representative had been invited by the appraiser to accompany him on his inspection of the property.

C) The property owner or his representative was presented with a summary of just compensation.

D) The property owner or his representative was offered the appraised value, (or) was aware of his right to receive the appraised value.

E) All eligible occupants were offered relocation assistance or the property was vacant at the time of acquisition.

_____	_____	_____
Legal Counsel of Applicant	Title	Date

2. If the acquisition (without federal assistance) occurred more than two (2) years but less than five (5) years before this application, the applicant must provide either the above certification or three copies of a written certification by the authorized representative of the State or local government agency sponsoring the project that no planning at that time had been initiated to obtain federal financial assistance.

I, _____ _____
(Name) Authorized Representative (Title-Agency)

hereby certify, under penalty for willful misstatement (18 U.S.C. 1001), that at the time of the acquisition and last known displacement on the project lands for which this federal financial assistance is being sought, no planning had been initiated by this agency to obtain this financial assistance.

_____	_____
Authorized Representative	Date

U.S. DEPARTMENT OF THE INTERIOR
LOWER TIER COVERED TRANSACTIONS

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 43 CFR Part 12, Section 12.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (Pages 19160-19211). Copies of the regulations are included in the proposal package. For further assistance in obtaining a copy of the regulations, contact the U.S. Department of the Interior, Acquisition and Assistance Division, Office of Acquisition and Property Management, 18th and C Streets, N.W., Washington, D.C. 20240.

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Ronald P. Primavera, Parks, Recreation and Community Services Director
Name and Title of Authorized Representative

RPrimavera 6/15/00
Signature Date

U.S. Department of the Interior

CERTIFICATION REGARDING LOBBYING

This certification is required by Section 1352, title 31, U.S. Code, entitled "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions."

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Signature _____ Date 6/15/00

DI 1963(Jan 90)

U. S. DEPARMENT OF INTERIOR

CIVIL RIGHTS ASSURANCE

As the authorized representative of the applicant, I certify that the applicant agrees that, as a condition to receiving any federal financial assistance from the Department of the Interior, it will comply with all federal laws relating to nondiscrimination. These laws include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (42 U.S. C. 2999d-1), which prohibits discrimination on the basis of race, color, or national origin; (b) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), which prohibits discrimination on the basis of handicap; (c) the Age Discrimination Act of 1975, as amended (42 U.S.C. 6101 et seq.), which prohibits discrimination on the basis of age; and applicable regulatory requirements to the end that no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity conducted by the applicant. THE APPLICANT HEREBY GIVES ASSURANCE THAT it will immediately take any measures necessary to effectuate this agreement

THIS ASSURANCE shall apply to all aspects of the applicant's operations, including those parts that have not received or benefitted from federal financial assistance.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the applicant by the department, this assurance shall obligate the applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the applicant for the period during which it retains ownership or possession of the property. In all other cases, this assurance shall obligate the applicant for the period during which the federal financial assistance is extended to it by the department.

THIS ASSURANCE is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the applicant by the department, including installment payments after such date on account of applicants for federal financial assistance which were approved before such date.

The applicant recognizes and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the applicant, its successors, transferees, assignees, and subrecipients, and that the person whose signature appears below is authorized to sign on behalf of the applicant.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	Director TITLE
City of Fresno Parks, Recreation and Community Services APPLICANT/ORGANIZATION	6/15/00 DATE SUBMITTED
2326 Fresno Street, Room 101, Fresno, CA 93721-1824 APPLICANT/ORGANIZATION MAILING ADDRESS	BUREAU OFFICE EXTENDING ASSISTANCE

COMPLIANCE WITH HISTORIC PRESERVATION ACT
MEMORANDUM OF UNDERSTANDING - NPS/LWCF GRANT

APPLICANT: City of Fresno Parks, Recreation and Community Services
PROJECT(S): Roeding Park Children's Play Equipment Replacement and Installation of Picnic Tables, Benches and Barbeques

I have determined that the applicant's LWCF acquisition and/or development project(s) will not adversely affect cultural properties included in or eligible for inclusion in the National Register of Historic Places. This determination is contingent upon the applicant's concurrence that any plans for development, not to exclude minor improvements involving ground disturbance, will be submitted to the State Historic Preservation Officer for review and comment at the earliest opportunity. In the event that development plans will not be formulated and/or implemented by the applicant, but by another agency or group, the applicant will assume the responsibility for ensuring that all provisions and stipulations contained herein are executed, as needed, jointly with that agency or group or independently by that agency or group. This determination is further contingent upon the applicant's commitment to implement in good faith the following program of compliance with 36 CFR 800, Executive Order 11593 and Section 106 of the National Historic Preservation Act of 1966, as amended:

1. The applicant accepts the premise that proper cultural resources identification, evaluation and management will be an integral part of the planning process for the project(s).

2. Accordingly, prior to the commencement of any physical development activity, the applicant or his designee will arrange to have appropriately qualified professionals perform such investigations as may be necessary to:

   a. Identify, evaluate and manage any cultural values located within the project(s)'s potential area of environmental impact that are included in or may be eligible for inclusion in the National Register of Historic Places.

      (1) If, after consultation with the State Historic Preservation Officer, any values not already included in the National Register are determined to be eligible for inclusion in the National Register, the applicant or his designee will nominate them to the Register according to established procedures. Nominations shall be submitted to the State Historic Preservation Officer no later than six months after the adoption of a final development plan.

b. Determine, in consultation with the State Historic Preservation Officer, if and to what extent, these values may be adversely affected by planning, development, operation and maintenance activity.

c. Develop and implement prudent and feasible measures, acceptable to the applicant or his designee and the State Historic Preservation Officer, capable of either effectively mitigating or avoiding adverse effects on National Register and National Register values. Avoidance and protection will be preferred objectives. However, should discussions indicate that only something less is achievable, that course of action which is likely to cause the least unnecessary damage to these values will proceed.

Documentation of compliance with each of these stipulations as needed will be submitted to the State Historic Preservation Officer for review and comment in a timely fashion.

The applicant or his designee will unilaterally determine the time most suitable for the commencement of cultural resource investigations acknowledging, however, that:

1. They will constitute a part of the planning process providing data for sound, advance planning decisions.

2. They will be completed before a final development plan is adopted and any physical activity begins.

Failure to comply with any of the provisions and stipulations therein contained shall constitute ground for revocation of a no adverse effect determination and shall require full application compliance with the Advisory Council procedures.

By _____
Ronald P. Primavera
Park, Recreation and Community Services Director
Authorized Representative

_____
Date

To Be Completed by State:

By _____
STATE HISTORIC PRESERVATION OFFICER

_____
Date

View of existing playground site from Roeding Park. Large shade trees around the site will provide extensive opportunities for picnicking with the addition of picnic tables and barbeques.

Limited picnic opportunities are available to park users surrounding the playground site (seen in the background with the equipment removed).

View of proposed entry to playground and picnic area.

View of existing playground site. The outdated playground equipment was removed from the light colored area in the middle of the photo.

A.3 - Attachment C: Letter from Christine S. Lehnertz, Regional Director, National Parks Service, to Representative Pete Stark, House of Representatives (December 30,2010)

ATTACHMENT C

United States Department of the Interior

NATIONAL PARK SERVICE
Pacific West Region
1111 Jackson Street, Suite 700
Oakland, California 94607-4807

A 3615 (PWR-PA)

DEC 30 2010

The Honorable Pete Stark
United States House of Representatives
District Office, 13th District California
39300 Civic Center Drive, Suite 220
Fremont, California 94538

Dear Congressman Stark:

Thank you for your letter of November 30, 2010, in which you inquire regarding the status of Roeding Park on behalf of your constituent George C. Roeding, III. According to Mr. Roeding's letter, the city of Fresno is planning to expand the zoo at Roeding Park. Mr. Roeding is concerned that the zoo expansion may involve the removal of 811 trees that have historic value, and that the expansion will generally destroy the historic integrity of a park which has been documented as part of the Historic American Landscapes Survey (HALS).

Mr. Roeding is correct in saying that the park is protected by the Land and Water Conservation Fund Act. The Park has received six Land and Water Conservation Fund (LWCF) grants beginning in 1980 for the development of tennis courts, and most recently for the installation of exterior lighting at the zoo in 2004. State and local governmental agencies that receive LWCF assistance, either for parkland acquisition or for park facility development, agree to keep the benefitting parks in public outdoor recreation use in perpetuity. Exceptions to this may be allowed only under the terms of the conversion provisions of the LWCF Act and Regulations in 36 CFR §59, and only when acceptable replacement parkland is acquired that will satisfy the requirement that the public recreation estate remain undiminished. The protective provisions of the Act apply to independently viable park units, not just those pieces receiving direct assistance. Therefore, in most cases, the entire area within the boundary of the park is protected. In certain cases, preexisting public indoor facilities or those that are later proposed and are found to support and enhance the public outdoor recreational use of the park may be allowed within the park boundary. According to our documentation, 159 acres of Roeding Park are within a LWCF protected boundary.

Given the protective provisions of the LWCF Act, any public facility expansion or conversion of parkland to other than public outdoor recreation use would have to be reviewed and approved either as a compatible public facility or under the conversion provisions of the LWCF program. The LWCF State Assistance Program is structured such that the federal agreements are with the State that has compliance oversight responsibility for all grants made to state and local governmental agencies. In California, that compliance function is served by the California

TAKE PRIDE IN AMERICA

Department of Parks and Recreation, Office of Grants and Local Services. Once the State gathers the information needed to make a determination, the recommendation is forwarded to the National Park Service (NPS) for review and approval.

On receipt of your letter, the NPS inquired with the State Office of Grants and Local Services regarding the Roeding Park Zoo expansion. They had not previously been informed that any such project was underway. The NPS requested that the State contact the city of Fresno to remind the city of the LWCF requirements and to request that no further action be taken on the project until the LWCF compliance process is completed. Please find a copy of the State's letter to the city of Fresno attached.

Not all park maintenance and operations projects in LWCF assisted parks are subject to State and NPS review. Minor facility repairs, landscape maintenance, facility replacement in-kind, and new outdoor recreation facilities not assisted by LWCF but consistent with the existing type of outdoor recreation use in the park are examples of local actions that would not typically come to us for approval. Based on the little information the NPS has so far, however, the proposed expansion of the Fresno Zoo appears to be the kind of action that requires State and NPS involvement.

Although the LWCF Act and governing federal regulations protect the public outdoor recreation estate and outdoor recreation opportunities, some deference is still allowed to local government bodies to determine local outdoor recreation needs and land uses to meet those needs. Thus, the LWCF Act allows conversions of use under certain circumstances. Citizens should be encouraged to participate fully in local decision processes as potential impacts and benefits are analyzed, and decisions made regarding what impacts will be acceptable to achieve the needed public benefit outcomes. The NPS is grateful in this case that citizen concern has alerted us to a situation needing our attention.

The LWCF Project Agreement between the NPS and the State stipulates that the State will assist the NPS in its compliance with §106 of the National Historic Preservation Act by consulting with the State Historic Preservation Officer regarding properties listed or eligible for listing in the National Register of Historic Places. This requirement is passed on to local grant recipients. Documentation regarding State Historic Preservation Office (SHPO) consultation is required in proposals submitted to the State and NPS for approval. Although inclusion in the Historic American Landscape Survey (HALS) documentation project conveys no special protection to an area in itself, it does suggest there are historic values worth considering. These values should be factored in to any planning project that would affect the area and potential impacts should be identified and analyzed. Such historic values may also qualify the area for listing on the National Register of Historic Places, but that is not necessarily so. A separate historic resources study and National Register nomination process would need to be pursued and approved to obtain the protections afforded by the National Historic Preservation Act. Even the Act, however, does not guarantee inviolability of the identified historic values. The Pacific West Regional Office will pay particular attention to the city's historic resources impact analysis to see if it sufficiently considers historic and cultural values.

Thank you for bringing the project at Roeding Regional Park to our attention. The Pacific West Regional Office is following up with the State and the city of Fresno to be sure that the protective provisions of the Land and Water Conservation Fund Act are applied appropriately to the Roeding Park projects.

If you would like further information on the Land and Water Conservation Fund Program or the status of our compliance actions at Roeding Park, please feel free to contact the LWCF State Assistance Program project manager for California, David Siegenthaler at the address above, by e-mail at David_Siegenthaler@nps.gov, or by phone to 510-817-1324.

Sincerely,

Christine S. Lehnertz
Regional Director, Pacific West Region

Enclosure

cc: Ms. Patti Keating, Office of Grants and Local Services, California Department of Parks and Recreation

Mr. George C. Roeding III

A.4 - Attachment D: Letter from Sedrick Mitchell, Office of Grants and Local Services to Richard Putnam (September 15,2004)

ATTACHMENT D

State of California • The Resources Agency
Arnold Schwarzenegger, *Governor*
DEPARTMENT OF PARKS AND RECREATION • P.O. Box 942896 • Sacramento, CA 94296-0001
(916) 653-7423
Ruth Coleman, *Director*

SEP 1 5 2004

Richard Putnam, Interim Director
2326 Fresno Street
Fresno, CA 93721

Dear Richard Putnam,

Re: 06-01543 CHAFFEE ZOO DEV. $99,460

We are pleased to inform you the above project has been recommended for funding to the National Park Service (NPS) under the Land and Water Conservation Fund Program (LWCF). We anticipate receiving approval from NPS in approximately two months. You are cautioned not to proceed with the development until you have a fully executed contract.

As a grant recipient under the LWCF Program, you are required to submit the following items prior to funding approval:

1. A copy of the project property deed, title, lease, easement or other appropriate documents to satisfy site control and land tenure.
2. Compliance with 36 CFR800, Executive Order 11593 and Section 106 of the National Historic Preservation Act of 1966, as amended. The process identified below is outlined in the Memorandum of Understanding you submitted as part of your application. The following instructions will assist you in this process:

Write to the appropriate Information Center (IC) of the California Historical Resources Information System (list enclosed) requesting a record search, a referral list, and recommendations for the next step in the compliance process. Briefly describe the project and include a copy (1" to 1' scale) of the appropriate USGS 7.5" quadrangle with the Area of Potential Environmental Impact outlined.

The IC response will advise one of the following:

A. No further work is necessary. Submit the records search to the Office of Grants and Local Services (OGALS.)

B. Recommend a comprehensive historical resource survey of the project's Area of Potential Environmental Impact. Either:

- Complete a survey by a professional who meets the applicable Secretary of the Interior's standards. (The IC will have a copy of these standards and the

Referral list is based upon these standards.) Submit the record search and the survey report to OGALS.

- Explain to the IC why you think a survey is not needed. If they agree, submit their concurrence in writing with the record search. If not, submit the record search and explanation of your position to OGALS for review and disposition. In no case should you initiate work on your project until we have formally agreed that a survey is not necessary.

C. Historical resources are located within the Area of Potential Environmental Impact and should be evaluated for eligibility for inclusion in the National Register of Historic Places. Forward the record search to OGALS for a determination of the need for further work.

Please send a copy of the response from the appropriate Historical Resources Information Center and, if recommended, a completed records search and historical resource survey report. This procedure can be quite lengthy; therefore you should start the process early. A contract will be sent to you after you have complied with land tenure and Section 106 requirements.

Again, congratulations on your grant award. For LWCF program information, you may access the Department's web site at http://www.parks.ca.gov/ and follow the link to Grants and Bond Acts. If you have any questions, please call your project officer, Jeanne Ekstrom, at (916) 651-7737, or e-mail at jmeks@parks.ca.gov.

Sincerely,

Sedrick V. Mitchell
Deputy Director
External Affairs

Enclosure

A.5 - Attachment E:
Land and Water Conservation Fund
State Assistance Program Manual (2008)

ATTACHMENT E

NATIONAL PARK SERVICE
U. S. DEPARTMENT OF THE INTERIOR

LAND AND WATER CONSERVATION FUND STATE ASSISTANCE PROGRAM

FEDERAL FINANCIAL ASSISTANCE MANUAL
Volume 69

Effective Date: October 1, 2008

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DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

LAND AND WATER CONSERVATION FUND
STATE ASSISTANCE PROGRAM

FEDERAL FINANCIAL ASSISTANCE MANUAL

PREFACE

This manual sets forth the administrative procedures and requirements for Land and Water Conservation Fund (LWCF) federal assistance (Catalog of Federal Domestic Assistance #15.916) to the States by the Department of the Interior, National Park Service (NPS). It supersedes the program's existing LWCF GRANTS MANUAL (NPS-34). It is also intended to serve as a basic reference for those who are engaged in the administrative, financial management and stewardship responsibilities of the LWCF State Assistance Program.

It is the responsibility of the State, as primary grant recipient, to comply with these requirements and all terms and conditions of the grant agreement. The State's responsibility cannot be delegated nor transferred.

Participation in the LWCF State Assistance Program is deemed to constitute a public trust. As such, participants are responsible for the efficient and effective management of funds in accordance with the approved budgets, for promptly completing grant assisted activities in a diligent and professional manner, and for monitoring and reporting performance.

The procedures and requirements contained herein are subject to applicable federal laws and regulations, and any changes made to these laws and regulations subsequent to the publication of this manual. In the event that these procedures and requirements conflict with applicable federal laws, regulations, and policies, the following order of precedence will prevail:

1. Federal Law
2. The Code of Federal Regulations
3. Terms and Conditions of Grant Award
4. Land and Water Conservation Fund State Assistance Program Manual

The State bears primary responsibility for the administration and success of each grant, including performance by third parties under subagreements made by the State for accomplishing nonconstruction and construction project objectives. The provisions included herein shall also be applied by the State to subgrantees and contractors performing work under the LWCF State Assistance Program.

This edition of the LWCF State Assistance Program Manual supersedes all previous editions and amendments through Manual Release No. 151. Subsequent updates shall be distinguished by the effective date denoted within the footer appearing at the bottom of each chapter page. The Manual in effect at the time a grant is awarded governs the project except for post-completion requirements. A current version of the Manual can be found at the LWCF Website.

A. Background

The LWCF State Assistance Program was established by the LWCF Act of 1965 (Section 6, Land and Water Conservation Fund Act of 1965, as amended; Public Law 88-578; 16 U.S.C. 4601-4 et seq.) to stimulate a nationwide action program to assist in preserving, developing, and assuring to all citizens of the United States of present and future generations such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation. The program provides matching grants to States and through States to local units of government, for the acquisition and development of public outdoor recreation sites and facilities. Grant funds are also available, to States only, for fulfilling the statewide comprehensive outdoor recreation planning requirements of the program.

The LWCF program was administered by the Bureau of Outdoor Recreation (BOR) from its beginning in 1965 to 1978 when the Heritage Conservation and Recreation Service (HCRS) was created. HCRS then administered the program until 1981 when the LWCF was transferred to the National Park Service.

Since the origin of the program in 1965, over $3.7 billion has been apportioned to the 50 states, the District of Columbia, American Samoa, Guam, Northern Mariana Islands, Puerto Rico and the Virgin Islands for planning, acquisition, and development of outdoor recreation resources in the United States. More than 40,000 projects have been approved to assist state and local efforts to acquire land and develop facilities for public outdoor recreation purposes. The federal investment has been matched by state and local contributions for a total LWCF grant investment of over $7.4 billion. A LWCF-assisted park is located in over 98 percent of counties in the United States.

The income for the LWCF is provided largely from Outer Continental Shelf mineral receipts. The amount available from the LWCF for state grants is determined by the annual Congressional appropriation process. This amount is supplemented by a guaranteed amount set aside each year in a special Treasury account from other qualified off-shore revenues pursuant to the Gulf of Mexico Energy Security Act, Public Law 109-432.

B. Program Information

LWCF grants are provided to the States, and through the States to local governmental jurisdictions, on a matching basis for up to fifty percent (50%) of the total project-related allowable costs for the acquisition of land and the development of facilities for public outdoor recreation and for fulfilling the program's planning requirements. Grants to eligible insular areas

(American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the Virgin Islands) may be for 100% assistance. Appropriations from the LWCF may be made annually by Congress to the Secretary of the Interior who apportions the funds to the States. Payments for all projects are made to the state organization that is authorized to accept and administer funds paid for approved projects. Local units of government participate in the program as subgrantees of the State with the State retaining primary grant compliance responsibility. Each State must have a "State Liaison Officer" (SLO) appointed by the Governor or designated by the state legislature to administer the LWCF program at the state level.

Information about the LWCF State Assistance Program including contact information for National Park Service Regional Offices can be found on the Web at www.nps.gov/lwcf or contact lwcf.grants@nps.gov

C. Internet Resources

This manual contains references to many laws, regulations, forms, and other information sources relating to the LWCF State Assistance Program that are available on the Internet. Text in this manual with a "dotted underscore" indicates that further information is available on the Internet.

The following is a list of Web links for these resources and documents. Place your cursor over the desired reference and use the "control + click" function to follow the link.

A

Administrative and Audit Requirements and Cost Principles for Assistance Programs, 43 CFR 12 (Title 43-Public Lands: Interior, Part 12)

Advisory Council on Historic Preservation (ACHP)

Americans with Disabilities Act (ADA) of 1990, Public Law 100-336

- Americans with Disabilities Act (ADA) Accessibility Guidelines at 28 CFR 36
- Americans with Disabilities (ADA) Act Title II at 28 CFR 35

Appraisal Foundation

Archeology and Historic Preservation Act as amended, Public Law 93-291

Architectural Barriers Act of 1968 (ABA) Public Law 90-480

Audit Requirements for State and Local Governments, OMB Circular A-133

C

Catalog of Federal Domestic Assistance (CFDA) #15.916

Civil Rights Act of 1964 Title VI
28 CFR 42.104(b)(2)
Community Development Block Grants (CDBG)

Construction Contractors—Affirmative Action Requirements, 41 CFR 60-4

Cost Principles for Nonprofit Organizations, OMB Circular A-122

Cost Principles for State, Local and Indian Tribal Governments, A-87

Council on Environmental Quality (CEQ)

CEQ Regulations for Implementing NEPA, 40 CFR 1500-1508

CEQ NEPA Guidance

Crimes and Criminal Procedure, Fraud and False Statements, 18 U.S.C. Section 1001

D

Davis-Bacon Act

Debarment and Suspension, Executive Order 12549

43CFR12.100-510

List of debarred and suspended parties

Department of the Interior (DOI)

Department of the Interior (DOI) policy and procedures about audits, Departmental Manual Part 360, Departmental Manual Part 361 DM 7.3

Department of Interior (DOI) policy and procedures for implementing NEPA Departmental Manual Part 516 DM 1-6

Departmental Responsibilities for Indian Trust Resources, Department of the Interior Manual (DM) Part 512 DM 2

Secretary of the Interior's Standards for Archeology and Historic Preservation Projects

Secretary of the Interior

Department of Transportation Act of 1966, Section 4(f)

E

Emergency Wetlands Resources Act of 1986, Section 303

National Wetlands Priority Conservation Plan

Endangered Species Act (ESA) Section 7

Environmental Justice in Minority and Low-Income Populations, Executive Order 12898

Department of the Interior Responsibilities for E.O. 12898, Environmental Compliance Memorandum ECM95-3

Equal Employment Opportunity, Executive Order 11246

F

Federal Aid in Sport Fish Restoration Act (Wallop-Breaux Act or Dingell-Johnson Act)

Federal Energy Regulatory Commission

Federal Highway Administration

Federal Insurance Administration of the Federal Emergency Management Agency

Federal Surplus Property

Flood Disaster Protection Act of 1973, Public Law 93-234

Floodplain Management, Executive Order 11988

I

Indian Tribes

Indian Trust Resources

Intergovernmental Review of Federal Program Executive Order 12372

Single Point of Contact (SPOC) List for E.O. 12372

L

Labor Surplus Areas, Executive Order 12073

Land and Water Conservation Fund (LWCF) State Assistance Program NPS Homepage

LWCF Website

Land and Water Conservation Fund (LWCF) Act of 1965, as amended
Public Law 88-578, 78 Stat. 897

16 U.S.C. 4601-4 et seq.

Section 6(b) of the LWCF Act

Section 6(f)(1) of the LWCF Act

Section 6(f)(3) of the LWCF Act

LWCF Publications and Forms - link to LWCF web page for the following:

Description and Notification Form

General Provisions

LWCF Logo

Project/Grant Agreement (Form NPS 10-902)

Project Amendment Form

Proposal Description and Environmental Screening Form (PD/ESF) with NEPA Categorical Exclusions

Record of Electronic Payment Form

Standard Form (SF) 270, Request for Reimbursement for Non-construction Grants

Standard Form (SF) 424, Application for Federal Assistance

SF-424A, Budget Information Non-construction Programs

SF-424B, Statement of Assurances Non-construction Programs

SF-424C, Budget Information Construction Programs

SF-424D, Statement of Assurances Construction Programs

LWCF Post-Completion Compliance,36 CFR Part 59

Limited English Proficiency, Executive Order 13166

M

Minority Business Development Agency of the Department of Commerce

Minority Business Enterprises (MBEs), Executive Order 11625

Minority Business Enterprise Development, Executive Order 12432

N

National Environmental Policy Act (NEPA)

NEPA's Forty Most Asked Questions

National Historic Preservation Act (NHPA) of 1966, as amended, Public Law 89-665

Section 106 of the NHPA at 36 CFR Part 800

National Flood Insurance Act of 1968

National Flood Insurance Program, Public Law 90-448 and expanded by Public Law 93-234

National Flood Insurance Program, Federal Emergency Management Agency

National Park Service

National Park Service Director's Order #12 and Handbook, "Conservation Planning, Environmental Impact Analysis, and Decision Making"

National Register of Historic Places

National Trails System Act, Public Law 90-543, as amended

Section 8(a) of Public Law 90-543, as amended

Nondiscrimination in Federally Assisted Programs of the Department of the Interior
Title 43, Part 17

Nondiscrimination on the Basis of Race, Color, National Origin, 43 CFR 17, Subpart A

Nondiscrimination on the Basis of Age at 43 CFR 17, Subpart C

National Oceanic and Atmospheric Administration, U. S. Department of Commerce,
Comparative Climatic Data

O

Office of Federal Contract Compliance Programs (OFCCP)

R

Rehabilitation Act of 1973, as amended, Section 504
43 CFR 17, Subpart B

S

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
(SAFETEA-LU) Act.

Single Audit Act of 1984, Public Law 98-502

Small Business Administration

State Historic Preservation Officers (SHPO),

State Liaison Offices

T

Title IX of the Education Amendments of 1972 at 43 CFR 41

Tribal Historic Preservation Officers (THPO)

U

Uniform Administrative Requirements for Grants and Cooperative Agreements for State and Local Governments

- 43 CFR 12
- 43 CFR 12.76 - Procurement
- OMB Circular A-102

Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA)

Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended, Public Law 91-646 (Uniform Act)

- Section 210
- Section 305
- Title II, Section 205 of the Uniform Act
- Title III of the Uniform Act.
- 49 CFR Part 24
- 49 CFR 24.102(c)(2)(ii)
- 49 CFR 24.102(n) (2)

Uniform Standards of Professional Appraisal Practice (USPAP)

U. S. Department of Commerce's Minority Business Development Agency (MBDA

U. S. Fish and Wildlife Service

U. S. Small Business Administration

W

Wetlands Protection, Executive Order 11990

Wild and Scenic Rivers Act

Women Business Enterprises (WBEs), Executive Order 12138

CHAPTER 1 - GENERAL PROGRAM INFORMATION

A. Program Summary

1. Purpose. The Land and Water Conservation Fund (LWCF) Act of 1965 (Public Law 88-578, 78 Stat 897) was enacted "...to assist in preserving, developing, and assuring accessibility to all citizens of the United States of America of present and future generations and visitors who are lawfully present within the boundaries of the United States of America such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation in such recreation and to strengthen the health and vitality of the citizens of the United States by (1) providing funds for and authorizing federal assistance to the States in planning, acquisition, and development of needed land and water areas and facilities and (2) providing funds for the federal acquisition and development of certain lands and other areas."

   Reflecting the goals of the LWCF Act, the goals of the LWCF State Assistance Program are to:

   a. Meet state and locally identified public outdoor recreation resource needs to `strengthen the health and vitality of the American People.

   b. Increase the number of protected state and local outdoor recreation resources and to ensure their availability for public use in perpetuity.

   c. Encourage sound planning and long-term partnerships to expand the quantity and to ensure the quality of needed state and local outdoor recreation resources.

   The LWCF State Assistance Program provides matching grants to States, and through the States to local governments, for the acquisition and development of public outdoor recreation areas and facilities. Planning grants are also available to the States to assist in the development of Statewide Comprehensive Outdoor Recreation Plans (SCORP).

2. Delegation of authority. The LWCF Act authorizes the Secretary of the Department of the Interior to provide financial assistance to States for outdoor recreation purposes. Except for the apportionment of funds among States and the approval of selected projects by the Secretary, this authority has been delegated to the Director of the National Park Service (NPS).

3. Appointment of State Liaison Officer and alternate. To be eligible for assistance under the LWCF Act, the governor of each State shall designate in writing a state official, by name or position, to serve as its State Liaison Officer (SLO) who has authority to accept and administer funds for purposes of the LWCF Program and to perform the other functions set forth in this Manual. The designation of the SLO may also be accomplished by state statute.

To facilitate the administration of the LWCF Program, a concurrent designation (either by the Governor or state statute) of an alternate(s) to act on behalf of the SLO is strongly encouraged.

If the SLO and alternate are gubernatorially appointed, a new Governor, upon taking office, shall, re-designate, in writing, the sitting SLO and alternate, or appoint new officials to represent and act for the State in dealing with the LWCF program.

If state statute designates the SLO (and alternate) by position, the appropriate NPS Regional Director shall be notified in writing by the incumbent upon assuming the responsibilities of the position.

4. Apportionment of funds. LWCF monies are apportioned to the States by the Secretary of the Department of the Interior each fiscal year in accordance with the apportionment formula contained in the LWCF Act. This formula includes a factor for equal distribution of a portion of the fund among the States, as well as factors for distribution on the basis of population and need. Funds are apportioned to the individual States, the District of Columbia, American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the Virgin Islands which are collectively referred to as "the States" for the purposes of this program. Funds may be made available through the States to political subdivisions of the State and other appropriate public agencies, including recognized Indian tribes which qualify for LWCF assistance.

5. State planning and project selection requirements. To be eligible for LWCF assistance for acquisition and development grants, each State shall prepare a Statewide Comprehensive Outdoor Recreation Plan (SCORP), and update it at least once every five years. A SCORP program evaluates the demand and supply of public outdoor recreation resources throughout a State, identifies capital investment priorities for acquiring, developing, and protecting all types of outdoor recreation resources, assures continuing opportunity for local units of government and private citizens to take part in planning for statewide outdoor recreation, and coordinates all outdoor recreation programs throughout the State.

   The State shall develop an Open Project Selection Process (OPSP) that provides objective criteria and standards for grant selection that are explicitly based on each State's priority needs for the acquisition and development of outdoor recreation resources as identified in the SCORP. The OPSP is the connection between the SCORP and the use of LWCF grants to assist state efforts in meeting high priority outdoor recreation resource needs. Planning grants and technical assistance are available through the LWCF program to help the States develop and update their SCORP planning process.

6. Acquisition and development grants. LWCF assistance may be available 1) to acquire lands and waters or interests in lands and water for public outdoor recreation, and 2) to develop basic outdoor recreation facilities to serve the general public. To be eligible for assistance, projects must be in accord with the SCORP, be sponsored by a governmental agency, and meet other state and federal requirements.

7. Basis for assistance. LWCF assistance is provided on a matching basis, up to 50%, to individual projects which are submitted through the SLO to the NPS for approval. Project costs shall be determined in accord with OMB Circulars A-102 and A-87 and this Manual. All claims shall be subject to verification by federal audit.

   LWCF grants shall be made available on a 100% basis in accord with Public Law 96-205 to the Insular Areas participating in the LWCF program (i.e., American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the Virgin Islands).

8. Program administration. The SLO is responsible for administration of the LWCF Program in his/her State. This includes: implementation of an ongoing SCORP planning process; evaluation and selection of projects in accord with an OPSP; assuring compliance of projects with the requirements of this Manual and published regulations; preparation and submission of applications and amendments; financial management of apportionments and individual grant awards; inspection of project sites to insure proper completion, operations, maintenance, stewardship of Section 6(f) parkland; and other functions necessary for proper program administration and management.

9. Conversion policy. The LWCF Act requires the States to operate and maintain by acceptable standards the properties or facilities acquired or developed for public outdoor recreation use. Further, Section 6(f)(3) of the LWCF Act requires that no property acquired or developed with LWCF assistance shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Department of the Interior, and only if he/she finds it to be in accord with the then existing SCORP and only upon such conditions as he/she deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location (36 CFR 59).

B. State Apportionment Formula and Special Reapportionment

1. Apportionment percentage to states. The LWCF Act creates a fund consisting of certain earmarked revenues from which the Congress may annually appropriate money for public outdoor recreation purposes. As provided in the annual appropriation act, funds shall be made available for state and federal purposes with not less than 40 percent appropriated for federal purposes.

2. The amount apportioned is essentially a reserve. Apportionment of funds to the States does not confer absolute entitlement to such funds. The apportionment is evidence of a commitment by the Federal Government to withhold from other uses a specified amount for a State for a given period of time. To receive apportioned funds, the States must (a) prepare and maintain a Statewide Comprehensive Outdoor Recreation Plan (SCORP) that has been found by the NPS to be adequate for the purposes of the Act; (b) submit and receive approval of projects requiring the use of apportioned funds; and (c) request the Federal Government to obligate apportioned funds for use on approved projects.

3. Basis for apportionment. Apportionment of the appropriation is made by the Secretary in accord with the legislative mandate stated in Section 6(b) of the LWCF Act. The amount apportioned to each State is the amount of new authority for obligation each State will have in the fiscal year unless Congress or the President decides later to defer or rescind some portion of the amount.

4. Certificate of apportionment. The Secretary will notify each State of its apportionment following an appropriation of funds by the Congress.

5. Reports on status of state apportionment. The National Park Service will periodically notify each State of the status of each fiscal year's apportionment. This financial report shall include for each fiscal year: the total amount of current apportionments (including adjustments), the total obligations, and the total expenditures. The report will also notify the State of the balance remaining available in each apportionment. The State is expected to maintain its own accounting records on the status of apportionments.

6. Availability of state apportionment. The funds apportioned to a State will remain available for obligation during the fiscal year that notification is given and for two fiscal years thereafter. Any portion of an apportionment that remains unobligated at the expiration of this three-year period is lost to the State and shall revert to the Secretary's Contingency Reserve Fund for redistribution on the basis of need as determined by the Secretary; the exception is those supplemental funds distributed to the State pursuant to the Gulf of Mexico Energy Security Act, Public Law 109-432, which remain available until expended.

7. Disposition of unexpended project balances into a Special Reapportionment Account. Funds obligated for an approved project will remain available for expenditure by the project sponsor until the project is completed, has expired, is withdrawn, or is terminated.

   Should total expenditures be less than the obligated amount, the unexpended balance will revert to a "special reapportionment account" (SRA) which may be reapportioned to the State. This special account containing previously apportioned but unexpended funds does not confer entitlement to such funds by the State. The Secretary, may, at his/her discretion, reapportion such unexpended balances back to the respective State from which it came on the basis of need. The determination of need for each State will be based on its efficient management of LWCF obligations and expenditures, demonstrated need for additional funding, and satisfactory compliance with all LWCF program requirements.

   The National Park Service must request SRA funds from its Accounting Operations Center (AOC) within six (6) months from the end of the fiscal year in which the reapportionment funds become available (by March 31 of the following year). States must submit their SRA requests to the appropriate regional office in sufficient time to allow for the request to be reviewed and processed by this date. NPS will only process state requests for SRA funds when:

   a. a State has obligated all of its available regular apportioned LWCF funds for the year in which monies were deobligated, or

b. a State certifies that it has identified eligible projects/amendments for LWCF assistance that remain unfunded and those projects/amendments will fully obligate the available regular apportioned LWCF funds as well as the Special Reapportionment funds being requested. Actionable projects and amendments must be submitted to NPS for review and processing as soon as possible to ensure that NPS has sufficient time to obligate funds by the end of the current fiscal year (September 30). Projects for funding that are not complete and fully documented will be returned to the State. A State may request less than the full amount in its SRA account and may add SRA funds to any remaining available regular apportionment to fund a project or project amendment.

Any SRA funds not requested from AOC within six (6) months from the end of the fiscal year in which the reapportionment funds become available or any funds reapportioned but not obligated by the end of that fiscal year will revert to the Secretary's Contingency Reserve Fund.

A State may not make more than one SRA request every three months. Requests for SRA amounts of less than $5,000 shall not be processed except in March for the balance carried over from the previous fiscal year. Exceptions to the minimal request limitation may be allowed only when the moneys will be immediately applied to an approvable grant application in the hands of the NPS for which available funds are insufficient to cover the costs of the project.

The procedure and timeframes for requesting SRA funds will be communicated to the States on an annual basis and will include a review of each State's identification and justification of need for SRA funds and state compliance with all LWCF program requirements. Upon NPS approval, a Certificate of Reapportionment will be issued to the State.

C. Program Review of State LWCF Program Administration

1. Purpose. In accordance with the LWCF Act (Public Law 88-578, as amended), the NPS is responsible for continually monitoring each State's effectiveness in administering the LWCF program.

   While the review of a State's program is an on-going process, it is measured over a three-year period with the NPS visits during that time to the state offices. The state visit represents not only a fact-finding mission, but an opportunity to address those problems, concerns, and issues involving the State's program.

   In assessing the present status of a State's LWCF program administration, it provides a basis for improving overall coordination between the State and NPS, insures that program administration is being carried out consistent with program laws, regulations, and policies, and identifies areas where improvements must be made. The state program reviews provide an opportunity to improve program accountability and lessen vulnerability to waste, fraud and abuse.

At a minimum, a program review must be conducted every three years at the state office. Exceptions to this may be made during periods of low or no funding and in the territories of American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the Virgin Islands, which may be reviewed every five years at the discretion of the regional office because of their small programs and remote locations. The Region may opt to conduct mini-reviews as needed or during periods of low or no funding.

2. State review participants. The NPS review team may be any combination of a team leader, State's project officer, a secondary project officer, a review appraiser and/or any other person deemed appropriate by the review coordinator. State participants should include the SLO, ASLO(s), SHPO, grant and planning staffs, finance staff, appraisal staff, and any other appropriate persons with connectivity to the State's LWCF program administration.

3. Scope of the state reviews. The visit to the state office provides the opportunity for the NPS to:

   a. Discuss the resolution of issues noted in the previous program review report

   b. Discuss new issues and/or non-compliance affecting program administration

   c. Gain insight into state systems and operations

   d. Provide technical assistance

   e. Review randomly selected LWCF project files for program compliance

   f. Review the adequacy of randomly selected LWCF associated appraisal documents

   g. Discuss any new or proposed legislation affecting the LWCF program

   h. Review key SCORP, OPSP, and eligibility items

   i. Assess whether adequate staff exist to administer the LWCF program

   j. Review obligation and expenditure rates

   k. Discuss coordination between the state grant staff and the SHPO

   l. Review State's application of indirect cost rates.

   m. Discuss or review SLO/ASLO designations, post completion inspection agreement, waivers, conversions, environmental review process, administrative and financial project close out, and any other relevant LWCF administration matters

4. Report. At a minimum, the report shall contain a discussion of the following items:

a. Status report on previous recommendations.

b. Major problem/opportunity areas identified prior to and during the state visit.

c. Recommendations for improvements with timeframe for state resolution.

d. Follow-up actions to be undertaken by NPS.

5. Distribution of the final report. The report of findings shall be transmitted under a cover letter to the Governor with courtesy copies provided to the SLO and ASLO(s) for use and dissemination. A copy of the report and correspondence to the Governor shall be sent to the NPS office in Washington, D.C.

6. State visits. NPS visits to state offices shall be conducted at least annually, when possible. Visits may pertain to officially addressing the status of program review findings; to provide the opportunity for face-to-face communication on program administration, training, and current issues; and to provide direct technical assistance.

D. Annual Report

On an annual basis a report will be produced on the fiscal year performance and accomplishments of the LWCF State Assistance Program. States assist in its production by providing state-specific program accomplishments, testimonials and images. A supply of the report is distributed to the States and is posted on the LWCF State Assistance Program Website. A limited number of hard copies are available to interested parties upon request until supplies are exhausted.

CHAPTER 2 - STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN AND OPEN PROJECT SELECTION PROCESS

A. State Plan Preparation, Procedures, and Eligibility

1. Purpose. This section explains the objectives, eligibility requirements, and guidelines for the preparation of Statewide Comprehensive Outdoor Recreation Plans (SCORP) and the NPS review and approval process. The SCORP is required by Section 6(d) of the LWCF Act of 1965, as amended.

   The guidelines are based on provisions of the LWCF Act, related federal statutes, and determinations of the NPS regarding planning considerations essential for effective administration of the LWCF program.

   The Governor and/or the officially designated State Liaison Officer (SLO) are the officials authorized to act for the State, as specified under the various provisions of this Part.

2. Requirements of the LWCF Act of 1965, as amended. The LWCF Act of 1965, as amended, requires a SCORP from each State prior to consideration by the Secretary of the Department of the Interior for financial assistance for acquisition and development projects.

   The LWCF Act explicitly requires the SCORP to include the following:

   a. The name of the state agency that will have the authority to represent and act for the State in dealing with the Secretary for purposes of the LWCF Act of 1965, as amended;

   b. An evaluation of the demand for and supply of outdoor recreation resources and facilities in the State;

   c. A program for the implementation of the plan;

   d. Certification by the Governor that ample opportunity for public participation has taken place in plan development; and

   e. Other necessary information, as may be determined by the Secretary.

   The SCORP shall take into account relevant federal resources and programs and shall be correlated so far as practicable with other state, regional and local plans.

3. Goals and objectives of the SCORP. The goals of the SCORP and its associated planning process are to direct each State's use of its LWCF apportionment.

   The objectives of the SCORP and its associated planning process are to:

   a. Fulfill the purposes of the LWCF Act;

b. Provide each State the maximum opportunity and flexibility to develop and implement its plan;

c. Describe the role of the LWCF in the State's provision of outdoor recreation resources and the State's policies for use of its LWCF apportionment;

d. Provide a basis for determining each State's LWCF eligibility; and

e. Ensure relevant, influential and timely planning for the State's use of its LWCF apportionment.

Each State is encouraged to conduct outdoor recreation planning beyond the minimum required to maintain LWCF eligibility. Under Section 8(a) of Public Law 90-543, as amended, and Section 11(a) of Public Law 90-542, as amended, respectively, the Secretary is directed to encourage States to consider in their plans the needs and opportunities for establishing recreation and historic trails, and wild, scenic and recreational river areas. In addition, the plan must contain a wetlands component pursuant to Section 303 of the Emergency Wetlands Resources Act of 1986 (see item 4.e below).

4. Plan requirements. The minimum requirements of the plan are:

a. The plan must describe the process and methodology(s) chosen by the State to meet the guidelines as set forth in this section.

b. The planning process must include ample opportunity for public participation involving all segments of the state's population.

c. The plan must be comprehensive. The plan will be considered comprehensive if it:

(1) Identifies outdoor recreation issues of statewide importance based upon, but not limited to, input from the public participation program. The plan must also identify those issues the State will address through the LWCF and those issues which may be addressed by other means;

(2) Evaluates demand, i.e., public outdoor recreation preferences, but not necessarily through quantitative statewide surveys or analyses; and

(3) Evaluates the supply of outdoor recreation resources and facilities, but not necessarily through quantitative statewide inventories.

d. The plan must have an implementation program that identifies the State's strategies, priorities, and actions for the obligation of its LWCF apportionment. The implementation program must be of sufficient detail for use in developing project selection criteria for the State's Open Project Selection Process (OPSP) so projects submitted to NPS for LWCF funding will implement the SCORP.

e. The plan must contain or reference a wetlands priority component consistent with Section 303 of the Emergency Wetlands Resources Act of 1986. At a minimum, the wetlands priority component must:

(1) Be consistent with the National Wetlands Priority Conservation Plan, prepared by the U.S. Fish and Wildlife Service;

(2) Provide evidence of consultation with the state agency responsible for fish and wildlife resources;

(3) Contain a listing of those wetland types which should receive priority for acquisition; and

(4) Consider outdoor recreation opportunities associated with its wetlands resources for meeting the State's public outdoor recreation needs.

f. The plan may consist of a single document or may be comprised of multiple documents as long as the guidelines as set forth in this section are met.

5. Plan cooperation. An effective working partnership between each State and the NPS is necessary to consult and coordinate on such elements as scheduling, planning methodology(s), public participation, and the NPS assistance needed by the State. Each State is strongly encouraged to consult and coordinate with the NPS on a regular basis, especially at the start of its planning cycle, to ensure that the planning process and its products are mutually acceptable.

6. Submission of plan documentation. The minimum documentation required to be submitted by each State to NPS as evidence of conformance with this section is a new or revised plan at least once every five years. The Plan must be approved by the State Governor and contain a certification by the Governor that ample opportunity for public participation has taken place in development of the Plan. A total of three (3) copies of the Plan must be submitted to the NPS. States are encouraged to post the Plan on the agency's Website and use other means as appropriate to make it available to the public.

Amendments to the Plan may be submitted at any time. Amendments will follow the same review and approval procedures as the original Plan.

7. State LWCF eligibility related to planning. Each State will be deemed eligible to participate in the LWCF State Assistance Program when its SCORP meets the requirements of the LWCF Act. The Act requires an adequate and approved SCORP prior to the consideration by the Secretary of financial assistance for acquisition or development projects.

The State must produce a SCORP at least once every five (5) years and implement its recommendations through the OPSP in order to maintain the State's eligibility to participate in the LWCF Program. The State must develop the SCORP in accordance with this Chapter

and submit a draft for NPS review. NPS Regional Director approval of a formal SCORP submission must occur prior to the expiration of the State's current SCORP to maintain LWCF eligibility.

Should the State fail to meet this deadline or if NPS finds that the pending SCORP currently under review is inadequate, NPS will provide written notification to the State's designated State Liaison Officer that it must correct the identified deficiencies within ninety (90) days following the last SCORP's expiration date, during which time NPS approval of acquisition and development projects may continue. However, if the State fails to take corrective action within the 90 days, the NPS Regional Director will suspend the State's eligibility.

The State may appeal to the NPS Director, along with appropriate justification, within 30 days following the Regional Director's 90-day notice. Appeals will be considered by the Director prior to the termination of the 90 day notice of the State's eligibility. The decision of the Director will be final.

8. NPS actions during periods of state ineligibility. During a period of state ineligibility, the following apply:

   a. Requests for project approval received by the NPS, but not acted upon prior to the State's loss of eligibility, will be returned to the State as inactionable. The State may not submit projects to the NPS during a period of ineligibility.

   b. Only requests for time extensions, deobligations, reimbursements, changes in scope, and project completions will be acted upon during a State's period of ineligibility. Amendments to increase funds will not be acted upon during this period.

   c. Waivers of retroactivity will not be granted.

B. Open Project Selection Process

1. Purpose. The purpose of this section is to establish requirements for the States to conduct an open project selection process (OPSP) that will better assure equal opportunity for all eligible project sponsors and all sectors of the general public to participate in the benefits of the LWCF State Assistance Program and to enable the States to affirmatively address and meet priority recreation needs. OPSPs shall perform two essential functions:

   a. Establishes a public notification process, LWCF application assistance, and review systems that assure equitable opportunities for participation in grant funding by all potentially eligible applicants.

   b. Provides objective criteria and standards for project selection that are explicitly based on each State's priority needs for parkland acquisition and outdoor recreation development as identified in the SCORP. While it is recognized the SCORP may cover policy, legislative, management and other matters that go beyond priorities for capital funding and activities eligible for LWCF assistance, the OPSP supplies the most visible

connection between a State's planning efforts and its use of LWCF grants to meet some of the high priority needs identified through its SCORP program.

2. Goals. The OPSP developed by each State shall be designed to accomplish the following goals:

   a. Provide for public knowledge of and participation in the formulation and application of the project selection process used by the State in allocating LWCF assistance;

   b. Ensure all potential state and local applicants are aware of the availability of and process for obtaining LWCF assistance, and provide opportunities for all eligible agencies to submit project applications and have them considered on an equitable basis;

   c. Provide a measurable link, through published selection criteria, to the specific outdoor recreation needs and priorities identified in SCORP policies and implementation programs; and

   d. Assure the distribution of LWCF assistance is accomplished in a non-discriminatory manner, especially with regard to minority, elderly, disabled, and other underserved populations and ensure a fair and equitable evaluation of all applications for LWCF assistance.

3. Requirements for an OPSP. Each State shall, as a condition of eligibility to receive assistance under the Fund program, implement an OPSP that has the following components:

   a. Priority rating system. Each State shall develop a priority rating system for selecting projects that ensures the fair and equitable evaluation of all projects and at a minimum:

      (1) Places the strongest possible emphasis on project selection criteria that conforms directly to explicit priority needs identified by the SCORP process. Because compatibility of projects funded with SCORP priorities is the primary measure of responsive planning and selection processes, SCORP-related criteria should be heavily-weighted to ensure that a) the rank ordering of projects closely reflects their response to plan-identified needs, and b) no project without measurable links to SCORP-identified priorities will be funded (see Section 2.c above).

      (2) Encourages public participation in the formulation of grant proposals at the project sponsor level.

      (3) Recognizes the need for accessibility of proposed projects, to the greatest extent practicable, to all segments of the public including minority populations, the elderly, individuals with disabilities, and other underserved populations.

      (4) Requires project conformance to LWCF eligibility and evaluation criteria in Chapter 3, Sections B and C.

b. Project selection process. Each State shall develop a project selection process that evaluates and selects projects on the basis of quality and conformance with its priority rating system. The practice of dividing a State's apportionment between state and local projects may continue at the State's option. In this case, the State's project selection process may involve a single competition among all state and local projects or distinct processes and competitions for each of the two categories (i.e., state projects and local projects). The distribution of a State's apportionment strictly on the basis of geography or location of political subdivisions is prohibited.

c. Amendments to add funds to existing projects. A State may honor requests to amend projects to increase the cost of a state or locally sponsored project, including the federal share, without further OPSP competition only if the State has proposed, and the NPS approved, guidelines that are incorporated in the OPSP to cover this contingency. If no procedure is established, cost overrun projects must undergo OPSP competition to be amended for additional funding.

d. Recurring funding cycle. Each State shall institute a recurring funding cycle to regularize the timing for receiving, evaluating and selecting project proposals. The funding cycle must occur at least once every two (2) years and may occur at any other regular interval within the fiscal year as determined by the State. States shall clearly explain the funding cycle to potential applicants, especially for a two-year call for applications. All LWCF-funded projects submitted to NPS must have competed in such a funding cycle, and documentation of a project's ranking in such regular competitions must be available in state files.

e. Applicant notification. Each State shall inform all potential LWCF applicants about the availability of LWCF funding through direct contact with all potential sponsors or indirectly through state and local organizations. The information supplied shall include the types of areas and facilities eligible for funding, a statement of the State's overall objectives for use of funds under the LWCF grants program, guidance on how to apply for LWCF assistance and an explanation of how the State's OPSP works. Each State should also have available for review by potential applicants a list of the criteria it will use in selecting projects for priority funding during the current funding cycle.

f. Program assistance. Each State shall, to the extent practicable, provide assistance to any potential project sponsor who requests assistance with project formulation, proposal preparation in obtaining the non-federal matching share, and other matters necessary for participation with the program.

g. Underserved populations. Each State shall encourage projects which directly benefit minority and other underserved populations in the State. This may be accomplished through the SCORP planning process, and shall, at a minimum, reflect efforts to encourage applications from communities with significant minority and other underserved populations. Since social conditions vary from State to State, the design of the approach may be determined by each State.

h. Advisory boards. The use of advisory boards, commissions or committees to assist States in the selection of proposals to receive the available LWCF monies is encouraged but not required. If advisory boards, commissions or committees are utilized by a State, they must include representation of minorities to the extent that such representation reasonably reflects the ratio of minority to non-minority populations.

4. Public participation. Public participation programs developed by each State in accordance with SCORP requirements shall include provisions for insuring that the preparation and revision of project selection processes and priority rating systems are subject to public review and comment (including minority participation in this process) prior to their implementation. Use of public meetings and review by special interest groups, advisory committees, and park/recreation boards, commissions, or committees to assist in development of selection processes are encouraged.

5. NPS approval. New or revised OPSPs must be submitted to the NPS for review, evaluation, and approval before their use in state grant competitions.

6. Process review and updating. To ensure continuing close ties between a State's SCORP program and its OPSP, States must review project selection criteria each time that a new or amended SCORP is approved by the NPS. States must submit to the NPS a revised set of OPSP criteria that conform to any changes in SCORP priorities or submit an appropriate certification that no such revisions are necessary. The NPS will evaluate such revised submissions or certifications in the same manner as original submissions, and will ensure accurate conformity to the SCORP and to the objectivity and public participation objectives of this section before approving their use for LWCF project selection.

   State implementation of OPSPs will also be reviewed, as part of the NPS' periodic state program review process, to determine each State's effectiveness in meeting the goals and requirements of this section. Failure by any State to keep its selection process active and up-to-date in relation to changing needs or conditions identified through its SCORP program may result in that State's loss of eligibility for participation in the LWCF Program.

C. Financial Assistance for SCORP Development

1. Purpose. The purpose of this section is to specify objectives and requirements governing use of planning grants from the LWCF. Such grants are to be used for developing a SCORP.

2. Use of LWCF planning grants. Since planning grants are intended for developing a SCORP as a decision-making and management tool, LWCF-assisted planning projects must be aimed at either (1) solving a problem identified in the last approved SCORP effort that addresses an outdoor recreation challenge or opportunity of statewide importance or (2) developing new data and decision tools identified as essential to completion of an upcoming SCORP.

3. Pre-application consultation. All planning grants should be the result of joint consultations between the NPS and the State on priority needs, within the context of a State's continuing and systematic outdoor recreation planning process.

4. Eligible applicants. Only the State Liaison Officer is eligible to apply for planning assistance from LWCF. Responsibility for executing a planning project or a portion thereof may be subcontracted to an appropriate non-federal governmental agency (general purpose or special purpose government unit) or to another public or private planning organization. In all cases, however, the State is obligated to supervise and to be responsible for all work performed, and must be directly involved in production of the final products of the grant and in the development of any policies or action options expected to result from project work.

5. Eligible planning projects. To be eligible for Fund assistance, a planning project must have a clearly defined end product that addresses needs, problems, or issues identified in a State's currently approved SCORP of statewide importance, or is otherwise essential, in the judgment of the State and the NPS, to production of an upcoming SCORP. It may be explicitly identified as part of a future planning program contained in the current SCORP or be logically implied, in the judgment of the NPS reviewers, by discussions of planning needs in such current SCORP documents; or respond to a specific planning deficiency identified by NPS as part of its periodic review of a State's planning program and state SCORP submissions.

   a. Projects may include surveys, planning studies, data collection and analysis, public participation efforts, and other activities essential to production of a SCORP.

   b. Management studies related to improved statewide financing, operation, maintenance, stewardship, or other use of administrative resources to sustain outdoor recreation resources, including evaluation of the overall capabilities of state and local governments to fully protect and utilize their outdoor recreation investments, may be funded when clearly related to a State's overall SCORP program and to meeting the requirements of Section 6(f)3 of the LWCF Act for continued operation and maintenance of all Fund-assisted areas and facilities.

   c. Studies of natural, ecological, or recreational resource areas, demonstration studies and topics of statewide significance or national concern related to public outdoor recreation are also eligible. These studies must meet the following criteria:

      (1) The proposal must address a priority problem of statewide significance identified in approved SCORP documents or be essential for the development of decision-making information for an upcoming SCORP. The study must go beyond "basic research" or simple data collection to provide information likely to be used for state or local decision-making on outdoor recreation issues and programs, so it may provide specific recommendations for inclusion in the State's published SCORP.

      (2) The proposal must include a justification indicating how the study would contribute to the State's overall SCORP program and future SCORP submissions. The

proposal must also include evidence that the study will further the overall purposes of the SCORP process and must include an assessment of whether the monetary, personnel and other resources devoted to the study will contribute to and not detract from the accomplishment of other high priority planning objectives identified in SCORP submissions or in the NPS' reviews of a State's continuing planning process.

(3) The study should include a public participation program through which concerned public and private agencies or organizations and interested citizens can be kept informed of, and allowed to comment on, study objectives and results.

(4) Responsibility for the overall project, as well as its different elements, must be clearly identified if more than one agency is to be involved.

(5) When public land protection measures are proposed, the study must include an examination of the feasibility of any alternatives to fee simple acquisition of the resources to be protected.

d. Studies or other investigations that are primarily aimed at promoting tourism, other state and local economic activities, or the promotion of private recreation expenditures through recreation development are not eligible for planning grant assistance. However, studies aimed at analyzing or documenting the contributions of outdoor recreation resources to a State's economy or environment or at improving state decisions on the appropriate public and private roles in the management of various recreation resources may be eligible for funding when they meet other appropriate criteria for eligibility as outlined elsewhere in this section.

e. Detailed plans for capital projects, sketch or site plans, individual area master plans, economic feasibility studies, landscape designs, or architectural and engineering studies are not eligible for planning grant assistance.

f. Planning proposals must take into account past studies of the same or similar resources or programs to ensure that the proposed efforts do not duplicate earlier research. They must consider any relevant federal resources, plans, or programs and be correlated, so far as practicable with other state, regional and local plans.

g. Two or more planning projects may be carried out concurrently providing they do not duplicate one another. Work items funded under an LWCF planning grant must not overlap with work items assisted by another LWCF grant, or financially-assisted under other federal programs, or otherwise accomplished with federal personnel or resources.

h. When a grant proposal involves funding of outdoor recreation planning elements as part of a larger "consolidated and simplified" state planning process as authorized by Executive Order 12372 Intergovernmental Review of Federal Programs, particular assurance must be provided by the State that the LWCF grant will be used for direct support of outdoor recreation planning work items and not, either directly or indirectly,

of non-recreation planning items, such as housing, transportation, or general economic development.

i. Planning grants may not encompass any costs for acquisition of land or interests in land or for development of new facilities. Nor may land acquisition or development costs be used as any part of a grantee's matching share of eligible planning costs.

6. Available funding. Up to 50% of the total cost of an eligible planning project is available to a State, on a reimbursement basis, from its LWCF apportionment account. However, grants to the Insular Areas may be made available on a 100% basis. While there is no dollar limit on the amount of a State's apportionment which can be used for planning grants, the National Park Service reserves the right to limit the size of specific projects based upon each State's planning needs and the relationship of planning costs to overall funding resources. For this reason, NPS regional offices should consult with the Washington program office before approving any planning grant or amendment for which the total LWCF obligation will exceed $100,000 or five percent of a State's most recent apportionment, whichever is greater.

7. Allowable costs. Project costs incurred to sustain an ongoing outdoor recreation planning process are reimbursable as part of an approved planning project. These include the preparation, publishing and distribution of appropriate documents, such as core SCORP and OPSP documents, supplemental recreation policy or action plans and related studies. Costs of data collection and processing, public participation activities, special studies, etc. are also eligible for assistance. Contracted professional services for eligible planning activities may be allowed, if, in the National Park Service's judgment, overall responsibility for planning policies and action recommendations is clearly retained by the State Liaison Officer or other designated state agency. All contracts awarded by a grantee must be in accord with the procurement standards and procedures of the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, OMB Circular A-102 requirements at 43 CFR 12 Subpart C (see Chapter 7).

8. Length of project period. Planning projects should normally cover a period of two years or less to ensure timely completion and close-out of complex work efforts and reduce audit problems. In no case should a single planning grant include elements from more than one complete SCORP cycle, except where costs of publication and distribution of a SCORP document from a previous cycle may be reasonably included as a public participation element in the next SCORP cycle.

9. Acknowledgement of assistance. When assistance from the LWCF is provided for a project, the resulting document shall include the following acknowledgement:

"The preparation (updating, revision) of this plan (study, analysis, etc.) was financed in part through a planning grant from the National Park Service, United States Department of the Interior, under the provisions of the Land and Water Conservation Fund Act of 1965 (Public Law 88-578, as amended)."

This statement may be expanded at the State's discretion to reflect the manner in which the non-federal share of the total cost was financed.

10. Executive Order 12372 intergovernmental review. For those States participating in the intergovernmental review process, a copy of the planning grant application must be submitted to a State's Single Point of Contact (SPOC) or State Clearinghouse in accordance with the intergovernmental review requirements of Executive Order 12372.

    Submissions to the SPOC should normally consist of copies of the material to be provided to the NPS in the application package, including a notice of intent describing the project purpose, scope, cost, and beneficiaries to allow the SPOC to provide potentially interested agencies with an opportunity to comment on the proposed effort. States are responsible for considering SPOC comments prior to submitting the planning grant formal application to NPS in order to address comments as appropriate.

    LWCF planning grant applications should include assurances that the recreation planning objectives and products of the grant are in accord with comprehensive state planning goals, as determined by the Governor or state agency designated to coordinate overall planning.

11. Project application. The standard federal forms used for non-construction assistance programs (SF-424, SF-424A and SF-424B) are used when applying for LWCF planning assistance. They must be accompanied by the appropriate required forms as follows:

    a. LWCF project agreement (Form NPS 10-902). A LWCF project agreement form must be completed for all planning projects. For planning grants, the "Project Scope" section of the agreement must also reference and incorporate a more detailed narrative attachment which covers the following items:

        (1) Identification of the objectives of the grant, with reference to planning needs identified in existing SCORP documents or other justification in terms of the project's compatibility with overall SCORP program priorities.

        (2) The planning products that will result and how they will contribute to maintenance of the SCORP program, and, if appropriate, the relationship of a new proposal to other planning grants received by a State.

        (3) The general approach to be used, including a schedule of key events, the breadth of study coverage, and cost estimates for each work item indicating how funds will be used by object class (personnel, travel, equipment, consultant contracts, etc.).

        (4) A discussion of the personnel, organizations or outside consultants that may be used to implement the project, with an explanation of any special knowledge or expertise which they will provide.

    b. Proposal Description and Environmental Screening Form (PD/ESF) Cover Page (see Chapter 4).

c. Description and Notification Form (DNF)

12. NPS review. Project applications will be reviewed by the NPS to determine if all planning assistance requirements have been met. This evaluation will focus on the following specific criteria:

a. The project must be an integral part of the SCORP process and clearly essential to maintenance of the SCORP as a decision-making or management tool. If need for the project is not explicitly identified in current SCORP documents, there must be mutual agreement between the NPS and the State on the priority need for the project effort as part of a State's overall recreation planning program.

b. Timing, scope, costs, and methodology of the project must be appropriate to the planning benefits received and complementary to any other planning efforts needed to address identified deficiencies in a State's overall planning program.

c. Project work elements must be clearly identified with reasonable scheduling, staffing, and cost estimates assigned to each element.

d. Grant products such as published plans, studies, new policies or procedures to be adopted, reports, evaluations, or other documents must be explicitly identified.

e. Both the agency requesting the assistance and the project itself must be eligible for planning assistance from the LWCF.

f. The requirements of Executive Order 12372 relating to review and comment by a participating state clearinghouse must have been completed if applicable.

g. There must be no duplication of federal assistance for work items funded under the project.

13. Amendments. Changes that materially alter the scope and/or change the cost or the completion time of a project must be approved by the NPS. When a State wishes to change its project, it should discuss the proposed changes with NPS prior to submitting an amendment to the project agreement. Amendments will be reviewed and processed following the same procedures used for a complete planning project. Only those changes considered to be major and substantive will be required to receive E.O.12372 clearinghouse review if applicable.

14. Financial procedures. Adequate financial records must be maintained to support all the costs involved in a project. A documentation "trail" adequate to withstand audit should be maintained. Generally accepted accounting and auditing principles will apply to project records, accounts and documentation. Such records must be in accord with the principles established in OMB Circulars A-102 and A-87 for prevention of fraud, waste and abuse in federal programs. Particular attention should be paid by the grantee to good records of in-

house personnel costs attributable to the planning grant. Time distribution records must be maintained for each individual for whom LWCF grant costs are to be claimed. Careful records of time spent on SCORP elements are especially important when personnel are splitting their time between one or more SCORP projects and other planning or administrative duties.

To guard against fraud, waste and abuse or possible disallowance of legitimate grant costs, it is recommended that grantees establish a separate tracking account for each planning grant. No grantee reimbursement requests or electronic transfer of funds can be made without NPS review of a progress report covering expenditures and accomplishments under the grant for the requested reimbursement. Requests for reimbursement or electronic transfer of funds may only be made for definable products or completion of distinct planning elements.

15. Reimbursements. NPS will place a financial hold on all planning grants at the time of NPS project approval. States using the SMARTLINK automated drawdown method (see Chapter 7.E) must obtain NPS approval of their progress report BEFORE payments are requested through the SMARTLINK system. Each SMARTLINK drawdown for planning grants must be preceded by a reimbursement request (SF-270 Request for Reimbursement for Non-construction Grants) and a progress report (see next item) for NPS review. Upon approval, NPS will provide the State with a letter authorizing a SMARTLINK drawdown for the approved reimbursement amount.

16. Progress reports. Reports of progress toward the completion of a planning project must accompany each payment request (see above.) However, at a minimum, a progress report must be submitted to NPS within one year of project approval with or without a payment request. Progress reports shall include:

    a. A list of the major work items (elements) agreed to in the project scope of the grant contract.

    b. A narrative description of the status of work for each item in the project.

    c. Identification of any elements that are behind schedule and why.

    d. Actual or projected completion dates for each work item.

    e. If appropriate, evaluations of the success or failure to date of the planning approaches used and of any effects of project work to date on state policies or improved management of state programs.

    f. Estimated costs incurred during the billing period for each work item.

    g. Total costs incurred and total costs previously billed for all parts of the project to date.

CHAPTER 3 - ACQUISITION AND DEVELOPMENT PROJECT ELIGIBILITY

A. General Project Criteria

1. Purpose. The LWCF Act authorizes the Secretary of Interior to provide financial assistance to States for the acquisition and/or development of public outdoor recreation areas and facilities found to be in accord with the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The States are encouraged to share the benefits derived from the LWCF program among all state and local agencies responsible for providing public outdoor recreation opportunities.

2. Project sponsors. Only States may apply directly to NPS for LWCF assistance. However, funds may be made available through the States to political subdivisions of the state and other appropriate public agencies. Proposed projects may be sponsored by a state agency or a public agency of a subordinate unit of government. All eligible project sponsors, including those that have other than public outdoor recreation purposes, must be able to commit its resources to the perpetual stewardship of the Fund-assisted public outdoor recreation area pursuant to Section 6(f)(3) of the LWCF Act.

   All project proposals submitted to the NPS must be recommended by the State Liaison Officer (SLO). No grant or contract may be awarded to any grantee or subgrantee or contractor of any grantee or subgrantee which has been debarred or suspended under Executive Order 12549.

3. Relation to SCORP. Only project proposals in accordance with the SCORP and reviewed through a State's Open Project Selection Process (OPSP) may be considered. Project proposals may be submitted for approval only during the time in which the State sustains its eligibility for participation in the LWCF program. Projects received during a period of ineligibility will be returned to the State as inactionable. This does not mean that the projects have been disapproved nor prevents them from being resubmitted by the State as soon as eligibility has been regained.

4. Project proposals. The State has the initial prerogative and responsibility for determining the scope and effort involved in a project proposal. A project can be designed as follows: 1) acquisition and/or development work at one site, or 2) acquisition and/or development work, sponsored by a single state agency or local unit of government, at several sites.

   Project sponsors must complete an LWCF-assisted project as quickly as possible, and, except in the most unusual circumstances, within the NPS approved project period.

5. Types of projects.

   a. Acquisition. These include the acquisition of land and waters or partial rights to them. There must also be public access, however, access may be controlled, but not prohibited (see Chapter 8.B.).

b. Development. These include the development of certain outdoor recreation activities and support facilities needed by the public for recreation use of an area.

c. Combination. When it is advantageous to do so, a State may submit projects which combine acquisition and development.

6. Multiple-purpose projects. Multi-purpose projects which involve uses other than outdoor recreation may be eligible for assistance under the Act as long as the resulting Section 6(f)(3) boundary can incorporate a viable public outdoor recreation area that includes the Fund-assisted project and the outdoor resource it complements, such as a Fund-assisted picnic area and a new public reservoir. The State must include a careful and complete justification and explanation with each proposal. Two general types of multiple-purpose projects are eligible for assistance:

   a. Projects in which a specifically designated portion of the multiple-purpose area or facility will be used primarily for outdoor recreation and/or outdoor recreation support, such as picnicking facilities adjacent to a new public reservoir. Fund assistance is limited to the designated outdoor recreation area and/or facility and support facility.

   b. Projects that will provide identifiable outdoor recreation benefits as a whole, as opposed to specific segments of it. For example, a water impoundment constructed primarily for flood control might also have important recreation benefits. In such a case, at the discretion of NPS, assistance might be made available only for the portion of the cost, on a pro rata basis, of the facility that is clearly attributable to outdoor recreation above and beyond the facility's cost for its non-recreation function. Section 6(f)(3) protection will be applied to the entire viable outdoor recreation area regardless of the prorated basis of federal assistance to include the entire multi-purpose facility unless a smaller self-contained management unit is identified at project approval.

   The proposal must fully disclose the nature and extent of other uses and the relationship of the proposed outdoor recreation project to the total area and development.

7. Assistance from other agencies. Project proposals submitted to the NPS for LWCF assistance may also be submitted to other public agencies for aid. The state or local matching share of an LWCF project may consist of other federal financial assistance only where the statutory provisions of the subsequent federal grants program explicitly allows recipients to use such assistance to match LWCF funds (see Chapter 5.A.5). The LWCF application to NPS must describe any financial assistance from other federal programs associated with the project, whether serving as a financial match to LWCF funds, or providing support outside of the LWCF project scope.

8. Project sponsor ownership and control of property. The project sponsor must possess sufficient title and adequate legal control of the property that is to be placed under Section 6(f) protection in order to provide reasonable assurances that a conversion under Section 6(f)(3) of the LWCF Act will not occur without its knowledge, state review and NPS

decision. Such assurances are contained in the General Provisions of the LWCF Project Agreement.

The project sponsor is responsible for being knowledgeable about all outstanding rights and interests held by others on lands to be included within the Section 6(f)(3) boundary of a proposed LWCF project. Reversionary rights and outstanding interests, should they occur or be exercised, that results in private and/or non-recreation activities on land within a Section 6(f) boundary and/or results in activities that impact the public outdoor recreation utility of the area, would trigger a conversion. In this case, the project sponsor would be required to provide suitable replacement property unless such activities qualify as exceptions as set forth in Chapter 8 (e.g., underground utilities and temporary non-conforming uses).

The State will consider proposals to place property with outstanding rights or interests held by others under 6(f)(3) protection only when it is assured that the possibility of the reversionary interest or outstanding rights being exercised is remote and/or the project sponsor is fully aware of its responsibility to replace these lands in accordance with Section 6(f)(3) should the outstanding rights, if exercised, result in a conversion. Prior to submitting the formal project application, States are encouraged to consult with NPS on complex property ownership and control issues.

The LWCF PD/ESF application narrative must describe all easements, rights-of-way, leases, subsurface rights (e.g. mineral), reversionary interests, and any other agreements that convey rights to non-public and/or non-recreation interests to access or use the area proposed for Section 6(f)(3) protection. An application should contain an opinion from appropriate counsel stating the local sponsor has the authority to enter into a grant contract that requires the provision of replacement land if the outstanding rights or reversionary interests are exercised in such a manner that results in a conversion. If a local sponsor has no such authority, and the State does not agree to replace the property at its expense, then the project is not eligible for LWCF assistance.

When at the time of project application it is known that outstanding property rights held by others are or will be exercised in the foreseeable future and impact only a portion of the area to be protected under Section 6(f), the impacted area and access to it must be clearly excluded from the Section 6(f) map and accompanied by an explanation of why it is not intended to be under the Section 6(f) provision. The remaining project area must meet all LWCF program criteria for eligibility and be a viable public outdoor recreation area per Chapter 6.B.5.

Copies of the property titles, leases, easements, and other appropriate documents must be on file at the state level and available for federal inspection.

9. Use of existing public land for matching purposes. Existing government-owned lands cannot be used as a part of the non-federal matching share of a project unless such land is to be acquired by the sponsoring agency from another agency and there is a statutory requirement that the selling agency be reimbursed for the value of the property. Further,

property cannot be "donated" between a State and its political subdivisions to serve as a match for grant assistance.

B. Criteria for Acquisition

1. Eligible types of projects. Acquisition of lands and waters for public outdoor recreation, including new areas or additions to existing parks, forests, wildlife areas, beaches, and other similar areas dedicated to outdoor recreation may be eligible for assistance. Acquisition can be by fee simple title or by whatever lesser rights will insure the desired public use without diminishing the control and tenure of the project sponsor's ability to enforce the Section 6(f)(3) provisions. Areas acquired may serve a wide variety of public outdoor recreation activities including but not limited to: walking and driving for pleasure, sightseeing, swimming and other water sports, fishing, picnicking, nature study, boating, hunting and shooting, camping, horseback riding, bicycling, snowmobiling, skiing, and other outdoor sports and activities.

   Natural areas and preserves may be acquired but must be open to the general public for outdoor recreation use to the extent that the natural attributes of the areas will not be seriously impaired or lost.

2. Means of acquisition. Acquisition of lands and waters, or interests therein, may be accomplished through purchase, eminent domain, transfer, or by gift.

3. Acquisition of existing structures and impoundments. Because of its statutory emphasis on public outdoor recreation, LWCF funding may be used to acquire only modest structures such as those to be used as park support facilities. Consultation with the NPS regarding the eligibility of the structure for acquisition assistance is encouraged prior to application submission. The proposal description as part of the PD/ESF must describe all improvements to be acquired and their proposed use.

4. Acquisition of lesser interests. Proposed acquisitions of interests in lands and waters of less than fee simple title, including leasehold interests, are not eligible unless such lesser rights (e.g., permanent recreation use easements or similar devices) will insure the desired perpetual public access and use pursuant to Section 6(f)(3).

5. Acquisition involving compatible resource management practices. Acquisition of land upon which the project sponsor proposes natural resource management practices such as timber management and grazing, not including agriculture, may be carried out concurrently within the area if they are clearly described in the project proposal, are compatible with and secondary to the proposed outdoor recreation uses, and are approved by the NPS.

6. Reservations and rights. Reservations and rights held by others are permissible only if it is determined that public outdoor recreation purposes would not be affected. The project sponsor shall provide a description of all outstanding rights and interests held by others and identify them on the Section 6(f)(3) boundary map. Further, the proposal narrative and environmental information submitted to the NPS on the project in the PD/ESF must address

any potential impacts to the human environment including outdoor recreation by any outstanding rights and interests, including if they are exercised. If public outdoor recreation is impacted when any rights and interests are exercised, a conversion of parkland under Section 6(f)(3) of the LWCF Act will occur. See Chapter 3.A.8 for further guidance.

7. Acquisition for delayed outdoor recreation development.

a. General. LWCF assistance may be available to acquire property for which development of outdoor recreation facilities is planned at a future date. In the interim, between acquisition and development, the property should be open for those public recreation purposes that the land is capable of supporting or that can be achieved with minimum public investment. Non-recreation activities such as agriculture occurring on the property at the time of acquisition may continue for up to three (3) years. In this case NPS will place a financial hold on the project precluding reimbursement until the non-recreation use is terminated.

b. Procedures. If planned development for public outdoor recreation will be delayed for up to three years from the date of acquisition, the project sponsor shall include the following information in the project application:

(1) Why immediate acquisition of the property is necessary.

(2) What facilities will be developed and when such development will occur.

(3) What, if any, non-recreation uses will continue on the property and when such non-recreation uses will be terminated.

(4) The type of public outdoor recreation access that will be provided during the interim period.

(5) Assurance that any income received by the project sponsor for the non-recreation activities will be used in accordance with the provisions of Chapter 7.A.7.

(6) Assurance that the site will be available for public outdoor recreation use and any non-recreation activity will be terminated within 3 years from the date of acquisition.

c. Extension of the 3-year limit. Where public access for recreation purposes will be provided during the interim period, the continuation of a non-recreation activity beyond the 3-year limit may be extended by NPS. The State should submit a written request and justification for such an extension to NPS before the end of the 3-year period. This request should include: 1) a full description of the property's current public outdoor recreation resources and the public's current ability to use the property; and 2) an update of the project sponsor's plans and schedule for developing outdoor recreation facilities on the property. In granting such an exception, NPS recognizes that certain non-

recreation activities are compatible with limited public outdoor recreation use of the property.

If an extension of the 3-year limit is granted, the project sponsor cannot be reimbursed until all non-recreation activities have ceased. NPS shall not grant an extension of the 3 year limit if public access to the new outdoor recreation area is not present and NPS will proceed to terminate the project for cause or convenience (see Chapter 7.G).

8. Uniform relocation and acquisition. All acquisitions with LWCF assistance must be conducted in accordance with the applicable provisions of Public Law 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. See Chapter 4 for further guidance.

9. Acquisitions that will not be assisted.

   a. Acquisition of historic sites and structures will not receive LWCF assistance. Exceptions may be made only when it is demonstrated clearly that the acquisition is primarily for outdoor recreation purposes and the historic aspects are secondary to the primary recreation purposes. This exclusion need not prevent the consideration by States and the NPS of projects calling for acquisition of real property interests contiguous to or near historic sites and structures that meet priority outdoor recreation needs. Compliance with the National Historic Preservation Act of 1966 is required for all acquisitions (see Chapter 4.C).

   b. Acquisition of museums and sites to be used for museums or primarily for archeological excavations will not receive LWCF assistance.

   c. Acquisition of land to help meet a public school's minimum site size requirement as established by state or local regulations will not receive LWCF assistance.

   d. Acquisition of areas and facilities designed to be used primarily for semi-professional and professional arts and athletics will not receive LWCF assistance.

   e. Acquisition of areas and facilities to be used solely for game refuges or fish production purposes will not receive LWCF assistance. However, such areas and facilities may be eligible if they will be open to the public for compatible recreation.

   f. Acquisition of areas to be used mainly for the construction of indoor facilities will not receive LWCF assistance. Also prohibited are areas where existing indoor recreation facilities, if left in place, will not leave sufficient area at the site for the development of outdoor recreation facilities to justify the cost of the acquisition.

   g. Acquisition of railroad "hardware," trestles, stations, yards, and the like will not receive LWCF assistance, if such are to be used for the commercial operation of railroad trains.

h. Acquisition of sites containing luxury lodges, hotels, motels, restaurants, and similar elaborate facilities that are to be operated by the project sponsor or a concessionaire to provide food and sleeping quarters will not receive LWCF assistance.

i. Acquisition of agricultural land primarily for preservation in agricultural purposes will not receive LWCF assistance.

j. Acquisition of federal surplus property will not receive LWCF assistance unless legislatively authorized in a specific situation.

C. Criteria for Development

1. Eligible types of projects. LWCF financial assistance may be available for most types of facilities needed for the use and enjoyment of outdoor recreation areas. The LWCF Act specifies that development projects may consist of basic outdoor recreation facilities to serve the general public provided the funding of such a project is in the public interest and in accord with the Statewide Comprehensive Outdoor Recreation Plan (SCORP). In addition, development projects are subject to all other conditions, policies, and regulations of the LWCF program, provisions of this Manual, and those guidelines that may be developed by the NPS.

   a. Definition of eligible project scope. A development project may consist of one improvement or a group of related improvements designed to provide basic facilities for outdoor recreation, including facilities for access, safety, health, and protection of the area, as well as those required for the outdoor recreation use of the area. Furthermore, a project may consist of the complete or partial development of one area, such as a state park or a city playground, or it may consist of multiple sites such as a series of developments on a number of geographically separated areas under the same project sponsor such as picnic facilities in a number of parks, or the construction of fishing piers on a number of lakes in the State. In all cases, the project must be a logical unit of work to be accomplished within a specific time frame.

      Ineligible facilities to be funded through sources other than the LWCF program may be included in the Section 6(f)(3) protected area so long as they do not constitute a conversion and they qualify as an eligible public facility (see Chapter 8.F).

      Funding of development project proposals may cover construction, renovation, site planning, demolition, site preparation, architectural services, and similar activities essential for the proper conduct of the project.

   b. Development project design requirements. Plans for the development of land and/or facilities should be based on the needs of the public, the expected use, and the type and character of the project area. Facilities should be attractive for public use and generally be consistent with the environment. Plans and specifications for improvements and/or facilities should be in accord with established engineering and architectural practices. Emphasis should be given to the health and safety of users, accessibility to the general

public, and the protection of the recreation and natural values of the area. All facilities developed with assistance from the Fund must be designed in conformance with the appropriate current design standards for the Architectural Barriers Act of 1968 (ABA) (P.L. 90-480), Section 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act.

2. Ownership and control of project lands. Facilities may be developed on land and water owned in fee simple by the participating agency or where ownership of less-than-fee interests such as easements provides permanent control of the property commensurate with the proposed development. All less-than-fee interests must be described in the PD/ESF and indicated on the Section 6(f) boundary map.

   No approval will be given for the development of facilities on leased land except for property either:

   a. Leased from the Federal Government with no less than 25 years remaining on the lease and is not revocable at will; or

   b. Leased from one public agency to another for 25 years or more, provided that safeguards are included to adequately ensure the perpetual use requirement contained in the LWCF Act. Such safeguards may include joint sponsorship of the proposed project or other agreement whereby the lessor land-owning agency would provide assurances that it would assume compliance responsibility for the Section 6(f)(3) area in the event of default by the lessee or expiration of the lease, and these assurances are explicitly reflected in the project agreement. See Chapter 3.A.8 on project sponsor ownership and control of property.

3. Development project selection. In selecting development projects for submission to NPS, the States should carefully review and evaluate the project applications to filter out ineligible proposals. A special effort should be made to eliminate questionable, elaborate or borderline projects that raise serious questions concerning the project's cost, use, priority, competition with the private sector, or inclusion of ineligible facility types.

   a. Development project criteria. In evaluating development project proposals, the State and the NPS should give special attention to the degree to which the project is in keeping with the original intent of the LWCF Act. The following questions should be used as a general guide in evaluating a questionable, elaborate or borderline proposal in relation to the original intent of the Act. Essentially, to be eligible, one must be able to conclude that LWCF funds are being used "in the public interest" and "in accord with the Statewide Comprehensive Outdoor Recreation Plan" for the development of "basic outdoor recreation facilities to serve the general public." The NPS reserves the right to request from the State a written justification of eligibility if in its judgment one is considered necessary.

A development project is considered to be questionable, elaborate, or borderline with respect to the basic intent of the LWCF Act if serious questions arise concerning the following eligibility issues and their interrelationships:

(1) Project cost. Consideration should be given to the degree to which a significant portion of the State's annual apportionment is requested for one project, for one project sponsor, or for one facility that does not serve the full range of the general public. Does the project require only a reasonable portion of the State's LWCF monies rather than a significant portion which precludes the funding of more urgent recreation needs? Does the cost of a facility significantly exceed the comparable price for similar facilities? Is the project's cost comparable to other facilities of its type and justifiable in terms of the quantity and quality of recreation the facility will provide?

(2) Population served. Consideration should be given to the degree to which participation is limited by a facility's single purpose, short season, cost of equipment, fee for participation, or its limited accessibility to the general public. Will the project serve a reasonably large number of people in its service area? Will it provide close-to-home recreation and be accessible by public transportation? Will the project serve a wide range of recreation interests and abilities including the elderly and individuals with disabilities as well as the more active and highly skilled recreationists?

(3) SCORP priority. Does the project meet priority recreation needs as defined in the Statewide Comprehensive Outdoor Recreation Plan? Consideration should be given to a project's priority in the State's Comprehensive Outdoor Recreation Plan, especially when the need for a particular facility is not fully supported.

(4) Competition with the private sector. Consideration should be given to the degree to which the private sector is already providing similar facilities of the type and quality needed to meet identified recreation demands, and the user fee is low enough to undercut private business, or the income is sufficient to justify private investment, or the facility is located in a tourist market area. Can it be shown that the project does not compete unfairly with the private sector?

(5) Eligibility of facility types. Consideration should be given to the degree to which the project involves questionable support, spectator or exhibit facilities or does not clearly comply with the other eligibility criteria. Does the project involve only LWCF-eligible outdoor recreation facilities?

(6) Fees. Does the project establish a reasonable fee structure that allows for broad public participation perhaps by including free days or reduced rate days if necessary? Is project income to the sponsor being directed to recreational purposes?

(7) Applicant's performance history. The past history of the applicant for 1) adequately completing or carrying out previous federally-assisted projects, 2) protecting existing recreation resources, 3) operating and maintaining areas to acceptable standards, and 4) guiding new developments and preserving lands for open space and outdoor recreation purposes through the use of zoning and other rules, regulations and authorities will be considered.

Grants may not be awarded to any applicant nor shall any grantee or subgrantee make any award or permit (subgrant or contract) to any party that is debarred or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order 12549, "Debarment and Suspension."

b. Boat and fishing access facilities. For boat and fishing access facilities and related support facilities that are eligible for funding under both LWCF and the Dingell-Johnson (D-J) Act (also known as the Federal Aid in Sport Fish Restoration Act and "Wallop-Breaux"), as amended, LWCF funding will not be provided for facilities also eligible under Dingell-Johnson unless the State Liaison Officer has undertaken an effort to coordinate all requests for such facilities with the State official designated to administer D-J projects. Any application for LWCF assistance for these facilities must include a statement from the State Liaison Officer certifying such coordination has taken place. The result of such effort would be that the application would be directed or redirected toward whichever program is deemed more appropriate for assisting the specific project considering cost, availability of funds, other project components and additional factors deemed pertinent. D-J funds may not be used in meeting the state matching share requirement of LWCF.

4. Eligible recreation facilities. Development projects eligible for LWCF assistance may include but are not limited to the following facility types:

a. Sports and playfields. LWCF assistance may be available for fields, courts and other outdoor spaces used in competitive and individual sports. This includes fields for baseball, softball, soccer and football, tennis courts, playgrounds and tot lots, golf courses, rifle/pistol ranges, trap/skeet fields, archery ranges, rodeo arenas, inline hockey rinks, skate parks, running tracks, and other similar facilities.

b. Picnic facilities. LWCF assistance may be available for tables, fireplaces, shelters, and other facilities related to family or group picnic sites.

c. Trails. LWCF assistance may be available for the development and marking of overlooks, turnouts and trails for nature walks, hiking, bicycling, horseback riding, exercising, motorized vehicles and other trail activities.

d. Swimming facilities. LWCF assistance may be available for swimming beaches, outdoor pools, wave-making pools, wading pools, spray pools, lifeguard towers, bathhouses and other similar facilities.

e. Boating facilities. LWCF assistance may be available for most facilities related to motor boating, sailing, canoeing, kayaking, sculling and other boating activities. These facilities include, but are not limited to, docks, berths, floating berths secured by buoys or similar services, launching ramps, breakwaters, mechanical launching devices, boat lifts, boat storage, sewage pump-out facilities, fuel depots, water and sewer hookups, restrooms, showers, electricity and parking areas. Assistance will not be provided for operational equipment such as buoys, ropes, life jackets, or boats. Marinas are also eligible for assistance and are subject to the following provisions regardless of when LWCF assistance was provided:

(1) An equitable method of allocating berth space shall be used in all marinas. Allocation methods shall include: (a) annual or multi-year lotteries, or (b) posted waiting lists where berth space is filled in the order of receipt of applications, or (c) another method selected by the applicant that responds to local conditions and equitably allocates space among all parties on an annual or multi-year basis. In each instance, adequate public notice shall be provided announcing the availability of berth space and describing application procedures. The project sponsor shall determine the most equitable method under which leaseholders may compete for future berth space vacancies. For new marinas the project narrative shall describe the allocation system to be used.

(2) Commercial charter fishing or sightseeing boats are permissible marina leaseholders due to their potential for expanding public waterfront access. However, these users should not occupy a significant number of marina berths, so project sponsors should establish reasonable limits on the number of berth spaces provided for such users.

New marinas receiving LWCF assistance shall also be subject to the following provisions:

(3) Berth lease terms shall not be transferable to any other party.

(4) Berth space for transient boaters shall be provided.

(5) Marinas located in urban areas shall include specific design provisions for non-boater public access. To expand water-based recreation opportunities such access may be provided in the form of walkways, observation points, fishing piers and/or related facilities. Limited access to the actual marina berths may be retained.

f. Fishing/hunting facilities. LWCF assistance may be available for trails, fishing piers and access points, initial clearing and planting of food and cover, stream improvements, wildlife management areas, fish hatcheries and other facilities necessary for public fishing or hunting. In developing and evaluating fish hatchery proposals, only such areas and facilities will be eligible if they will be open to the public for general compatible outdoor recreation. States shall give priority to hatcheries that provide urban fishing opportunities.

g. Winter sports facilities. LWCF assistance may be available for facilities such: as ski trails; jumps; lifts; slopes; and snowmaking equipment used in downhill skiing, cross country skiing, tobogganing, sledding, snowmobiling, and other winter sports. Outdoor ice skating and ice hockey rinks are also eligible.

h. Camping facilities. LWCF assistance may be available for tables, fireplaces, restrooms, information stations, snack bars, utility outlets and other facilities needed for camping by tent, trailer or camper. Cabins or group camps of simple basic design and accessible to the general public in an equitable manner are eligible. Group camps designated for specific groups or for which specific groups will be given priority access are not eligible for LWCF assistance (Chapter 8.B). Lodges, motels and luxury cabins are not eligible for LWCF assistance.

i. Exhibit facilities. LWCF assistance may be available for outdoor exhibit or interpretive facilities that provide opportunities for the observation or interpretation of natural resources located on the recreation site or in its immediate surrounding areas. This includes small demonstration farms, arboretums, outdoor aquariums, outdoor nature exhibits, nature interpretive centers and other similar facilities. However, exhibit areas will not be assisted if they function primarily for academic, historic, economic, entertainment or other non-recreational purposes. This restriction includes convention facilities, livestock and produce exhibits, commemorative exhibits, fairgrounds, archeological research sites, and other non-recreational facilities. The development of nature and geological interpretive facilities that go beyond interpreting the project site and its immediate surrounding area are not eligible for assistance.

j. Spectator facilities. LWCF assistance may be available for amphitheaters, bandstands and modest seating areas related to playfields and other eligible facilities, provided the facility is not designed primarily for professional or semiprofessional arts or athletics, or intercollegiate or interscholastic sports. Seating provisions to accommodate persons with disabilities should be provided. Assistance is not available solely to increase seating capacity for a limited number of special events.

k. Community gardens. LWCF assistance may be available for land preparation, perimeter fencing, storage bins and sheds, irrigation systems, benches, walkways, parking areas and restrooms related to a community garden. In such a project, community gardening must be clearly identified in the SCORP as a needed outdoor recreation activity and must be accessible to the general public in an equitable manner. Furthermore, LWCF assistance is not available for fertilizer, seeds, tools, water hoses, nor gardens planned as commercial enterprises.

l. Renovated facilities. LWCF assistance may be available for extensive renovation or redevelopment to bring a facility up to standards of quality and attractiveness suitable for public use, if the facility or area has deteriorated to the point where its usefulness is impaired, or outmoded, or where it needs to be upgraded to meet public health and safety laws or requirements. However, such renovation is not eligible if the facility's deterioration is due to inadequate maintenance during the reasonable life of the facility.

m. Professional facilities. Areas and facilities designed primarily for semi-professional or professional arts or athletics, such as professional type outdoor theaters, professional rodeo arenas and other similar facilities are not eligible for LWCF assistance.

n. Accessible facilities. LWCF assistance may be available for the adaptation of new or existing outdoor recreation facilities and support facilities for use by persons with disabilities. However, outdoor recreation facilities to be used exclusively by disabled persons are not eligible unless such facilities are available to the general public or are part of an outdoor recreation area that serves the general public.

o. Mobile recreation units. Mobile recreation units including playmobiles, skatemobiles, swimmobiles, show wagons, puppet wagons and porta-bleachers are not eligible for LWCF assistance.

p. Zoo facilities. Outdoor display facilities at zoological parks are eligible to receive LWCF assistance provided they portray a natural environmental setting serving the animal's physical, social, psychological and environmental needs, and is compatible with the activities of the recreationist. Traditional outdoor caging facilities and animal pens are not eligible although Fund assistance can contribute to the renovation of such facilities to achieve a more natural environmental setting as described above. Basic winter/adverse weather housing quarters that are separate and distinct from enclosed viewing and display areas and used in direct support of outdoor displays may also receive assistance. Support facilities to serve the needs of the recreationist, such as walkways, landscaping, comfort facilities, parking, etc. are also eligible. Other enclosed or sheltered facilities such as indoor displays and permanent housing are not eligible for Fund assistance.

5. Guidelines for eligible support facilities

a. Support facilities. LWCF assistance may be available for support facilities needed by the public for outdoor recreation use of an area, such as roads, parking areas, utilities, sanitation systems, restroom buildings, simple cabins or trail hostels, warming huts, shelters, visitor information centers, kiosks, interpretive centers, bathhouses, permanent spectator seating, walkways, pavilions, snack bar stands, and equipment rental spaces. When appropriate, support facilities may be sheltered from the elements by providing a simple roof or cover. Informational materials and leaflets are not eligible.

b. Operation and maintenance facilities. Facilities that support the operation and maintenance of the recreation resource on which they are located are eligible, such as maintenance buildings, storage areas, administrative offices, dams, erosion control works, fences, sprinkler systems and directional signs. Regional and area wide maintenance facilities are eligible provided the project sponsor agrees to include those park and recreation areas served by the maintenance facility in the scope of the project agreement and under the conversion provisions of Section 6(f)(3) of the Act. Employee residences and furnishings are not eligible.

c. Beautification. The beautification of an outdoor recreation area is eligible provided it is not part of a regular maintenance program and the site's condition is not due to inadequate maintenance. This includes: landscaping to provide a more attractive environment; the clearing or restoration of areas that have been damaged by natural disasters; the screening, removal, relocation or burial of overhead power lines; and the dredging and restoration of publicly owned recreation lakes or boat basins and measures necessary to mitigate negative environmental impacts.

d. Indoor facilities. LWCF assistance will not be provided for support facilities or portions thereof that contribute primarily to public indoor activities such as: meeting rooms; auditoriums; libraries; study areas; restaurants; lodges; motels; luxury cabins; furnishings; food preparation equipment; kitchens; and equipment sales areas. Bathhouses, public restrooms, maintenance sheds, etc., are potentially eligible for LWCF assistance since their basic function is to provide support for outdoor recreation facilities.

e. Pro rata basis. Support facilities that exclusively serve ineligible facilities are not eligible. However, if support facilities will serve both eligible and ineligible facilities, as may be the case with roads and sewers, assistance may be provided on a pro rata basis for that portion of the support facility that will serve the eligible facilities, provided that the eligible facilities are subject to the LWCF Act 6(f)(3) conversion provisions.

f. Roads. Roads constructed outside the boundaries of the recreation area or park are not eligible, unless:

(1) They are, in fact, access roads to a designated park and recreation area and not part of a state, county or local road system extending beyond or through the boundaries of the area.

(2) The access corridor is owned or adequately controlled by the agency sponsoring or administering the park or recreation area and included within the project's 6(f)(3) boundary.

(3) The principal objective is to serve the park and visitors. Any use or service to private parties must clearly be incidental to the primary use of the access road for recreation purposes in which case assistance may be granted on a pro rata basis. Roads designed to serve undesignated recreation areas or federal areas are not eligible.

g. Equipment. Equipment required to make a recreation facility initially operational, and certain supplies and materials specifically required under State Health Department regulations may be eligible for assistance.

h. Must serve viable outdoor recreation area. Development projects in new or previously undeveloped recreation areas may not consist solely of support facilities, unless they are

required for proper and safe use of an existing viable outdoor recreation area that does not require additional outdoor recreation facilities (such as construction of restrooms at a public nature study area), or unless necessary outdoor recreation facilities are being developed concurrently with the LWCF assisted support facilities, or unless necessary outdoor recreation facilities will be developed within a reasonable period of time. In the latter two cases, the project agreement must include a provision that the non-LWCF assisted outdoor recreation facilities are to be completed within a certain time frame agreeable to the NPS, and if they are not, the LWCF monies will be refunded.

i. Energy conservation elements. The energy conservation elements of an eligible outdoor recreation facility and its support facilities are eligible for LWCF assistance. This includes but is not limited to solar energy systems, earth berms, window shading devices, energy lock doors, sodium vapor lights, insulation and other energy efficient design methods and materials. In addition, power systems that minimize or eliminate a facility's use of petroleum and natural gas are eligible including, but not limited to, windmills, on-site water power systems, bioconversion systems, and facilities required for the conversion of existing power systems to coal, wood, or other energy efficient fuels.

6. Facility location requirements. Development projects may be located on lands and waters owned by (or leased to in accordance with Chapter 3.C.2) the project sponsor that ensures perpetual public use. In certain situations, however, the following conditions also apply:

a. Public school grounds. Public outdoor recreation areas and facilities for coordinated use by the general public and by public schools, including colleges and universities, are eligible for LWCF assistance provided such facilities are not part of the normal and usual program and responsibility of the educational institution. Stadiums, stadium-like seating, and portable bleachers are not eligible for LWCF assistance. Facilities needed to solely meet the physical education and athletic program requirements of a school may not receive LWCF assistance. This policy does not preclude exclusive school use of certain facilities such as athletic fields, tennis courts, and swimming pools, at certain times for instruction or competition provided the public outdoor recreation use remains primary, and there is adequate public access at other times.

The grant application must include a schedule of the time the facility will be available to the public. Additionally, adequate signs must be installed at the site, prior to final payment on the project, indicating when the outdoor recreation facilities are available to the general public. Adequate documentation must be provided in the LWCF application that indicates awareness of an agreement to the Section 6(f) provisions of the LWCF Program by the school entity sponsoring the project.

b. Tourist areas. Public outdoor recreation and support facilities may be located in primary or potential tourist market areas, provided their primary purpose is for public outdoor recreation as opposed to entertainment or economic development, and provided they do not create unfair competition with the private sector.

c. Historic sites. Outdoor recreation and support facilities may be located on historic sites or in conjunction with historic structures. This includes picnic areas, walkways and trails on a historic property as well as visitor centers oriented to the outdoor facilities and environment. However, the restoration or preservation of historic structures is not eligible. In all cases, the project must be in accord with the National Historic Preservation Act of 1966 (see Chapter 4.C).

d. Utility sites. Assuming grantees possess adequate control and tenure of land and specific agreement from the utility company, outdoor recreation and support facilities may be located on utility company lands such as rights-of-way, reservoir lands, etc. unless the recreation resource management plan of the utility's license application filed with the Federal Energy Regulatory Commission indicates the facilities are to be provided at the sole expense of the licensee.

e. Agricultural lands. Outdoor recreation and support facilities, such as demonstration farms and wildlife management and hunting areas, may be planned by the project sponsor in conjunction with agricultural activities, provided that the type and extent of the agricultural activity is limited to that necessary to support the outdoor recreation activity.

7. Guidelines for eligible sheltered facilities. For LWCF assisted swimming pools and ice skating rinks located in areas which meet the cold climatic criteria described below, shelters of permanent construction may partially or completely enclose these facilities to protect them against cold weather conditions and thereby significantly increase the recreation opportunities provided:

a. Funding limitation. A qualified State may use up to 10 percent of its annual apportionment for eligible sheltered facilities. The amount to be charged against this allowance will be computed based upon the Fund assistance provided for the entire enclosed facility, rather than the Fund assistance provided only for the shelter.

If a State does not use the entire 10 percent of its fully obligated fiscal year apportionment for sheltered facilities, the remaining balance may be credited to subsequent apportionment allowances. For example, where only 5 percent of a fully obligated fiscal year apportionment has been used, the subsequent fiscal year apportionment allowance would be 10 percent plus the 5 percent balance carried over from the previous fiscal year. A credit may be carried for two subsequent fiscal years.

If a Fund-assisted swimming pool or ice skating rink without a shelter is developed under a project approved after September 28, 1976, and a separate project is later submitted to shelter the pool or rink, the combined amount of Fund assistance provided for both the facility and its shelter will be credited against available allowances. If the Fund-assisted pool or rink was developed under a project approved prior to September 28, 1976, and a separate project is later submitted to shelter the facility, only the Fund assistance provided for the shelter will be credited against available allowances.

Also, Fund assistance may be used to develop a shelter for a swimming pool or ice skating rink that was not constructed with Fund assistance. In this case, only the cost of the shelter will be credited against available allowances.

b. Use of non-federal funds for the shelter. State or local project sponsors may use their own funds to shelter existing or proposed Fund-assisted swimming pools or ice skating rinks that are consistent with the requirements described below. In such cases, Fund assistance provided to develop the pool or rink will not be credited against available allowances. Proposals to shelter eligible facilities with state or local funds will be approved by the State Liaison Officer and the appropriate NPS office.

Where the state or locally funded shelter is constructed concurrently with the Fund-assisted facility, the total project cost included in the grant agreement will be that cost attributable to the pool or rink facility only. LWCF assistance will only be used to fund outdoor recreation facilities. Fund monies will not be used to cost share in indoor facilities such as recreation centers. Engineering cost estimates and contract specifications must separate the shelter costs from other project development costs. When sheltering is to occur concurrently with the construction of the funded facility, the NPS shall review the plans and cost accounts to ensure that LWCF monies are not used in the sheltering.

Project sponsors may, without the use of LWCF monies, construct public indoor facilities on a Fund assisted site when such facilities are compatible with the outdoor recreation use of the site. NPS approval of such public facilities must be obtained prior to construction in accordance with the procedures contained in Chapter 8.G.

c. Shelter requirements. Any facility assisted from or eligible for assistance from the LWCF and within a Section 6(f) boundary may be sheltered or enclosed at the expense of the project sponsor. New sheltered facilities may also be constructed at the project sponsor's expense, with NPS approval regardless of prevailing climatic conditions. To be considered by NPS, a proposal to shelter or enclose a facility must:

(1) Be transmitted to the NPS by the SLO conveying the State's support of the proposal;

(2) Include a completed Proposal Description and Environmental Screening Form (PD/ESF) (see Chapter 4) providing:

-an explanation of the recreation uses that could typically occur outdoors with recreation use clearly being the overall primary function;

-an explanation of how the proposal will not substantially diminish the outdoor recreation values of a site;

-an explanation of how the proposed sheltered facility will be compatible and significantly supportive of the outdoor recreation resources present and/or planned;

-an explanation how the proposal will benefit the total park's outdoor recreation use;

-the environmental screening form and selection of the appropriate NEPA pathway per the PD/ESF. If the proposal is not eligible for a categorical exclusion, the State/sponsor must produce an environmental assessment and make it available for public comment per the LWCF NEPA process (see Chapter 4).

-assurance that the facility will be under the control of the public agency which sponsors and administers the original park areas. However, operation of such facilities may be carried out by a contractor or concessionaire provided that sufficient controls are maintained by the sponsoring agency through a management contract or concession agreement to ensure the maintenance of public recreation values and access by the general public.

d. Cold climatic criteria. Sheltered ice skating rinks may be developed in communities where the mean annual total snowfall is at least 24 inches or the normal daily mean temperature for the coldest winter month is 30 degrees or less. Sheltered swimming pools may be developed in communities where the normal daily mean temperature for the month of June is 72 degrees or less. The official references for making these determinations are the average temperature and the snowfall tables found in Comparative Climatic Data for the United States published by the National Oceanic and Atmospheric Administration, U. S. Department of Commerce. If climatic data is not published for the community in which the project is located, the project sponsor should contact the National Climatic Center to obtain the required data. The National Climatic Center will be able to provide a mean annual total snowfall figure, and figures for the normal daily mean temperature, based on data collected at the closest official weather recording station. A copy of the cold climatic data used to make the determination of eligibility shall be included with all project applications. A project sponsor eligible under the original climatic criteria, based on data available as of September 26, 1976, would not become ineligible in a subsequent year solely on the basis of a change in the data.

CHAPTER 4 - PROPOSALS, ENVIRONMENTAL REVIEW/FEDERAL COMPLIANCE

A. Proposal Development and Screening for Environmental Impacts

States are responsible for ensuring, on behalf of the NPS, proposals submitted to the NPS for federal decision, including new applications and amendments for LWCF previously-approved projects such as conversions, temporary non-conforming uses, and public facility exceptions, are developed in accordance with all applicable federal, state and local laws and regulations. This chapter presents the major federal laws and executive orders that govern the way proposals must be developed for federal review and decision. The General Provisions shall be attached to each LWCF grant agreement and amendment. States are encouraged to consult with NPS during the proposal development process for guidance on the compliance requirements in this chapter.

The federal legislation that coordinates the consideration of the potential for impacts to the human environment as a result of a federal action is the National Environmental Policy Act. As described in the next section, the NEPA process coordinates compliance with applicable related federal, state, and local environmental requirements. To facilitate and document this coordination, States must ensure that the LWCF Proposal Description and Environmental Screening Form (PD/ESF) is completed and accompanies each LWCF proposal submitted for federal review and decision.

The PD (proposal description) portion of the PD/ESF identifies and provides descriptive information about the proposal to the federal decision-maker.

The ESF (environmental screening form) portion of the PD/ESF serves as part of the federal administrative record required by NEPA and its implementing regulations which supports a chosen NEPA "pathway" which must be completed before final action can be taken by the NPS. It is intended that States/project sponsors use the PD/ESF as early as possible in the state/local project planning process. The ESF portion of the PD/ESF will administratively document 1) a Categorical Exclusion recommendation or 2) the necessity of further environmental review through an Environmental Assessment (EA) or Environmental Impact Statement (EIS) as necessary. In the latter case, the EA (or EIS) must accompany the State's LWCF proposal submission to the NPS. The ESF can also be used to document previously conducted yet still valid environmental analysis.

Upon the State's submission of the completed proposal with the PD/ESF and the completed environmental documentation as necessary, NPS will undertake an independent review of the final proposal and supporting documentation, and take action as appropriate.

B. National Environmental Policy Act

1. Authorities and guidance. The National Environmental Policy Act (NEPA) of 1969, as amended, is landmark environmental protection legislation establishing as a goal for federal decision-making a balance between use and preservation of natural and cultural resources.

NEPA requires all federal agencies to: 1) prepare in-depth studies of the impacts of and alternatives to proposed "major federal actions," and 2) use the information contained in such studies in deciding whether to proceed with the actions; and 3) diligently attempt to involve the interested and affected public before any decision affecting the environment is made.

Federal actions are defined as projects, activities, or programs funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency. The LWCF is a federal assistance program and thus all NPS LWCF decisions are subject to the provisions of NEPA and associated guidance found in the:

a. Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, 40 CFR 1500-1508

b. NEPA's Forty Most Asked Questions, CEQ

c. Department of Interior (DOI) policy and procedures for implementing NEPA (Departmental Manual 516 DM 1-6)

d. National Park Service (NPS), LWCF Program Manual, Chapter 4 (this chapter), including the Proposal Description and Environmental Screen Form (PD/ESF) developed from NPS Director's Order #12 and Handbook, "Conservation Planning, Environmental Impact Analysis, and Decision Making."

2. Compliance coordination. For LWCF proposals, the NEPA process coordinates compliance with related federal, state, and local environmental requirements as applicable. At a minimum, compliance by the State/project sponsor with the following federal laws and executive orders shall be coordinated during the NEPA process and should be integrated into the NEPA document:

a. National Historic Preservation Act, Section 106, as amended. Section 106 of NHPA requires federal agencies to consider the effects of their proposals on historic properties, and to provide State Historic Preservation Officers (SHPO), Tribal Historic Preservation Officers (THPO), and as necessary, the Advisory Council on Historic Preservation a reasonable opportunity to review and comment on these actions. Section 106 review and NEPA are two separate, distinct processes. They can and should occur simultaneously, and documents can be combined, but one is not a substitute for the other. They should, however, be coordinated to avoid duplication of public involvement or other requirements. The information and mitigation gathered as part of the Section 106 review must be included in the NEPA document, and the Section 106 process must be completed by the State/project sponsor before NPS can sign a categorical exclusion, a finding of no significant impact (FONSI) or a record of decision (ROD). See Section C of this chapter for further guidance on the Section 106 process.

b. Endangered Species Act, Section 7. Section 7 of the Endangered Species Act (ESA) requires a federal agency consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service on any action that may affect endangered or threatened species or candidate species, or that may result in adverse modification of critical habitat. For LWCF purposes the State/project sponsor must carry out this consultation and document that it has occurred. An EA or an EIS may provide sufficient information to serve as a "biological assessment" for Section 7 purposes. If a separate "biological assessment" is prepared, it must be part of any NEPA document.

c. Floodplain Management and Wetland Protection, Executive Orders 11988 and 11990. Executive Orders 11988 and 11990 direct the federal agency to avoid, to the extent possible, the long and short term adverse impacts associated with modifying or occupying floodplains and wetlands. They also require the federal agency to avoid direct or indirect support of floodplain or wetland development whenever there is a practical alternative. For LWCF purposes, the State/project sponsor must comply with this executive order. If implementing the LWCF project would result in an adverse impact to a federal or state regulated floodplain or wetland, a statement of finding must be included in the EA or EIS documenting the State/local sponsors coordination efforts with responsible state and federal authorities, a description of affected floodplain and wetland resources, alternatives considered to developing in the floodplain and/or wetland, and actions to avoid, minimize and/or mitigate impacts.

d. Environmental Justice in Minority and Low-Income Populations, Executive Order 12898. Executive Order 12898 directs federal agencies to assess whether their actions have disproportionately high and adverse human health or environmental effects on minority and low-income populations. For LWCF purposes, States/project sponsors must specifically analyze and evaluate the impact of the LWCF proposal on minority and low-income populations and communities, as well as the equity of the distribution of the benefits and risks of the decision in the NEPA document. If it does not apply, this should be noted in the "issues dismissed" section of the NEPA document. See Department of Interior Environmental Compliance Memoranda (ECM) 95-3.

e. Department of the Interior Environmental Compliance Memorandum (ECM) 95-2: ECM95-2 requires bureaus to explicitly address environmental impacts of their proposed actions on Indian Trust Resources in any environmental document.

f. Intergovernmental Review of Federal Programs, Executive Order 12372. For States that have selected to review the LWCF Program under its own Intergovernmental Review Process under Executive Order 12372, States may use this process for state and local government coordination and review of proposed federal financial assistance. States may make efforts to accommodate state and local elected officials concerns and comments that are communicated through the designated single point of contact process. Comments should be considered in a timely manner during the NEPA process and prior to submission to NPS for federal review. The Intergovernmental Review Process does not fulfill the State's/project sponsor's responsibility for providing a public comment

period (see Section 5.b(2) below) that provides the interested and affected public opportunity to comment on the completed environmental review documents.

3. State responsibility. Using the PD/ESF for new applications and certain amendments, the State must submit to NPS adequate environmental documentation in order for NPS to determine whether a proposed LWCF action is either categorically excluded from further environmental analysis or requires an EA or an EIS. States are responsible for coordinating the environmental review process including the production of environmental assessments, and if necessary, environmental impact statements. States are also responsible for ensuring the required public comment periods are offered in accordance with the guidance found in Section 5.b(2) below.

   CEQ encourages federal and state agencies to work together to combine efforts to produce only one NEPA document, especially for those state and local agencies that have their own requirements for impact analysis. Early coordination is critical prior to the investment of extensive planning resources and the commitment to a specific alternative. State and local environmental impact analysis requirements may not meet the same needs as NPS LWCF requirements, so States are urged to consult early in the process with NPS.

   When a State elects to use a state or local environmental review process to meet the NEPA requirement, States shall provide the environmental review guidance in this chapter, including the PD/ESF, to the agency delegated the responsibility to conduct the environmental review to ensure that the process meets these federal requirements.

   Costs associated with conducting environmental reviews may be eligible for LWCF assistance (see Chapter 5.A.3.b).

4. NPS responsibility. NPS is responsible for determining whether a proposed LWCF action is either categorically excluded from further environmental analysis or requires an environmental assessment (EA) or an environmental impact statement (EIS). NPS also is responsible for ensuring the adequacy of any required EA or EIS documents, and is solely responsible for signing the decision documents. NPS serves as the lead agency in the delegation, preparation and review of any EA or EIS for proposed LWCF actions. As the lead agency, the NPS provides guidance to the States on how to develop adequate environmental documentation according to the type of the state/local proposal for federal assistance.

5. Scope of environmental review. Early in the conceptual development of an LWCF proposal, the State shall encourage LWCF project sponsors to document their planning and analysis process, including all efforts to reach out to the interested and affected public and agencies. The public and agencies should be invited to provide input early in the planning process and before any environmental analysis formally begins so the sponsor can clearly communicate the purpose and need for the project and give the public and agencies an opportunity to provide any information that could be useful for scoping out the LWCF proposal and considering its potential impact on resources. This scoping step in the

planning process will yield information for use in defining the scope of the LWCF proposal and possible associated environmental impacts.

The LWCF PD/ESF shall be used by all potential LWCF project sponsors and for any LWCF proposal requiring federal action. The PD/ESF is designed for use as a tool during project scoping, planning, and proposal development to document environmental information and consider the LWCF proposal's possible environmental impacts at the time it is discussed, presented, or discovered in the field rather than as a "compliance exercise" after a decision is made and the application for federal assistance is being prepared.

As a result of early project scoping and planning, the State/sponsor develops a final proposal for possible federal assistance or action, including a completed ESF. The scope of the environmental review under NEPA, i.e., the extent of resources that may be affected by the project, depends on the type of LWCF proposal under consideration as follows:

a. New acquisition projects. The scope of the environmental review shall include the lands to be acquired and the proposed public outdoor recreation uses intended for the property to be completed within three years from the date of acquisition.

b. Development projects. The scope of the environmental review shall be the proposal to provide or improve facilities for public outdoor recreation use and associated activities resulting from these improvements.

c. Section 6(f)(3) Conversions. Pursuant to 36 CFR 59.3, the scope of the environmental review for Section 6(f)(3) conversions is the entire Section 6(f)(3) park proposed for conversion, including for partial conversions, and lands proposed for replacement including the proposed development for public outdoor recreation use and associated activities. Resources beyond the existing Section 6(f)(3) area are not subject to review unless required by other federal compliance programs.

d. Other LWCF proposals. To determine the scope of the environmental review for other types of LWCF proposals, consult your NPS Regional Office LWCF Program Manager.

The scope of the environmental review determines the resources that must be screened for possible environmental impacts resulting from the LWCF proposal.

6. NEPA pathway options. The completed PD/ESF will guide the state/project sponsor along the appropriate NEPA pathway to produce the level of environmental analysis and documentation required for the proposed undertaking. The PD/ESF will document and support the NEPA analysis pathway option chosen for the proposal. States are required to include the completed PD/ESF with its formal LWCF proposal submission to the NPS.

The NEPA analysis pathway options available to States are:

a. Categorical Exclusion for which a record is needed. These Categorical Exclusions (CE) are for federal actions that, under normal circumstances, are not considered major

federal actions and have the potential for minor or no measurable impacts on the human environment. Prior to submitting a proposal to the NPS for federal review and decision, it is the State's responsibility to review the LWCF proposal to determine if the project meets the criteria for a CE determination. If the LWCF proposal meets the criteria for a CE, the State provides sufficient documentation on the PD/ESF to support the CE by indicating that all potential impacts will be minor or less, and NPS agrees with the CE selection, NPS will sign its own CE form signifying the proposal is categorically excluded from further NEPA analysis.

A CE is not applicable if the ESF indicates that the proposal may result in more than minor impacts on resources.

Note in addition to the CE criteria, the State must also consult the list of exceptions to the CE criteria listed in the PD/ESF. These exceptions describe additional circumstances that may be relevant for the proposal and could result in adverse impacts on the human environment and, therefore, preparation of an EA would be required.

b. Environmental Assessment. An Environmental Assessment (EA) is required when 1) the significance of impacts on any resource is unknown, or 2) the proposed action does not meet the criteria for CE and is not included in the list of actions that normally require an EIS, or 3) the proposed action needs several CE categories to fully describe the action, would involve one or more CE criteria exceptions, or would involve unresolved conflicts concerning the use of resources.

All Section 6(f)(3) conversions require an EA except for the "small conversions" that qualify as a categorical exclusion as specifically defined in Chapter 8.

(1) EA format**:** The following basic format for a LWCF EA is recommended. The content of each chapter will vary depending on the type of LWCF proposal under analysis such as new acquisition and development projects, Section 6(f)(3) conversions, and other LWCF proposals described in the PD/ESF. In cases where the State/local sponsor chooses to combine environmental review efforts to meet state and federal requirements (see Section 2 above), the following information must be included in the document in a way that allows the LWCF proposal to be readily discernable, such as in a separate section in the larger, more comprehensive document. The EA must be factual and written in an objective manner and with a neutral tone. The EA should not promote a particular alternative or make a case for the approval of the proposal. The information must be presented without technical jargon and so it can be understood by the interested and affected public.

Chapter 1 – Purpose, Need, Background. This chapter describes the purpose of the EA so that the interested and affected public, including other agencies and decision-makers, understand the type and nature of the proposal that needs a federal LWCF decision. This chapter needs to explain the EA will provide a framework for the NPS to evaluate the environmental consequences of the proposed action on the human environment, and must also include any information to help the interested

and affected public and decision-makers understand the context for the proposed action, including a clear explanation of the role of the LWCF Act Section 6(f)(3) in the proposal and the scope of the environmental review (see Item 5 above).

Chapter 2 - Description of Alternatives. This chapter must provide enough information for the interested and affected public and decision-makers to understand the proposed alternative (federal approval of the LWCF proposal) and the no action alternative. This chapter should lead off with an evaluation of all alternatives considered and the reasons for selecting the proposed alternative and rejecting the other alternatives.

At a minimum, the proposed alternative should be described in detail along with the public outdoor recreation resources and opportunities provided by the proposal including maps clearly depicting the creation of or changes in the LWCF Section 6(f) boundary. New and/or existing Section 6(f) parkland must be described in detail. This chapter must include an explanation and status of any other approvals, permits or other factors needed to implement the proposal.

For Section 6(f)(3) conversions, this chapter must include:

- a description of the Section 6(f)(3) parkland proposed for whole or partial conversion, including associated outdoor recreation facilities and opportunities;

- any Section 6(f)(3) parkland remaining from partial conversions and remaining outdoor recreation facilities and opportunities; and

- a description of the replacement parkland, including a description of the planned development for public outdoor recreation use and new outdoor recreation opportunities to be provided and timetable for completion.

Chapter 3 - Affected Environment. The affected environment is a detailed description of the current state of resources expected to experience environmental impacts. Using the resource impact information documented on the environmental screening form (ESF) and other means of collecting information about affected resources, delineate an analysis area boundary for each resource and describe its existing status (location, nature, condition, scope, size, etc.). The existing status of these resources will serve as baseline information upon which impacts will be compared in the next EA chapter.

This includes detailed description of any existing public outdoor recreation resources and opportunities at the affected site(s) including a clear depiction any existing Section 6(f) boundary.

This chapter must also describe the park/recreation area's population service area and demographics, including information about minority and low income populations pursuant to Executive Order 12898, Environmental Justice in Minority and Low-Income Populations.

Also, this chapter must include a description of any existing easements, right-of-ways, leases, and any other agreements about use of the Section 6(f)(3) area. If the proposal includes land with a history of contamination, this chapter should describe the contamination and current condition/remediation status.

For Section 6(f)(3) conversions, this chapter must include a description of the existing resources associated with the Section 6(f)(3) parkland proposed for whole or partial conversion, including associated outdoor recreation facilities and opportunities and a description of the existing resources at the replacement site(s). The description must include a detailed description of existing outdoor recreation resources, facilities and opportunities for all affected areas as well as the existing population served by the converted park and the existing population to be served by the new replacement parks.

For conversions, resources beyond the existing and proposed Section 6(f)(3) areas are not subject to review unless required by other federal compliance programs.

Any resources and issues to be dismissed from further analysis must be described in this chapter.

Chapter 4 - Environmental Impacts. This chapter analyzes the degree to which the resources described in Chapter 3 (above) will be impacted by the proposal. The analysis should be presented for the interested and affected public, agencies, and decision-makers to understand the potential for impacts, both beneficial and adverse, and should include qualitative and quantitative data that considers the context, intensity, duration, and timing of the potential impacts. The presentation of data must be presented objectively, accurately, and factually. Resource impacts within the proposed Section 6(f)(3) boundary must be described including any future easements, right of ways, leases and agreements about the use of the Section 6(f)(3) area.

This chapter must also include a detailed discussion of the proposed impacts, both beneficial and adverse, on the provision of public outdoor recreation for the populations served by the proposal including impacts to minority and low income populations pursuant to Executive Order 12898, Environmental Justice in Minority and Low-Income Populations, and a clear depiction of any Section 6(f) boundary changes, especially for expansion of existing Section 6(f) areas and conversions, including a description of any easements, rights-of-way, leases, and any other agreements about the use of the Section 6(f)(3) area as a result of the proposal. If Chapter 3 (above) includes information that any of the land resources in the proposal has a history of contamination, this chapter must include information on the impacts

of the proposal on this land considering its status including the land's suitability to support healthy and safe public outdoor recreation activities in perpetuity.

For Section 6(f)(3) conversions, an analysis of impacts to the affected resources described in Chapter 4 must be presented in this chapter. Resources beyond the existing and proposed Section 6(f)(3) areas are not subject to review unless required by other federal compliance programs.

Chapter 5 - Coordination and Consultation. This chapter must list persons, organizations and agencies contacted for information and for identifying important issues, developing alternatives, or analyzing impacts. Any scoping or other public involvement efforts should also be detailed. A list of preparers and their qualifications should be included as well.

(2) Opportunity for public review and comment. At a minimum, States are required to ensure the interested and affected public has had an opportunity to review and provide written comments on completed environmental assessments for LWCF proposals. This public comment period shall be no less than 30 days. The notice an EA is available for review shall be published in the local newspapers and community notices, posted on the sponsoring agency's web site, and made broadly known to the public in such a way that the interested and affected public has ample notice of the public comment period. The State/project sponsor is responsible for reviewing the public comments. These comments and the responses that address all substantive comments are to be included in the proposal's submission to NPS.

If the proposal is revised in response to substantive public comments or for any other reason, States should consult with NPS to determine if the public needs another opportunity to review the revised EA.

c. Environmental Impact Statement. An Environmental Impact State (EIS) is required when the potential for significant impact to the human environment exists is indicated by an EA or through the PD/ESF. The State should contact NPS for further guidance as soon as there is an indication that an EIS may be required.

C. National Historic Preservation Act, Section 106 Process

1. Purpose**.** The purpose of this section is to provide overall guidance on the implementation of the National Historic Preservation Act of 1966, as amended, (P.L. 89-665) for LWCF proposals requiring NPS review and decision.

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (Council) a reasonable opportunity to comment on such undertakings. A historic property is a property listed in or eligible for listing in the National Register of Historic Places. An undertaking is a project, activity, or program in whole or in part under the direct or indirect jurisdiction of a federal agency, including those

carried out by or on behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license or approval, and those subject to State or local regulation administered pursuant to a delegation or approval by a federal agency. Under Section 106, LWCF proposals requiring NPS review and decision are undertakings.

The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among the agency official and other parties with an interest in the effects of the undertaking on historic properties, commencing at the early stages of project planning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties.

2. State responsibility. States shall conduct the Section 106 review process pursuant 36 CFR Part 800. Prior to formal proposal submission to NPS for review and decision and pursuant to 36 CFR 800.2(a)(3), the State Liaison Officer, or designee, is authorized by NPS to initiate the Section 106 consultation process with the State Historic Preservation Office (SHPO), the Tribal Historic Preservation Office (THPO), and other consulting parties to define the Area of Potential Affect (APE) and to determine whether LWCF proposals have the potential to affect historic properties within the APE. The APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE boundary may not be limited to the LWCF Section 6(f) boundary.

   States are also responsible for performance by third parties under sub-agreements made by States for accomplishing LWCF program objectives. This responsibility includes compliance with all applicable federal laws, executive orders and regulations, such as Section 106.

   By submitting a LWCF proposal for NPS review and decision, the State is making the following assurance and is also requiring this assurance be provided by subgrantees:

   The State shall assist the NPS in its compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, by (a) consulting with the State Historic Preservation Office and/or the Tribal Historic Preservation Office on the conduct of any necessary investigations to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are within the proposed area of potential effect of the proposed action (see 36 CFR Part 800), to conduct such investigations and to notify the Federal grantor agency of the existence of any such properties, and by (b) complying with all requirements established by the Federal grantor agency to avoid or mitigate adverse effects upon such properties. The State further agrees to require this assurance from local project sponsors.

   a. SHPO and THPO role. The SHPO reflects the interests of the State and its citizens in the preservation of their cultural heritage. In accordance with Section 101(b)(3) of the Act, the SHPO advises and assists federal agencies in carrying out their Section 106 responsibilities and cooperates with such agencies, local governments, and organizations

and individuals to ensure historic properties are taken into consideration at all levels of planning and development. For LWCF proposals, the SHPO shall advise and assist the state agency in its efforts to comply with Section 106.

When an Indian tribe has assumed the Section 106 responsibilities of the SHPO on tribal lands pursuant to Section 101(d)(2) of the Act, consultation for undertakings occurring on tribal land or for effects on tribal land is with the THPO for the Indian tribe in lieu of the SHPO. See 36 CFR 800.3 for details on how to conduct the Section 106 process with a THPO.

b. Indian tribes and Native Hawaiian organizations. States are responsible for making reasonable and good faith efforts to identify Indian tribes and Native Hawaiian organizations that shall be consulted in the Section 106 process. Consultation should commence early in the planning process in order to identify and discuss relevant preservation issues and resolve concerns about the confidentiality of information on historic properties. States should seek assistance from the SHPO, THPOs, Native Hawaiian organizations, tribes, other federal landholders, and any party it deems appropriate to determine if the proposal has the potential to affect tribal and Native Hawaiian resources. States should seek further guidance from their NPS LWCF regional office in cases where the consultation process is complex and assistance is needed to further define these responsibilities and roles.

3. NPS responsibility. NPS provides guidance through this manual and technical assistance to States in complying with the Section 106 process prior to a State's formal submission of a LWCF proposal to NPS.

   NPS receives and considers a State's Section 106 recommendations as part of a State's formal LWCF proposal submission, and conducts further consultation if needed. It shall be NPS policy to implement the Section 106 process in such a manner as best serves the public interest and is consistent with the provisions of the Land and Water Conservation Fund Act of 1965, as amended.

4. Timing**.** States are responsible for carrying out its responsibilities under these procedures as early as possible during the formative stages of a proposal and as part of its decision making process prior to formal submission to NPS for review and decision.

5. Coordination with NEPA. States should ensure that potential affects on historic properties from the proposal are considered as early as possible during the environmental review process pursuant to the NHPA Section 800.8 and the National Environmental Policy Act (NEPA). The Section 106 process and the NEPA environmental review process are two separate, distinct processes. They can and should occur simultaneously, and documents can be combined, but one is not a substitute for the other. They should, however, be coordinated to avoid duplication of public involvement or other requirements. The Section 106 process shall be documented as part of the LWCF PD/ESF (see next item and also Chapter 4.A). The State should ensure the information and mitigation gathered as part of the 106 review is

included in the NEPA document to be submitted for NPS review and decision about the proposal's potential for significant impact on the human environment.

Use of NEPA categorical exclusions does not exempt the proposal from compliance with this section.

6. Applying Section 106 to types of LWCF proposals. A State shall complete a LWCF PD/ESF for each proposal to be submitted to NPS for review and decision along with its recommendation for a determination of effect and supporting documentation appropriate for the type of proposal being submitted to NPS:

   a. New projects and amendments to acquire and/or develop parkland. Prior to a State's submission of a proposal for financial assistance (acquisition, development or combination projects) and for amendments that involve 1) the acquisition of different acreage from those identified in the original application or 2) a change in the footprint of the development from that originally proposed within the APE, the requirements of this chapter must be addressed.

   b. New acquisition projects and amendments involving delayed development and interim uses**.** In some instances LWCF grants are approved for the acquisition of land on which non-LWCF assisted the development of outdoor recreation facilities is planned at a future date. In the interim, between acquisition and development, the property should be open for those public recreation purposes that the land is capable of supporting or which can be achieved with minimum public investment. Interim uses for such lands acquired for delayed development may also include the temporary continuation of an existing use and non-recreation uses, such as agriculture (see Chapter 3.B.7 for delayed development policy). Any new planned or unplanned development and uses for the newly acquired property during the three year period after acquisition is subject to compliance with this chapter. Failure to protect historic properties constitutes grounds for termination of a LWCF grant.

      If appropriate, a special condition shall be placed in the LWCF grant agreement/ amendment that requires further compliance prior to any ground disturbing or demolition activities during this time period. Tracking Section 106 compliance will be the responsibility of the State.

   c. Section 6(f)(3) conversions**.** Section 106 process must be applied to the Section 6(f)(3) protected area to be converted as well as the acquisition and development of the replacement parkland. For the area to be converted States may consider recently conducted Section 106 reviews for applicability to the new APE resulting from the proposal that will cause the conversion.

   d. Proposals for temporary non-conforming uses, significant change in use, sheltering, and developing public facilities. These proposals require the approval of the NPS and must be reviewed according to the Section 106 process (see Chapter 8).

7. Cost sharing. Except as noted below, all costs incurred as a result of compliance with this chapter, including pre-agreement costs associated with the identification and evaluation of potential historic properties, are eligible project costs and may be reimbursable.

   a. Acquisition projects**.** Costs for mitigation actions related to an acquisition project are not eligible for LWCF assistance.

   b. Development projects. Costs incurred for mitigation actions or mitigation for resources discovered during LWCF project development may be reimbursable through the LWCF on a matching basis up to 50 percent provided that such request is accompanied by evidence that sufficient and timely federal funding for mitigation is otherwise unavailable. Mitigation shall be conducted in a manner consistent with the Secretary of the Interior's Standards for Archeology and Historic Preservation Projects. Since destruction of historic properties constitutes an irreplaceable loss, failure to provide for necessary mitigation constitutes grounds for denial of LWCF assistance.

8. Compliance procedures

   a. NPS responsibility. The NPS is ultimately responsible for determining whether a project proposal will affect a property in or eligible for listing in the National Register.

   b. State responsibility. It shall be the responsibility of the State to implement, or cause to be implemented, the provisions of this part on behalf of and with the concurrence of NPS. The Section 106 Process is detailed in 36 CFR PART 800 Subpart B. States shall use 36 CFR Part 800 Subpart B for detailed guidance on the Section 106 compliance procedure and its own SHPO/THPO requirements. The requirement for States to consult with the SHPO/THPO is independent of the State's Intergovernmental Review system (E.O. 12372). In summary, the State shall:

      (1) Determine scope of historic property identification including the Area of Potential Affect (APE) for the proposed LWCF undertaking.

      (2) Identify historic properties within the APE.

      (3) Evaluate any historic properties for National Register eligibility.

      (4) Recommend a determination of effect.

         i. No historic properties affected. If the State finds either there are no historic properties present or there are historic properties present, but the LWCF undertaking will have no effect upon them as defined in 36 CFR 800.16(i), the State shall provide adequate documentation of this finding to the SHPO/THPO and shall notify all consulting parties they have 30 days to object to the finding. If no objections are made, then the State may recommend a finding of "No Historic Properties Affected" to NPS as part of its formal proposal submission.

If the SHPO/THPO or any consulting party objects to the finding, then the State shall follow procedures according to 36 CFR 800.4(d)(1)(ii).

ii. Historic properties affected. If the State finds there are historic properties that may be affected by the LWCF undertaking, the State shall notify all consulting parties to invite their views on the effects and assess adverse effects, if any, in accordance with 36 CFR 800.5.

(a) No adverse effects on historic properties. If after the State applies the criteria of adverse effects pursuant to 36 CFR 800.5(a)(1) it determines the LWCF undertaking will have no adverse effect on historic properties eligible for or listed on the National Register it shall notify all consulting parties along with the documentation of the finding who have 30 days from receipt to review the finding. If the SHPO/THPO has agreed with the finding or has not provided a response, and no consulting party has objected, the State may recommend a finding of "No Adverse Effect" as part of its formal proposal submission to NPS.

Disagreement with "no adverse effects" finding. If within the 30-day review period any consulting party notifies the State in writing it disagrees with the "no adverse effect" finding and specifies the reasons for the disagreement, the State shall either consult with the party to resolve the disagreement or request NPS seek Council review of the finding pursuant to 36 CFR 800.5. The State shall also concurrently notify all consulting parties such a submission has been made and make the submission documentation available to the public.
If within the 30-day review period the Council provides the NPS, and if the Council determines the issue warrants it, the head of NPS, with a written opinion objecting to the finding, NPS shall proceed according to 36 CFR 800.5(c)(3)(ii).

(b) Adverse effects on historic properties. When the potential for an adverse effect is found, the consultation shall continue among the State, NPS, SHPO/THPO and consulting parties to attempt to eliminate or mitigate the effect. The NPS, with the assistance of the State, must follow procedures pursuant to 36 CFR 800.6.

c. Formal submission of State's proposal to NPS. NPS shall not accept a LWCF proposal from the State for formal review and decision until the Section 106 process has been completed.

d. Post review discoveries. If historic properties are discovered or unanticipated effects on historic properties found after the NPS has signed off on the Section 106 process, the State, or subgrantee, shall immediately halt construction activities and notify NPS. In consultation with NPS, the State shall make reasonable efforts to avoid, minimize or mitigate adverse effects to such properties and follow the procedures outlined under 36 CFR 800.13(b).

e. Data recovery. When it is determined the project will have an adverse effect on a property in or eligible for listing in the National Register, all feasible and practicable alternatives to avoid or beneficially incorporate the historic properties into the project should be considered. If NPS, in consultation with the Council and the SHPO/THPO, determines there is no alternative but to recover the scientific, prehistoric, historical or archeological data, such recovery shall be conducted in accordance with 36 CFR 800.6 and pursuant to a Memorandum of Agreement and be consistent with the Department of Interior "Statement of Program Approach" for implementation of P.L. 93-291. In the event that timely funding under P.L. 93-291 is unavailable, such data recovery costs may be assisted in accordance with this section.

f. Destruction of historic properties prohibited. Destruction of any site or property on or eligible for inclusion on the National Register prior to or in anticipation of applying for LWCF assistance shall constitute grounds for denial of LWCF assistance.

D. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

1. Purpose. This section provides guidance for the application of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act) and its implementing regulations found in the Code of Federal Regulations, Part 24 (49 CFR Part 24) to federally assisted projects through the Land and Water Conservation Fund (LWCF).

   The Uniform Act provides for the uniform and equitable treatment of persons displaced from their homes, businesses, or farms by federal and federally assisted programs and establishes uniform and equitable land acquisition policies for federal and federally-assisted programs, such as the LWCF

   a. Displaced persons. The Uniform Act seeks to ensure that persons displaced as a direct result of federal or federally assisted projects are treated fairly, consistently, and equitably so such displaced persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. In this regard, the provisions of the Uniform Act and its implementing regulations apply to state and local government agencies receiving federal financial assistance for public projects that require the acquisition of real property regardless of funding source. The acquisition itself does not need to be federally funded for the rules to apply. If federal LWCF funds are used in any phase of the project, such as subsequent LWCF-assisted development as described in Section 5 below, States must comply with the rules of the Uniform Act.

   b. Real property acquisition. The Uniform Act seeks to ensure that owners of real property to be acquired for federal and federally-assisted projects are treated fairly and consistently, to encourage and expedite acquisition by agreements with such owners, to minimize litigation and relieve congestion in the courts, and to promote public confidence in federal and federally-assisted land acquisition programs. See Section 4 below for further guidance on real property acquisitions.

2. State responsibility. The States are responsible for implementing the provisions of the Uniform Act pursuant to 49 CFR Part 24. The State Liaison Officers must keep participating state agencies and local governments advised on, and assure compliance with, all relocation and acquisition matters as they relate to the Uniform Act and these procedures. For LWCF project approval, this State assurance is incorporated into the general provisions included with every project agreement:

> *The State will comply with the terms of Title II and Title III, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646), 94 Stat. 1894 (1970), and the applicable regulations and procedures implementing such Act for all real property acquisitions and where applicable shall assure that the Act has been complied with for property to be developed with assistance under the project agreement.*

3. State documentation requirements for displaced persons. Except for Items "e" and "g" below, the State is required to keep the following documentation in its own LWCF project files and make it available upon request during program reviews, for audit purposes, and in response to NPS information requests. The State must submit copies of the "Statement of Difference in Value and Waivers" to the NPS prior to project completion.

   a. An estimate of the number of individuals, families, businesses, and farms being displaced.

   b. Appraisal documentation including review material and the State's written approval of the appraisal report.

   c. Copy of the written offer to purchase including a statement of just compensation.

   d. Relocation Plan, advisory services program, and appeals procedure where displacement occurred.

   e. Statement of difference in value if the purchase price is greater than the approved appraisal of fair market value.

   f. Documentation showing the owner or owner's designated representative has been given an opportunity to accompany the appraiser during his inspection of the property.

   g. Evidence that occupants of property acquired were furnished at the time of initiation of negotiations adequate information explaining their eligibility to payments under Title II of the Uniform Act

   h. Copies of waivers where applicable.

   i. Appropriate claims forms and supporting documentation.

j. Evidence of purchase price and of title.

4. State relocation assistance advisory services. States shall carry out a relocation assistance advisory program that includes, in part, determining the relocation needs of each person to be displaced and providing an explanation of payments and other assistance for which the person may be eligible. All services required by Title II, Section 205 of the Uniform Act must be provided by the state or local sponsor.

5. Relocation benefits to displaced persons. The State must make available relocation benefits to persons displaced from any site that at the time of acquisition with or without LWCF assistance (or at any time thereafter prior to actual displacement) was planned as the site of a federally assisted project as follows:

   a. If the acquisition or displacement occurred within the two years preceding the time the State submits its application for federal financial assistance to the NPS, the State must provide the assurances required by Sections 210 and 305 of P.L. 646, unless the State can provide to the NPS documented evidence that at the time of the acquisition and last displacement, planning activity to obtain the particular federal assistance being applied for had not yet been initiated.

   b. When the acquisition or displacement occurred more than two (2) years, but less than five (5) years before the State submits an application for federal financial assistance, that same assurance must be provided by the State, unless a written certification is provided as part of the project application by the head of the State or local government agency sponsoring the project. The certification will indicate, under penalty for willful misstatement (18 U.S.C. Section 1001), that the state or local government had not yet initiated planning activities for the application to obtain federal assistance at the time of the acquisition and last known displacement. The intent of this certification is for the State to provide an affirmative demonstration the acquisition was not the first step in a logical or foreseen planning of a project requiring federal financial assistance.

   c. If the acquisition and last displacement occurred more than five (5) years before the State applies for federal financial assistance, the State need not provide the assurances required by Sections 210 and 305 of the Uniform Act nor the certification discussed above, unless the NPS has evidence to indicate that at the time of the acquisition and last known displacement, the state or local government had initiated planning activity for the application to obtain the particular federal assistance. In such case, Sections 210 and 305 assurances will be required. This is because it is assumed after five (5) years it is unreasonable to assume there was intent to seek financing of a development project at the time of acquisition or intent to deny relocation benefits.

   d. The States shall keep relocation certifications and related records in its own LWCF project files and make them available for inspection at the request of NPS.

6. Displaced applicant appeals process. Situations may occur when an applicant for payments under the Uniform Act will be aggrieved by a displacing agency's determination as to the

applicant's eligibility for payment or the amount of the payment. Each State shall establish procedures that provide for adequate review by the involved state agency of the concerns of the person aggrieved. The procedures should assure that aggrieved persons may have their applications reviewed by the head of the state agency. The procedures should also provide for an appeals process that can be followed should decisions remain disputed following review by the head of the state agency.

7. Real property acquisition

a. Methods of acquisition. Acquisition of land and water, or interests therein, may be accomplished through direct voluntary purchase, gift, transfer, eminent domain, or other means. The NPS encourages public policies and procedures for the acquisition of real property that are fair and consistent, and directed toward giving the property owner the full measure of compensation authorized by law, promptly, with a minimum of inconvenience, and without prolonged negotiation or costly litigation. Federally-assisted acquisitions shall be guided by the policies found in Title III of the Uniform Act.

(1) The Federal Government will not obtain a legal right or title to any area or facility acquired with LWCF assistance. The State must have on file satisfactory evidence of the purchase price and a description of the character and nature of the title received by the project sponsor before requesting reimbursement from the NPS.

(2) Evidence of title, such as a written statement by the State Attorney General, title insurance, or other means considered reasonable and adequate, must also be available to the SLO before requesting reimbursement from the NPS.

(3) Requests for payment certified by the SLO will be acceptable evidence of the purchase price and that the State has on file all the required documents, including those required by P.L. 91-646.

(4) A survey may be required by the NPS to confirm the exact location and size of the tract being acquired.

b. State responsibility**.** The State will have responsibility for providing guidance to appraisers on appraisal requirements for federally-assisted acquisitions, for ensuring appraisals are reviewed by state-certified review appraisers pursuant to the Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA), and for approving appraisals. The State must certify the appraisals meet the federal appraisal standards as described in below. A certification statement is included in the LWCF Proposal Description and Environmental Screening Form (PD/ESF) for States to certify appraisals and waiver valuations.

NPS will conduct spot check reviews of appraisals as needed and will review the State's LWCF appraisal review process as part of a state program review to assure compliance with the LWCF requirements and federal appraisal standards. The NPS may request

appraisal review assistance from the Department of the Interior's Appraisal Services Directorate (ASD) as needed. When the appraisal review results in substantive concerns as to the adequacy of an approved appraisal, the State Liaison Officer will be responsible for providing NPS (or ASD) with supplemental appraisal documentation or a new appraisal in accordance with the review findings. The value established by the revised or new appraisal will be used as the basis for determining just compensation and matching assistance.

c. Appraisal standards. The Uniform Appraisal Standards of Federal Land Acquisitions (UASFLA), commonly referred to as the "Yellow Book," shall be used by state and local appraisers in the preparation of appraisals for federal LWCF-assisted acquisitions, donations if used for a federal match, and land exchanges for conversions. Because the appraisals for federal government acquisitions purposes, including federally-assisted acquisitions, are bound by federal law relating to the valuation of real estate, it is necessary to apply the UASFLA as warranted by the conditions of the federal appraisal assignment.

The federal standards (UASFLA) are considered "Supplemental Standards" to the Uniform Standards of Professional Appraisal Practice (USPAP) and are required to bolster the minimum level of documentation and yield compliance with the unique and applicable appraisal methods and procedures that have evolved from federal case law. The UASFLA 2000 edition is available from on-line. USPAP is revised annually and can be found on the Appraisal Foundation's website.

(1) UASFLA and USPAP. Appraisal preparation, documentation and reporting shall be in conformance with the UASFLA, which are generally compatible with standards and practices of both the appraisal industry and the Uniform Standards of Professional Appraisal Practice (USPAP). However, USPAP compliance alone will not result in UASFLA compliance. The project sponsor must recognize the differences between UASFLA and USPAP and ensure the appraiser meets the higher standards of the UASFLA, except where noted below.

The UASFLA incorporates, by reference, most of the provisions found in the USPAP, however, UASFLA is a more detailed and rigorous standard. The UASFLA does deviate from the USPAP on certain occasions. Therefore, it may be necessary to invoke USPAP's "Jurisdictional Exception Rule" when preparing a UASFLA-complying report. This allows USPAP standards to conform to overriding federal law relating to the valuation of real estate for LWCF federally-assisted acquisition and LWCF Act Section 6(f)(3) conversion purposes. Consult Part D-1 of the UASFLA for a discussion of the minor conflicts between the 2000 edition of the UASFLA and the USPAP in effect as of that same year.

The major difference between the USPAP and the UASFLA is the UASFLA mandated procedure of valuing partial takings by utilizing the "before and after" method of analysis. This method addresses the loss of market value suffered by the large parcel as a result of the loss of the real property rights in question. "Severance

damages" and "special benefits" affecting the remaining real property are automatically addressed through this appraisal method. The USPAP provides no specific guidance with respect to this issue. Lacking specific guidance, most USPAP appraisal reports simply address the value of the real property rights acquired by the grantee and not the overall diminution suffered (or, perhaps, enhancement realized) by the property from which it was acquired. Thus, a landowner, under certain circumstances, may end up "short changed" or unjustly enriched as a result of the lack of direction given in the USPAP in an involuntary or condemnation type acquisition. The reason for this UASFLA requirement is fairness to all concerned parties. Except for appraisal problems associated with Section 6(f) conversion land exchanges, the "before and after" method is required for LWCF appraisals.

Appraisers are obligated to be familiar with the entire UASFLA standard before bidding on an appraisal assignment and/or preparing the appraisal report.

(2) Specific UASFLA policies and guidance for LWCF appraisal problems.

i. For the purpose of the UASFLA compliance, any appraisal report, whether identified by the appraiser as a self-contained report or a summary report, will be considered as meeting the UASFLA requirements for a self-contained report if it has been prepared in accordance with the UASFLA.

See Section A of the UASFLA for details on data documentation and appraisal reporting standards. All appraisals are to include the required certification statement found in Part A-4. UASFLA contains an *Appraisal Report Documentation Checklist* located in Appendix A and a *Recommended Format for Federal Appraisal Reports* in Appendix B.

ii. The appraiser's estimate of highest and best use must be an "economic" use. A non-economic highest and best use, such as "conservation," "natural lands," "preservation," or any use which requires the property to be withheld from economic production in perpetuity, is not a valid use upon which to estimate market value. Therefore, any appraisal based on such a non-economic highest and best use will not be approved for federal land acquisition purposes.

In this same regard, an appraiser's use of any definition of highest and best use which incorporates non-economic considerations (*e.g.*, value to the public, value to the government, or community development goals) will render the appraisal unacceptable for LWCF purposes. (Section A-14 of the UASFLA)

iii. For acquisitions not associated with Section 6(f) conversions and replacement land, the "before and after" method of valuation is required if the proposed acquisition is something less than the entire ownership. For example, if the proposed acquisition is a 20-acre parcel and the larger property is a 100-acre property, the required method of analysis is to value the 100-acre property in

the "before" condition and then value the 80-acre parcel in the "after" condition. The value of the acquisition is then determined by subtracting the latter value estimate from the former value estimate. Improvements that are unaffected by the partial acquisition, either positively or negatively, need not be valued as long as the appraiser states that to be the case and the property is not to be acquired through condemnation.

iv. The use to which the grantee will put the property after it has been acquired is, as a general rule, an improper highest and best use. It is the value of the land acquired that is to be estimated, not the value of the land to the government. If it is solely the government's need that creates a market for the land, this special need must be excluded from consideration by the appraiser." (Section A-14 of the UASFLA).

v. The UASFLA contains a unique definition of market value (Section A-9 of the UASFLA).

vi. The UASFLA contains a unique certification statement (Section A-4 of the UASFLA).

vii. Estimates of "marketing time" and "exposure time" are not appropriate and should not be reported in UASFLA-complying reports. The exclusion of the estimate of "exposure time" may be considered a Jurisdictional Exception to the USPAP. (See Sections D-1 and A-9 of the UASFLA. However, the USPAP version effective July 1, 2006 no longer specifies the reporting of exposure time in Standard 2, "Real Property Appraisal Reporting," but does refer to the development of an opinion of exposure time in the "Comment" following S.R. 1-2(c)(iv) as well as in SMT-6. "Marketing time" is no longer mandated, to any extent, in the aforementioned edition of the USPAP.)

viii. Because Section 6(f) conversions are land exchanges, the following policies shall apply:

(a) For partial takings, "part taken" appraisals shall be prepared for the subject parcels rather than employing the classic "before and after" appraisal methodology described above. This is necessary to avoid consequential value distortions that would logically occur as a result of appraisement of partial takings within parent parcels of greatly differing sizes. For example, if a park (conversion) property under appraisement is a five-acre tract within a 1,000-acre larger property and the replacement property (non-park property) is a 5-acre tract within an otherwise similar 8-acre larger parcel, an equal value conclusion would be extremely improbable, and such an appraisal procedure might very well result in an "equal value" exchange of a conversion property being several times the size, and perhaps several times the value (if viewed from the perspective of being a stand-alone parcel), of the replacement property.

(b) In order to determine the highest and best use of the park property, the appraiser is to ignore the actual zoning of the property if the zoning is a non-economic zoning established to recognize the "open space" characteristics of the park or to foster the preservation of the park. In this situation, the appraiser is to determine the most likely zoning that would have come about under the hypothetical condition the park was never created. In so doing, the appraiser will consider likely property uses based upon all germane factors as well as the actual present zoning of comparable, nearby, privately owned properties. Under this scenario, the cost, risk and time associated with obtaining a zoning change would not be appropriate. This procedure is necessary to avoid penalizing the conversion property because it was taken out of private ownership and dedicated to a non-economic use.

(c) The same valuation method shall be used on both the converted parcel and the replacement parcels.

ix. The owner or the owner's designated representative must be given an opportunity to accompany the appraiser during his or her inspection of the property. (Section D-14 of the UASFLA)

d. Appraisal value estimate under $25,000**.** If the State determines an appraisal is unnecessary because the valuation problem is uncomplicated and the estimated value of the real property is $10,000 or less based on a review of available data, the State may unilaterally waive the appraisal and instead prepare a waiver valuation per 49 CFR 24.102(c)(2)(ii). The State is permitted to raise the waiver valuation cap up to $25,000 provided the acquiring agency offers the owner the option to have an appraisal, and the owner elects to have the agency prepare a waiver valuation instead. Thus, the State may increase the $10,000 cap to $25,000 with the consent of the landowner.

The person preparing the waiver valuation must have sufficient understanding of the local real estate market to be qualified, and shall not have any interest, direct or indirect, in the real property being valued for compensation. Further guidance on waiver valuations can be found on the Federal Highway Administration's Website.

e. Conflict of interest. No person shall attempt to unduly influence or coerce an appraiser, review appraiser, or waiver valuation preparer regarding any valuation or other aspect of an appraisal, review or waiver valuation. Persons functioning as negotiators may not supervise or formally evaluate the performance of any appraiser or review appraiser performing appraisal or appraisal review work, except that, for a program or project receiving federal financial assistance, the federal funding agency may waive this requirement if it determines it would create a hardship for the agency. [See 49 CFR 24.102(n) (2).]

f. Basis for LWCF matching assistance. The project sponsor must secure at least one appraisal by a qualified appraiser or document the value using the waiver valuation method for each parcel to be acquired. Generally, the fair market value (FMV) or waiver value will be used as the basic measure of LWCF assistance on acquisitions. LWCF assistance shall be based upon evidence of this value.

Properly documented costs of severance damage may be matched. Severance damage is the diminution in value of the remaining land due to the particular land taken and is considered to be an inherent part of just compensation.

The LWCF Act precludes using Fund assistance for incidental costs relating to acquisition.

Settlement may occur after the LWCF project agreement has been signed by NPS.

g. Acquisition by donation. An appraisal prepared according to the UASFLA or a waiver valuation is required for all projects involving the donation of real property or interests therein for determining the federal matching share. For guidance on waiver valuations for real property with an estimated value under $25,000, see Item "d" above.

(1) Partial donations/Acquisition at less than just compensation**.** Only in unusual circumstances (e.g. bargain sales, donations, etc.) will real property be acquired at less than established just compensation as determined by an approved appraisal. For partial donations, documentation must include evidence the owner has been provided with a statement of just compensation. A written statement by the owner that he is making a partial donation is also required.

(2) To determine the amount eligible for matching a LWCF project, an approved appraisal is still necessary.

h. When State request for LWCF assistance is different than appraised value. An appraisal should be an acceptable estimate of property value if competently compiled by a qualified appraiser. However, it cannot be assumed to be an absolute statement of value. The approved appraisal value is the basis for establishing the amount of just compensation offered to the owner (seller) at the initiation of negotiations. The negotiation between a willing seller and a willing buyer will often set a price that is higher than the appraisal, and this market place value must be considered with the appraised value in establishing the reasonable limits of LWCF assistance.

When the State believes the administrative settlement is an adequate indication of market value, yet it is higher than the approved appraised value, a detailed and well documented statement on this difference with all pertinent appraisal documents must be submitted before reimbursement is requested. This statement should explain why the appraisal may not reflect the market value and what steps the project sponsor took to establish the value, and include adequate market data to substantiate the value

conclusion. If the NPS agrees the administrative settlement represents a reasonable estimate of the property, that amount will be eligible for assistance.

i. Acquisition of less-than-fee interests. In certain instances the purchase of less than fee title may be permissible (see Chapter 3). The acquisition of easements, rights-of-way, etc., will be viewed in the same light as full takings. Documentation of value by appraisals will be the same. The project proposal should adequately explain why lesser interests are to be acquired.

j. Judicial decisions. When lands are acquired through judicial proceedings, the price determined by the court will be accepted by NPS in lieu of any previous NPS or State approved appraised value.

k. Responsibility for quieting title or for replacement of properties acquired with defective title. The State is responsible for quieting claims against title and for replacing property found to have defective title with other properties if this occurs after project completion pursuant to the LWCF conversion provisions found in 36 CFR 59. If prior to project completion, the LWCF project may be terminated for cause (see Chapter 7).

E. Equal Employment Opportunity Contract Compliance

For all LWCF grants involving federally assisted construction contracts and subcontracts in excess of $10,000, the recipient must comply with Executive Order 11246, as amended, and with the regulations of the Office of Federal Contract Compliance Programs (OFCCP) of the Department of Labor at 41 CFR 60-4. In determining whether Fund-assisted construction contracts exceed this dollar limit, the total amount of the contract awarded rather than the amount of federal assistance shall apply.

F. National Flood Insurance Program

1. Scope. The Flood Disaster Protection Act of 1973 (P.L. 93-234) requires the purchase of flood insurance as a condition of receiving any federal financial assistance (including LWCF assistance) for acquisition or construction purposes in special flood hazard areas located in any community currently participating in the National Flood Insurance Program authorized by the National Flood Insurance Act of 1968. These special flood hazard areas are identified by the Federal Insurance Administration of the Federal Emergency Management Agency.

2. Improvements eligible for flood insurance coverage

   a. Definitions. For the purposes of the National Flood Insurance Program, the term "financial assistance for acquisition or construction purposes" means any form of financial assistance that is intended in whole or in part for the acquisition, construction, reconstruction, repair or improvement of any publicly or privately owned building or mobile home, and for any machinery, equipment, fixtures, and furnishings contained or to be contained therein. The terms building and mobile home are further defined as any

walled and roofed structure that is principally above ground and affixed to a permanent site. Structures and their contents that meet these definitions are referred to as insurable improvements in this section.

b. Examples of insurable improvements for which insurance is required include, but are not limited to the following: 1) restroom facilities; 2) administrative buildings; 3) bathhouses; 4) interpretive buildings; 5) maintenance buildings and sheds for landscaping tools or other equipment; 6) sheltered facilities consisting of two or more walled sides and a roof.

c. Examples of improvements for which insurance is not required include, but are not limited to the following: 1) open picnic shelters; 2) permanently affixed outdoor play equipment such as swings and slides; 3) sun shades covering outdoor ice skating rinks; 4) outdoor swimming pools.

3. Requirement for flood insurance

a. Flood insurance will be required for insurable facilities located within special flood hazard areas for which the Federal Insurance Administration has issued a flood hazard boundary map or a flood insurance rate map. If the Federal Insurance Administration withdraws the applicable map(s) for a special flood hazard area for any reason, the insurance requirement is suspended for projects located in that special flood hazard area that are approved during the period the map(s) is (are) withdrawn.

b. Communities identified as having special flood hazard areas must qualify within one year of notification by the Federal Insurance Administration. If an identified community has not qualified for the program by the prescribed date, no financial assistance can be provided for acquisition or development of insurable improvements. Such assistance will remain unavailable until the community has qualified. Financial assistance for non-insurable acquisition or development or for projects outside of the special flood hazard areas is not affected by whether the community is qualified or not qualified for flood insurance.

After a community has qualified for the flood insurance program, financial assistance for acquisition or development of insurable improvements will be predicated upon purchase of flood insurance for those improvements by the project sponsor.

c. Flood insurance required by P.L. 93-234 must be carried on insurable improvements throughout their useful life.

d. Flood insurance is not required on any state-owned property that is covered under an adequate state policy of self insurance. A revised list of States to which this exception applies will be published periodically by the Federal Insurance Administration of the Federal Emergency Management Agency.

4. Amount of insurance

a. The amount of insurance required by P.L. 93-234 is the lesser of (1) the development cost of the insurable improvement or (2) the maximum limit of coverage made available with respect to the particular type of facility under the National Flood Insurance Act of 1968. The amount is based on the total cost of the insurable improvement, not just the federal share.

b. Whenever flood insurance is available to cover a facility during construction, the project sponsor will obtain such coverage as soon as the facility becomes insurable. Coverage is usually available as soon as construction progresses beyond the excavation phase.

G. Civil Rights

The States, as primary recipients of assistance, are responsible for providing assurance that the applicant and all sub-recipients will comply with all related federal civil rights requirements. This shall be accomplished through:

1. Establishing an open project selection process according to the standards of NPS;

2. Notifying NPS of any inconsistencies with civil rights requirements having arisen from on-site state program reviews and valid complaints registered with the Department, NPS, or the State where impasses have been reached in resolving the compliance issue(s);

3. Cooperating with NPS toward seeking a satisfactory resolution of any inconsistencies found, including efforts toward seeking voluntary compliance, enforcement procedures and follow-up reviews; and,

4. Assuring that each sub-recipient/applicant is provided a copy of Title VI, 504/ADA Title II, ADAAG, LEP, Title IX, and Age non-discrimination requirements.

   For details on enforcement of related civil rights requirements, refer to:

   a. Title VI of the Civil Rights Act of 1964 at 43 CFR 17, Subpart A

   b. Section 504 of the Rehabilitation Act of 1973 at 43 CFR 17, Subpart B

   c. Non-Discrimination on the Basis of Age at 43 CFR 17, Subpart C

   d. ADA Title II at 28 CFR 35

   e. ADA Accessibility Guidelines at 28 CFR 36

   f. Title IX of the Education Amendments of 1972 at 43 CFR 41

   g. Limited English Proficiency (E.O. 13166) at 28 CFR 42.104(b)(2)

H. Contracting with Minority Business Enterprise and Women Business Enterprise Firms

It is the Federal Government's policy to award a fair share of contracts to Minority Business Enterprises (MBEs) and Women Business Enterprises (WBEs) pursuant to Executive Orders 11625, 12138, and 12432. An MBE is a business concern that is (1) at least 51 percent owned by one or more minority individuals, or, in the case of a publicly owned business, at least 51 percent of the stock is owned by one or more minority individuals; and (2) whose daily business operations are managed and directed by one or more of the minority owners. Executive Order 11625 designates the following: a. Black American (with origins from Africa); b. Hispanic American (with origins from Puerto Rico, Mexico, Cuba, South or Central America); c. Native American (American Indian, Eskimo, Aleut, or native Hawaiian).

In accordance with 43 CFR 12.76 affirmative steps must be taken to assure that MBEs/WBEs are utilized when possible as sources of supplies, equipment, construction, and services.

The affirmative steps shall include the following:

1. Including qualified MBEs/WBEs on solicitation lists

2. Assuring that MBEs/WBEs are solicited once they are identified;

3. When economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum MBE/WBE participation;

4. Where feasible, establishing delivery schedules which will encourage MBE/WBE participation;

5. Encouraging use of the services of the U.S. Department of Commerce's Minority Business Development Agency (MBDA) and the U. S. Small Business Administration to identify MBEs/WBEs, as required;

6. If any subcontracts are to be let, requiring the prime contractor to take the affirmative steps listed above.

CHAPTER 5 - COST PRINCIPLES

A. General Cost Principles

1. Basic concept. Office of Management and Budget (OMB) Circulars A-102 (Uniform Administrative Requirements for State and Local Governments as implemented in DOI Common Rulemaking at 43 CFR 12, Subpart C) and A-87 (Cost Principles for State, Local and Indian Tribal Governments) will be followed in determining the allowability and allocability of costs. Each project represents a separate transaction for purposes of determining the amount of the LWCF assistance.

2. Relationship of project period to eligible costs. To be eligible for matching assistance, costs must have been incurred within the project period except for pre-award project planning costs. The project period is the span of time stipulated on the agreement during which all work to be accomplished under the terms of the agreement must be completed. The LWCF does not reimburse obligations, regardless of when they are assumed; it reimburses costs incurred during the project period.

   a. Development projects. Development costs are first incurred at the start of actual physical work on the project site (such as the clearing of ground, the beginning of construction of a building, or the delivery of material to the site), and continue through the period the work is being done. Costs are not incurred at some earlier time when contracts are signed, funds obligated, or purchase orders issued, or at a later time when the ensuing bills are paid. Physical work on the project site shall commence within one year of project approval. When the project start will be delayed beyond the first year, the State shall report the reasons for the delay on the annual consolidated performance report along with a new physical start date. Any problems, conditions, or delays which will impair the sponsor's ability to meet the objectives of the grant award shall be immediately disclosed to the NPS and the project amended or withdrawn as appropriate.

   b. Acquisition projects. Since the transfer of ownership in real property can be a protracted process which differs under various state laws and procedures, the relationship of acquisition costs to project period is separated into two elements: the date when the acquisition cost is incurred and the date when the cost is eligible for reimbursement.

      (1) Acquisition costs are incurred on the date when the earliest of any of the following transactions take place:

         i. The project sponsor accepts deed, lease or other appropriate conveyance;

         ii. The project sponsor makes full payment for the property;

         iii. The project sponsor makes first payment in a series of spaced or time payments;

iv. The project sponsor makes the first or full payment as stipulated in an option agreement; (The cost of the option, if included as part of the purchase price, is allowed as a retroactive cost).

v. The project sponsor makes first, partial, or full payment to an escrow agent.

(2) The transactions in (1) above will be used to determine whether an acquisition cost is incurred within the project period. Eligible acquisition costs (and retroactive option costs as appropriate) will be reimbursed only after the project sponsor has made payment and received satisfactory title to the property.

3. Retroactive costs. Costs incurred prior to NPS approval of a project, with the specific exceptions stated below, are not eligible for matching funds. LWCF assistance shall only be awarded to assist work not yet undertaken, rather than to help pay for work already begun or completed. This applies to entire projects.

a. Waiver of retroactivity. Retroactive costs will not be matched under ordinary circumstances. Waivers will be made only when immediate action is necessary and the time needed to process an application would result in a loss of a significant opportunity.

(1) Acquisition. The State will notify the NPS in writing of the necessity to immediately acquire land prior to taking such action, including a description of the resources to be acquired, the public outdoor recreation uses proposed for the site, and justification for the proposed action. At the time the formal acquisition project is submitted, the State shall include all the necessary documentation required for new acquisitions (see Chapter 6).

(2) Development. The State will notify the NPS in writing of the necessity to immediately develop an area prior to taking such action, including a description of the planned development, the public outdoor recreation uses proposed for the site, and a justification for the proposed action. Waivers for development projects will not be approved unless accompanied by a PD/ESF and the proposal qualifies for a categorical exclusion under NEPA (see Chapter 4).

If NPS grants a waiver, the retroactive costs will be eligible for assistance if the agreement is later approved. Granting a waiver is only an acknowledgement of the need for immediate action; it does not imply nor assure NPS approval of the project. The retroactive costs are incurred at the applicant's risk.

Under no conditions will a waiver of retroactivity be granted during a period of State ineligibility.

Project proposals should be submitted for funding as soon as possible after the granting of a waiver of retroactivity. In all cases, however, projects for which a waiver has been granted will be submitted within one fiscal year following the fiscal year in which the waiver was granted.

b. Pre-award project planning costs. It is recognized that some costs must be incurred before a proposed project can be submitted to the NPS with the required descriptive and cost data. Pre-award costs must be described in the project application (SF-424 budget sheet and PD/ESF narrative).

Therefore, for development projects, the costs of site investigation and selection, site planning, feasibility studies, preliminary design, environmental review, preparation of cost estimates, construction drawings and specifications, and similar items necessary for project preparation may be eligible for assistance, although incurred prior to project approval. Similar costs may be allowable for acquisition proposals except those relating to appraisals, surveys, and other incidental costs to the purchaser that are precluded by the LWCF Act.

For SCORP related planning projects, the development of work programs, cost estimates and budgets, workflow charts, and such other items needed to develop a sound planning program project by outside consultants, university personnel, or by appropriate state personnel may be allowable costs, although incurred prior to project approval.

All such pre-award planning costs incurred within three years prior to project submission to the NPS are allowable. Eligible SCORP planning costs incurred beyond three years may be allowable provided the earliest date from which they are incurred is identified in the project agreement. The State must have on file and available for review sufficient information to justify the amounts of such pre-award costs, to indicate the periods during which they were incurred, and to justify their applicability to the particular project.

c. Donation project. Waiver requests involving real property donations will, where possible, identify the additional acquisition or development to be accomplished under the proposed project or projects. In any event, a project agreement specifying the use of the donated value must be entered into prior to the expiration of the waiver. Such request must included appropriate documentation per Section 3.a above.

d. Time amendment. While the recommended initial project period for an LWCF grant is three years, the maximum time period for an LWCF grant is five years from the date of approval. If, however, during the conduct of a project it becomes apparent that completion will not be possible within the project period (not to exceed five years), the State shall submit an amendment to extend the project period. The amendment should be submitted at least 30 days prior to the expiration date. A period of 6 months shall be considered as the minimum time extension of a project period when amending a project. Requests for project period extensions submitted after the expiration date will not normally be approved, and costs incurred after the expiration date will not be eligible for assistance.

4. Cost overruns and amendments of scope. During the execution of a project there may be unforeseen delays, changes in specifications, or rising costs of labor and supplies which cause the cost of the project to be greater than the approved support ceiling. Or, as work

progresses, it may be necessary or desirable to alter the scope of the project by adding, deleting or modifying some of its parts.

Where such changes fall outside the allowed scope flexibility as explained in Chapter 6, the State is required to notify the NPS of such changes and to submit an amendment as soon as possible to cover the modification. All project scope changes and cost increases must be consistent with the State's OPSP (see Chapter 2). It is recognized, however, that it will not always be possible for the NPS to act in advance of the change, and any costs thus incurred prior to their approval are done so at the project sponsor's risk.

Proposed amendments to decrease the scope or to add a cost overrun may be considered after the project period, if an earlier submission is not possible, but only those costs incurred within the project period will be eligible. No proposed amendments to add or substitute scope items will be considered after the project period has expired. Amendment requests shall be accompanied by the PD/ESF (see Chapter 4) according to the instructions on its coversheet for the type of amendment being requested.

5. Federal matching and supplemental programs. Section 6(f) of the LWCF Act prohibits the use of other federal financial assistance to pay the state or local matching share of a LWCF grant. However, in those instances where the statutory provisions of a subsequent federal grant-in-aid program explicitly allow recipients to use such assistance to match LWCF funds as in Community Development Block Grants (CDBG) and through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Act. Section 6(f)(1) of the LWCF Act is superseded and a matching arrangement is permissible.

B. Sponsor Financial Obligations

1. Matching share. LWCF assistance shall not exceed 50 percent of the total eligible costs (except as provided for the Insular Areas) and is provided primarily on a reimbursement basis. In most cases the project sponsor will initially pay in full all costs accrued during the project period. Reimbursement for the federal share is made through the State.

   Projects initially funded at less than 50 percent matching share may not be amended to increase the federal share without an increase in project scope and increase in total project cost.

2. Applicability of donations. The NPS encourages the donation of cash and in-kind contributions including real property to project sponsors by private parties. The value of the in-kind contributions may be used as all or part of the project sponsor's share of the project cost. The method of valuation and charges for volunteer services, material, and equipment must be documented and approved by the State prior to the donations being applied to reimbursement requests in order for such contributions to be considered as part of the sponsor's matching share. Specific procedures for placing the value on in-kind contributions from private organizations and individuals in accord with OMB Circular A-102, 43 CFR 12, are set forth below:

a. Valuation of volunteer services. Volunteer services may be furnished by professional and technical personnel, consultants, and other skilled and unskilled labor. Each hour of volunteered service may be counted as matching share if the service is an integral and necessary part of an approved project. Records of in-kind contributions of personnel shall include time sheets containing the signatures of the person whose time is contributed and of the supervisor verifying that the record is accurate.

(1) Rates for volunteer services. Rates for volunteers should be consistent with those regular rates paid for similar work in other activities of the State. In cases where the kinds of skills required for the federally-assisted activities are not found in the other activities of the grantee, rates used should be consistent with those paid for similar work in the labor market in which the grantee competes for the kind of services involved. The time of a person donating services will be valued at the rate paid as a general laborer unless the person is professionally skilled in the work being performed on the project (i.e., plumber doing work on pipes, mason doing work on a brick building). When this is the case, the wage rate this individual is normally paid for performing this service may be charged to the project. A general laborer's wages may be charged in the amount of that which the city or cities in the immediate area pay their city employees for performing similar duties.

(2) Volunteers employed by other organizations. When an employer other than the grantee furnishes the services of an employee, these services shall be valued at the employee's regular rate of pay (exclusive of fringe benefits and overhead cost) provided these services are in the same skill for which the employee is normally paid.

b. Valuation of materials. Prices assessed to donated materials included in the matching share should be reasonable and should not exceed current market prices at the time they are charged to the project. Records of in-kind contributions of material shall indicate the fair market value by listing the comparable prices and vendors.

c. Valuation of donated real property. The value of donated real property shall be established by an independent appraiser in accord with the Uniform Appraisal Standards for Federal Land Acquisitions. The State must review and approve donation appraisals. NPS will spot-check (administrative review) appraisal reports for adequacy and consistency (see Chapter 4).

d. Valuation of donated equipment. The hourly rate for donated equipment used on a project shall not exceed its fair-rental value. Hourly rates in the annual edition of Rental Compilation or Rental Rate Guide or similar publications that provide the national or regional average rates for construction equipment may be used. Such publications are usually available from contractor associations. Records of in-kind contributions of equipment shall include schedules showing the hours and dates of use and the signature of the operator of the equipment.

e. Valuation of other charges. Other necessary charges such as equipment use charges incurred specifically for an indirect benefit to the project on behalf of the sponsor may be accepted as matching share provided they are adequately supported and permissible under the law. Such charges must be reasonable and properly justifiable.

f. Documentation. The basis for determining the charges for donated personal services, material, equipment and land must be documented and must be approved by the State prior to the request for payment that includes the value of the donation.

g. Limits of the valuation. In-kind contributions of real property donations are eligible in a project only to the extent there are additional acquisition and/or development costs to be met by the federal assistance requested for that project that must be fully described and explained in the proposal.

Example: Land valued at $10,000 is donated to the project sponsor who proceeds to develop the property for recreational use. Development costs total $6,000. The actual total project cost is $16,000. But because only $6,000 was actually spent, and since a grant in excess of that would constitute a profit to the sponsor, the federal share is reduced accordingly.

Sponsor's share (amount of the $10,000 donation applied to the project):	$ 6,000
LWCF Assistance:	$ 6,000
Total:	$12,000

The amount of donation that is matchable is the value of the donation or the amount of cash spent by the sponsor for additional acquisition or development, whichever is less. Any portion of the value of a donation not utilized by the project sponsor for matching in the project ($4,000 in the above example) may be made available to subsequent projects if approved by NPS and only for the fiscal year in which the donation is made plus one additional fiscal year.

h. Multi-site land donations. To be eligible for matching assistance, in-kind contributions shall be applicable to a single project site. However, a multi-site project involving land donations may be considered to the extent that such is logical, reasonable, and more advantageous than the application of the donation to a single site.

C. Allowable Costs

1. Determining amount of costs.

a. General. Subject to the guidelines given in this section and in OMB Circular A-87, the rates, practices, rules, and policies of the project sponsor, as consistently applied, shall generally determine the amount of costs of each item charged to a project. In instances where the sponsor has no such basis, that of the State shall apply.

b. Ceiling on amount of cost items. The amount of each item of cost that may be matched from the LWCF shall not exceed the sponsor's actual cash outlay for that item, or the fair market value of the item, whichever is less. An exception could be land acquired at a price in excess of appraised value and supported by an adequate statement on difference of value.

c. Ceiling on total matching share from the fund. The total matching amount made available for an approved project shall not exceed the approved support ceiling.

2. Guidelines for determining allowable costs. The basic statement regarding the principles and standards for determining costs applicable to this grants program is found in OMB Circular A-87, "Cost Principles for State, Local and Indian Tribal Governments."

3. Costs of purchase of real property and of interests in real property. Federal assistance may be used to pay a share of the fair market value of real properties and of interests in real property purchased by the project sponsor when determined by the NPS to be capital costs. Incidental costs of acquisition may not be matched. However, interest expenses awarded by the court as part of just compensation for acquisition in eminent domain situations may be matched. Also, costs allowed under Section 211, P.L. 91-646, of the Uniform Relocation Assistance and Real Property Acquisition Policies Act, may be matched.

   The value of such properties or interests should be proposed by the State. Steps shall be taken to assure actions in identifying property for acquisition do not cause inflation of property values, and thereby increase the cost of the project.

   Although a project sponsor may pay a greater amount, LWCF assistance will generally be computed on the fair market value as determined by an acceptable appraisal. However, when a State feels the amount paid in excess of the fair market value is justifiable, it should prepare, and submit to the NPS, a detailed and well documented statement, including comparable sales and other market data as necessary justifying the difference. If the statement is found adequate, LWCF assistance may be computed on the full purchase price.

   Where a court award in condemnation cases exceeds the support ceiling approved by the NPS, the NPS will not be obligated to pay on the higher amount. The State may, however, submit an amendment for Service consideration to increase the support ceiling to the amount of the court award.

   Capital expenditures for acquisition of eligible leases, easements, and other rights and interests in real property are eligible for LWCF assistance.

4. Cost of real property purchased from other public agencies. The actual cost to the project sponsor of land purchased from another public agency may be eligible for matching assistance, subject to the following conditions:

   a. The land was not originally acquired by the other agency for recreation.

b. The land has not been managed for recreational purposes while in public ownership.

c. No federal assistance was provided in the original acquisition by the other agency to facilitate the basic project being funded by LWCF assistance, unless the federal assistance was provided by an eligible supplemental program, such as HUD's CDBG.

d. The selling agency is required by law to receive payment for land transferred to another public agency. Examples would be public school land that can be used for non-school purposes only through payment to the school agency, or excess state prison lands that can be transferred to local government use only on a purchase basis. The support ceiling will be based on the price paid by the project sponsor for the property or the fair market value, whichever is less. In some instances the selling agency may be permitted a choice between various state laws would set the selling price at different levels depending upon which law is chosen by the agency. For example, various laws may be in force that would allow the agency to transfer the real property to another public agency for fair market value, for reimbursement of unpaid taxes, as a donation, or for other consideration. LWCF assistance will be limited to the minimum amount for which the property could be transferred legally and only in those instances for which there is an attorney general's opinion or established case law.

e. The requirement of appraisal, history of conveyances, and evidence of title are the same as normal purchases.

f. If the selling agency is federal, fair market value is paid.

5. Real property acquired by donation. The value of real property donated to the project sponsor by private organizations or individuals will be eligible for matching as determined by an appraisal. Donations required by law or regulation are ineligible as the project sponsor's matching share. The land acquired cannot be subject to any restrictions that might limit its intended public recreation use.

6. Master planning. Master planning of a recreation area in whole or in part will be matchable as part of a development project if the project includes actual development of at least equal cost to that of the master plan.

7. Miscellaneous allowable costs

a. Payment of premiums on hazard and liability insurance to cover personnel and property directly connected with the project is allowable.

b. Costs to the project sponsor for work performed by another public department or agency are allowable. This includes the costs of services provided by central service type agencies to the sponsor's departments and need not be supported by a transfer of funds between the departments involved.

c. Costs of printing and distributing the Statewide Comprehensive Outdoor Recreation Plan, including a popular summary version and other project related printing or reproduction costs are allowable.

d. The costs of space in privately owned buildings used for the benefit of the project is allowable subject to the conditions stated in OMB Circular A-87 (see also the requirements of OMB Circular A-122, Cost Principles for Nonprofit Organizations). Also, project sponsors may be compensated for the use of buildings, capital improvements, and equipment through use allowances or depreciation.

8. Non-allowable expenditures. These expenditures shall not be included in the base for determining financial assistance:

a. Ceremonial or entertainment expenses.

b. Expenses for publicity.

c. Bonus payments of any kind.

d. Charges for contingency reserves or other similar reserves.

e. Charges in excess of the lowest responsive bid, when competitive bidding is required by the NPS or the sponsor, unless the NPS agrees in advance to the higher cost.

f. Charges for deficits or overdrafts.

g. Taxes for which the organization involved would not have been liable to pay.

h. Interest expenses, except those awarded by the court as part of just compensation for acquisition in eminent domain situations.

i. Charges incurred contrary to the policies and practices of the organization involved.

j. Consequential damage judgments arising out of acquisition, construction, or equipping of a facility, whether determined by judicial decision, arbitration, or otherwise. Consequential damages are damages, to adjoining property owned by other persons, which are caused by noise, lights, vibration etc.

k. Incidental costs relating to acquisition of real property and of interests in real property, unless allowable under the Uniform Relocation Assistance and Real Property Acquisition Policies Act, P.L. 91-646.

l. Operation and maintenance costs of outdoor recreation areas and facilities.

m. The value of, or expenditures for, lands acquired from the United States at less than fair market value.

n. Cost of discounts not taken.

o. Equipment to be used for the maintenance of outdoor recreation areas and facilities, including, but not limited to, automotive equipment, tractors, mowers, other machinery, and tools.

p. Employee facilities, including residences, appliances, office equipment, furniture, and utensils.

q. Donations or contributions made by the sponsor, such as to a charitable organization.

r. Salaries and expenses of the Office of the Governor, or of the chief executive of a political subdivision, or of the State legislature, or of other similar local governmental bodies.

s. Fines and penalties.

t. Any excess of cost over the federal contribution under one grant agreement is unallowable under other grant agreements.

u. Any losses arising from uncollectible accounts and other claims, and related costs.

v. Legal and professional fees paid in connection with raising funds.

w. Payments for lobbying in connection with the awarding, extension, continuation, renewal, amendment, or modification of an individual LWCF grant or the program.

CHAPTER 6 - APPLICATION AND EVALUATION PROCEDURES

A. Prerequisites for Applying

Prior to submitting an application to NPS for LWCF acquisition and/or development assistance, the following conditions must be met:

1. The State's Statewide Comprehensive Outdoor Recreation Plan (SCORP) and the State's Open Project Selection Process (OPSP) must meet the eligibility requirements of the Land and Water Conservation Fund Act and this manual. Project applications must be received by NPS while there is a sufficient period of eligibility remaining to permit thorough processing of the applications. Applications that cannot be processed prior to the revocation of eligibility will not be acted upon until the State's eligibility has been reinstated.

2. The State's apportionment and reapportionment balances from NPS must be adequate to cover the proposed project to be activated.

3. The sponsoring agency must have developed the plans for its proposed project to the point where the project scope can be described and reasonable estimates of cost can be made.

B. Application Process

The State prioritizes and selects eligible projects for LWCF assistance through its Open Project Selection Process (OPSP, see Chapter 2) and is responsible for ensuring the development of the project proposal and completion of the federal grant application according to federal requirements. States shall provide guidance to subgrantees to ensure all application requirements are met.

Project applications should be submitted to the NPS at least 60 days in advance of the proposed acquisition or the beginning of construction except in accordance with the retroactivity provisions (see Chapter 5.A.3) to allow sufficient time for federal review of the proposal to determine its eligibility and compliance with federal requirements.

Using the LWCF Proposal Description and Environmental Screening Form (PD/ESF, see Chapter 4), the State develops the proposal for the LWCF grant application. The State may delegate the completion of the PD/ESF to the subgrantee. The PD/ESF guides the proposal development and upon project approval, becomes a part of the federal administrative record.

The State shall be responsible for ensuring the proposal is developed in accordance with applicable federal laws, executive orders and circulars, including conducting required environmental reviews in accordance with the National Environmental Policy Act (NEPA) as set forth in Chapter 4. The environmental review process may involve producing documents for public review and comment, coordinating compliance with applicable local, state and federal laws and regulations, and acquiring other federal state and local approvals.

For project proposals and grant applications that are complex in nature and/or have eligibility concerns, States are encouraged to consult with NPS prior to formal project submission.

At the completion of proposal development, the State prepares the required federal application documentation as described in Item 2 below and submits the application package to the appropriate NPS regional office requesting federal LWCF approval for the subject project.

All significant information must be disclosed in the application and its supporting documents. Failure by the State to consider information that might have a significant bearing on the eligibility of a proposal might be cause for refusal, cancellation, or recovery of federal assistance.

The project proposal, including all information required by the NPS to be on file at the state level, is considered to be a public record. Copies of proposals may be distributed by NPS to other public agencies for information or comment.

The following documents comprise the federal application for LWCF grant assistance and shall be coordinated by the State and submitted to the NPS:

1. Proposal Description and Environmental Screening Form. *One hand-signed copy.* The PD/ESF (see Chapter 4) provides step-by-step guidance for applicants to follow and complete while developing the grant proposal for federal LWCF assistance. The PD/ESF includes specific guidance for:

    - developing the project narrative;

    - explaining how the proposal is in accord with the SCORP;

    - screening the proposal for potential environmental impacts in order to determine the appropriate NEPA process to conduct: 1) recommendation for a categorical exclusion, 2) production of an environmental assessment, or 3) production of an environmental impact statement. The environmental screening step requires a State to follow the Section 106 of the National Historic Preservation Act, as amended, in conjunction with the NEPA process (see Chapter 4.C);

    - seeking agency comments through the Intergovernmental Review of Federal Programs process, Executive Order 12372, if applicable; and

    - certifying that any appraisals conducted for the federal grant application meet the Uniform Appraisal Standards for Federal Land Acquisitions (see Chapter 4.D).

2. Federal Standard Form 424, Application for Federal Assistance. *One hand-signed copy,* including supplemental SF-424 forms as required by type of proposal:

    - SF-424A Budget Information Non-construction Programs and SF-424B Statement of Assurances Non-construction Programs; or

- SF-424C Budget Information Construction Programs and SF-424D Statement of Assurances Construction Programs

3. Project Agreement and General Provisions. *Two hand-signed copies plus one copy*. This agreement establishes the framework for accomplishing the project to be negotiated between the NPS and the State. The General Provisions are included by reference, but one copy should be attached to a hand-signed copy of the agreement. Execution of the agreement by the NPS constitutes its approval of the project. The project agreement:

   a. Binds the Federal Government and the State to certain obligations through its acceptance of federal assistance, including the rules and regulations applicable to the conduct of a project under the Act and any special terms and conditions to the project established by the NPS and agreed to by the State. When the project sponsor is a local unit of government or an Indian Tribe, the State Liaison Officer will make such arrangements with the sponsor as necessary for the successful completion of the project and the enforcement of federal laws and regulations.

   b. Obligates the United States to provide grants up to a designated amount for eligible costs incurred on the project on the basis of information and cost estimates contained in the proposal. This amount is the "support ceiling" and may vary as a percentage of total eligible costs, but in no event will it exceed 50 percent of the total cost indicated on the agreement forms.

   c. Sets forth methods of costing, accounting, incurrence of costs, and similar matters.

   d. Sets a timeframe for completing the project. Project periods should approximate three years and shall not exceed five years. The date of NPS approval is the beginning of the project period, unless the NPS has granted a waiver of retroactivity and as such, the date of project approval is the date NPS approved the waiver. The termination date is the date by which the project must be completed.

   e. Describes the scope of the project including what is to be done and how it will be accomplished. For acquisition projects the number of acres to be acquired and the type of conveyance will be specified. For development projects, the project scope will be defined by each primary facility group shown in the DNF (see below). Facilities listed under each primary facility group are included in the project scope by definition

4. Description and Notification Form. *One copy*. The DNF will be used to provide data input for the NPS LWCF database system. The State shall submit a DNF for each project.

5. Section 6(f) boundary map. *One copy, hand-signed and dated*. The Section 6(f) map shall clearly delineate the area to be included under the conversion provisions of Section 6(f)(3) of the LWCF Act. An acceptable Section 6(f) map is required for all development and combination projects prior to NPS approval, and for acquisition projects, prior to reimbursement. NPS will contact the State about any needed changes to the map.

Prior to the date of final reimbursement for development and combination projects, the State and NPS may mutually agree to alter the Section 6(f) boundary to provide for the most satisfactory unit intended to be administered under the provisions of Section 6(f)(3). For acquisition projects, Section 6(f) protection is afforded at the time LWCF reimbursement is provided.

No changes may be made to the 6(f) boundary after final reimbursement unless the project is amended as a result of an NPS approved conversion.

At a minimum, the Section 6(f) boundary must encompass a viable public outdoor recreation area that is capable of being self-sustaining without reliance upon adjoining or additional areas not identified in the scope of the project. Except in unusual cases where it can be shown a lesser unit is clearly a self-sustaining outdoor recreation resource, the area subject to Section 6(f) protection will be the park, open space, or recreation area being developed or expanded. Exceptions will be made only in the case of larger parks where logical management units exist therein resulting in smaller viable public outdoor recreation areas. In no case will the areas covered by Section 6(f)(3) of the Act be less than that acquired with LWCF assistance.

The Section 6(f)(3) boundary map and/or attachments as appropriate shall depict the following:

a. Official park/site name, location, and LWCF project number

b. Sufficient detail so as to legally identify the lands to be afforded protection under Section 6(f)(3) of the LWCF Act. The following methods of identification are acceptable: deed references; adjoining ownerships; adjoining easements and rights-of-way; public streets; adjoining water bodies or other natural landmarks; metes and bounds; and surveys. Where one or more of the above methods are not readily suited for identifying the area, measurements from permanent locators may be used. A formal survey is not required.

c. All known outstanding rights and interests in the area held by others. Known easements, deed/lease restrictions, reversionary interests, etc. are to be documented, including any area(s) under lease, name(s) of lessor and lessee, and term remaining on the lease(s).

   When at the time of project application it is known that outstanding property rights held by others are or will be exercised in the foreseeable future and impact only a portion of the area to be protected under Section 6(f), the impacted area must be clearly excluded from the Section 6(f) map and accompanied by an explanation of why it is not intended to be under the Section 6(f) provision. The remaining project area must meet all LWCF program criteria for eligibility and be a viable public outdoor recreation area. See Chapter 3 regarding outstanding rights and interests.

d. Approximate total acreage of the 6(f) area.

e. North arrow.

f. Signature of the SLO or alternate unless otherwise delegated to a member of his/her staff. A delegation of signature authority for Section (f) maps must be on file with NPS. Also, date of signature.

g. Up to 11 inch x 17 inch format highly preferred for future administrative use such as copying and scanning. Avoid use of color as the only means to delineate areas.

6. Location map. *One copy*. This map shall clearly depict the location of and entrance to the site/outdoor recreation/park area.

7. Pre-award on-site inspection report. *One copy*. The inspection shall be conducted in accord with the on-site inspection agreement between the State and NPS. State may opt to use the inspection report required for the PD/ESF.

8. Other information that has a significant bearing on the project.

C. NPS Review Process

Upon receipt of the new grant application package, the NPS will assign an official LWCF project number to the project (see Section F below) and conduct an initial cursory review to determine if all required items are included in the grant application package.

If items are missing or incomplete, NPS will return the application package to the State for completion. If the new grant application package is complete, the NPS will log in the formal receipt of the application and conduct a detailed independent review of the proposal and required documentation to determine if the proposal is eligible for LWCF assistance, if the proposal has been developed in accordance with the National Environmental Policy Act, the National Historic Preservation Act, and other applicable laws and Executive Orders as outlined in Chapter 4, and meets the administrative requirements contained in this manual. If needed, NPS will consult with the State for additional information to better understand the proposal and to fulfill compliance with all requirements.

The NPS will conduct an independent review of the proposed project for federal assistance to determine how well it accomplishes the purpose of the LWCF Act and meets program requirements. This evaluation includes a consideration of the project's eligibility for assistance, its technical adequacy, and its financial soundness. All projects submitted to the NPS are evaluated to the extent information is made available in the application. The extent of the NPS review will depend on the type of application submitted and any certifications made by the State Liaison Officer. As part of this review, the NPS will determine whether:

1. the proposal is in accord with the Statewide Comprehensive Outdoor Recreation Plan and the Open Project Selection Process (see Chapter 2);

2. the proposal has been adequately reviewed according to the Section 106 process of the National Historic Preservation Act and the National Environmental Policy Act so the NPS can make a decision about the potential for significant impacts to the human environment as a result of providing federal assistance for the project (see Chapter 4); and

3. the project area is adequately described in the signed and dated Section 6(f) boundary map and represents an acceptable area to be covered by the provisions of Section 6(f)(3) of the LWCF Act.

Upon NPS approval of the project, an NPS-signed copy of the approved project agreement will be sent to the State Liaison Officer as notification of project approval.

D. Amending Existing Projects

An amendment form is required to alter the signed agreement. When the amendment is signed by the NPS, it becomes part of the agreement and supersedes it in the specified matters. Amendments are required in the following situations:

1. Situations requiring amendment

   a. To increase the total LWCF assistance for a project.

   b. To add a co-sponsor or change project sponsors.

   c. To add or delete a Primary Facility Group of the project scope. Changes solely involving facilities within a Primary Facility Group may be made without an amendment. However, changes involving facilities in different Primary Facilities Groups will require an amendment. Facilities not listed in a Primary Facility Group but named in the scope narrative of the project agreement and/or DNF will be treated as individual Primary Facilities Groups for amendment purposes.

   d. To increase or decrease the acreage to be acquired by more than 10 acres or 20 percent, whichever is greater. Any change in the location of the project site to be acquired or developed shall require an amendment or submission of a new project.

   e. To extend the project period. Projects may not be extended for less than six months.

   f. To amend the project area due to a Section 6(f)(3) conversion.

2. Amendment documentation. The following items must be submitted by the State to the NPS when requesting an amendment:

   a. Amendment to the Project Agreement Form. *Two hand-signed copies and 1 copy*.

   b. Standard Form 424. *One hand-signed copy,* including supplemental SF-424 forms as required by type of project amendment:

- SF-424A Budget Information Non-construction Programs

- SF-424C Budget Information Construction Programs

Describe only the changes. For example, on the SF-424, Item 1, describe only the purpose of the amendment and not the scope of the original project.

c. SLO transmittal letter. The letter must explain the changed conditions and how they affect the project.

d. Proposal Description and Environmental Screening Form. *One hand-signed copy*. The PD/ESF must be tailored to type of amendment.

e. Revised Section 6(f)(3) boundary maps for conversion amendments and where the amended project scope provides Fund assistance to areas not previously covered under Section 6(f).

f. Description and Notification Form.

E. Withdrawal or Changes in Project Application

Prior to approval, an application or amendment may be changed or withdrawn by a letter from the SLO to the NPS. A new project agreement may be required if the change is significant.

An approved project can be withdrawn unilaterally by the State at any time before the first payment on the project is made.

F. Project Numbering System

NPS will assign a separate official project number to each new project whether or not it is ultimately approved. A project number shall be used only once and shall be the official method of identifying each project and related project documentation.

1. Assigning numbers to new projects: Each new project will be assigned the 7-digit project identification number consisting of the 2-digit state number, followed by and separated by a dash, the 5-digit project number. NPS shall permanently affix these numbers to the case file to serve as a permanent reference number. Agreements, amendments, and all other documentation relating to a given project, including letters and memorandum, shall contain this number. A seven digit system shall be applied as follows:

First two digits: State Identification Number as follows:

01 Alabama	18 Indiana	32 Nevada	47 Tennessee
02 Alaska	19 Iowa	33 New Hampshire	48 Texas
04 Arizona	20 Kansas	34 New Jersey	49 Utah
05 Arkansas	21 Kentucky	35 New Mexico	50 Vermont
06 California	22 Louisiana	36 New York	51 Virginia
08 Colorado	23 Maine	37 North Carolina	53 Washington
09 Connecticut	24 Maryland	38 North Dakota	54 West Virginia
10 Delaware	25 Massachusetts	39 Ohio	55 Wisconsin
11 Dist. of Columbia	26 Michigan	40 Oklahoma	56 Wyoming
12 Florida	27 Minnesota	41 Oregon	60 American Samoa
13 Georgia	28 Mississippi	42 Pennsylvania	66 Guam
15 Hawaii	29 Missouri	44 Rhode Island	69 Northern Mariana Islands
16 Idaho	30 Montana	45 South Carolina	72 Puerto Rico
17 Illinois	31 Nebraska	46 South Dakota	78 U.S. Virgin Islands

Next five digits. The Project Number is serially assigned in chronological order as follows:

08-00004 *(fourth project proposal received from the State of Colorado)*

2. Assigning numbers to project amendments. Amendment numbers shall be added immediately following the project number by using a decimal point and appropriate number (beginning with 1) in serial order. Whenever the original project agreement is altered, the amendment number assigned to the executed amendatory document shall be serially increased as follows:

   08-00004.1 *(first amendment for project 08-00004)*

   .

CHAPTER 7 - PROJECT ADMINISTRATION AND FINANCIAL MANAGEMENT

A. General Administrative Requirements

1. General responsibility. It is the prerogative and responsibility of the State, and the project sponsor to which the state delegates responsibilities, to execute a project under the general guidelines and rules established by the State, governed in general by the concepts, rules, and guidelines set forth herein. The primary role of the NPS in project administration is to be concerned with results, leaving to the States the determination of means to achieve these results. Thus, the rules established in this Part are minimal, being limited to those considered necessary for the NPS to fulfill its obligations.

2. Arrangements with sponsors. It is the responsibility of the State to make suitable and adequate arrangements with other public agencies to insure the successful performance of projects and the continued operation and maintenance of aided facilities and properties for public outdoor recreational use. The State shall be held responsible for all the actions of project sponsors relating to the execution of projects and associated post-completion responsibilities pursuant to Section 6(f)(3) of the LWCF Act (see Chapter 8).

3. Consideration of Federal Acts. During preparation of an application and conduct of a project, the sponsor shall comply with applicable federal laws, executive orders, regulations, and circulars relating to the acquisition and development of public properties (see LWCF Project Agreement General Provisions).

4. Duration of project. A project will continue in force until all work under a grant is completed or until the project period of the approved project agreement and all amendments thereto have expired, whichever comes first.

5. Execution of project work. The State shall be responsible for insuring all projects receiving financial assistance pursuant to the Act are carried through to stages of completion acceptable to the NPS with reasonable promptness. Failure to maintain satisfactory progress or failure to complete the project to the satisfaction of the NPS may be cause for the NPS to withhold further payments on any or all projects of a State or qualification of new projects until the project provisions are satisfactorily met. LWCF assistance may be terminated upon determination by the NPS that satisfactory progress has not been maintained.

   In the event that LWCF assistance should be terminated, the State shall be required to bring the project to a state of usefulness so funds invested shall not be lost. If the State cannot complete the project with its own funds, it should submit a plan to the NPS for bringing the incomplete project to a point where it is useful. The NPS will not require all parts of a project be completed in such a case if a stage of reasonable usefulness can be achieved short of completion.

6. On-site inspections by the State

   a. Responsibilities. It is the responsibility of the State to administer a regular and continuing program of on-site inspections of projects. The scope, timing and selectivity of these inspections will be covered in an agreement to be negotiated by the NPS and the State. This agreement will provide the basis for the conduct of pre-award, progress and final on-site inspections as well as the associated reporting formats.

      Properties and facilities acquired or developed with LWCF assistance shall be available for inspection by the NPS at such intervals as the Director shall require. Generally, the NPS inspections will be conducted on a spot check basis in conjunction with the State Program Review.

   b. Reports. On-site inspection reports will be prepared for all inspections conducted and will be included in the official project files maintained by the State. The State is responsible for the preparation of these reports except when joint inspections are conducted with the NPS in which case the NPS will prepare the report and provide a copy to the State.

      Submission of inspection reports to the NPS will be made on the following basis:

      (1) Pre-award on-site inspection reports may be submitted as part of the LWCF PD/ESF (see Chapter 4). States are encouraged to use the pre-award on-site inspection to generate information for use in preparing the LWCF PD/ESF. The pre-award site inspection shall be conducted by individuals knowledgeable about the resources of the site.

      (2) Progress inspection reports may be combined with the annual performance report or submitted to the NPS at the same time as the electronic fund transfer.

      (3) Final inspection reports must be submitted to NPS within 90 days after the date of completing a project and prior to final reimbursement and administrative closeout.

      (4) Post-completion site inspections must be conducted within five years after the final project reimbursement and every five years thereafter. Post-completion reports should be retained in the state file, except for those inspections that discover post-completion compliance problems such as park closures and non-recreation or private uses occurring within the Section 6(f) boundary. The State shall report to the NPS the project numbers of all sites inspected soon after the inspection is conducted and forward to NPS only the inspection reports for LWCF sites with problems as described above.

7. Income from properties acquired or developed with LWCF assistance.

   a. During project period. In accord with OMB Circular A-102, as implemented at 43 CFR 12, Subpart C, income earned by the project sponsor during the project period from

sources other than the intended recreational use of the project shall be dispersed in one of the following ways:

(1) Added to the funds committed to the project and used to further eligible LWCF program objectives at the project site. In this case a plan for the use of such monies shall be forwarded to NPS for concurrence prior to grant approval. This plan shall detail the sources(s) of the income and include the timeframe in which any non-recreational use(s) shall cease. In no instance shall any non-recreational use continue beyond three years (see Chapter 3).

(2) Deducted from the total project cost for the purpose of determining the net cost on which the federal share of the cost will be based. In this instance, requests for payments must include identification of accrued amounts as credits to the project. Examples of income that shall be dispersed in the above manners include the rental of structures, the sale of timber and the lease or rental of land

Income earned by the project sponsor during the project period from the intended recreational use of the project, such as entrance or user fees and concessionaire operations may be disposed of at the sponsor's discretion. The sponsor, however, is encouraged to use such income to further recreation objectives related to the sponsor's public outdoor recreation program.

b. <u>After the project period</u>. Income earned by the project sponsors after the project period, including from recreational use and land management practices, may be disposed of at the sponsor's discretion. However, the sponsor is encouraged to use such income to further recreation objectives related to the facility when state and local laws allow. Exceptions include those identified under paragraphs [d] and [e] below.

c. <u>Land management practices</u>. Land management practices such as the rental of structures, the sale of timber and the lease or rental of land occurring during or after the project period must be compatible with the outdoor recreational use of the areas as described to the NPS. Any practice that alters the use or purpose of the area is prohibited. Income from such land management practices must be dispersed in accord with paragraphs [a] and [b] above.

d. <u>Sale of improvements or structures</u>. Income derived from the sale of improvements or structures acquired with LWCF assistance shall be used to reduce the cost of other LWCF-assisted projects of the project sponsor regardless of whether the sale occurs during or after the project period. If the sponsor has no plans for further LWCF-assisted facilities, then the income must be used to further outdoor recreation development or acquisition at the site, at another LWCF-assisted site, or at another outdoor recreation site operated by the project sponsor. In this case, a letter indicating the intended use of the funds shall be sent to the NPS for approval.

e. <u>Non-destructive mineral extraction</u>. Extraction of oil and gas from LWCF-assisted projects involving the purchase of subsurface rights is allowable and will not constitute a

conversion under Section 6(f)(3) of the LWCF Act provided the following conditions are met:

(1) The extraction process does not reduce the recreation opportunities at the site, nor detract from the recreation experiences.

(2) All income derived from the mineral extraction by the project sponsor is used as follows:

i. to further outdoor recreation development or acquisition at the project site or to reduce the total cost of other active LWCF-assisted projects at the site (to be given priority); or,

ii. to reduce the total cost of other active LWCF-assisted projects; or,

iii. for outdoor recreation acquisition, development, or planning at other state facilities or granted to local communities for such purposes; or,

iv. for any use that is consistent with an outdoor recreation program, including operation and maintenance costs and any related service or support facilities.

(3) Such income may not be used strictly for the development of facilities that do not meet the eligibility guidelines for LWCF assistance.

(4) The method of allocating income and the uses to which it will be put shall be approved by the NPS through a formal agreement with the State prior to the onset of extraction activities.

8. Title to properties acquired or developed with LWCF assistance. Pursuant to 43 CFR Part 12, the Federal Government will not obtain a legal right or title to any area or facility acquired or developed with financial assistance received under the provisions of the Act.

9. Safety and accident prevention. In the performance of each project the State and other participating organizations shall comply with all applicable federal, state, and local laws governing safety, health, and sanitation. The State and other participating organizations shall be responsible for assuring all reasonable safeguards, safety devices, and protective equipment are provided, and will take other needed actions reasonably necessary to protect the life and health of employees on the job and the safety of the public, and to protect property in connection with the performance of work on the project.

10. Issuance of rules and instructions. NPS may issue additional or modified rules, instructions, interpretations, and guidelines from time to time as is necessary for the effective conduct of assistance activities. Such changes will apply to all projects for which agreements and amendments are signed after the effective date of the changes. Whenever possible, sufficient lead time will be given between the announcement and the effective date to avoid application to projects already in process at the time of the announcement.

11. Failure to comply with federal laws and regulations. Pursuant to 43 CFR Part 12.83, when the NPS determines a State has violated or failed to comply with applicable federal law, or the regulations governing this program with respect to a project, NPS may withhold payment of federal funds to the State on account of such project, withhold funds for other projects of the State, withhold approval of further projects of the State, and take such other action deemed appropriate under the circumstances until compliance or remedial action has been accomplished by the State to the satisfaction of NPS.

    In addition, no grant or contract may be awarded by a grantee, subgrantee, or contractor of any grantee or subgrantee to any party which has been debarred or suspended under Executive Order 1254 pursuant to 43 CFR Part 12.100-.510.

12. Appeals. Disagreements with any decision or action concerning comprehensive plans, project proposals, valuations of properties and personal services, and audit exceptions, which have not been resolved to the satisfaction of the project sponsor, may be appealed in the following sequence:

    a. Local project sponsors. Disagreements between local project sponsors and the State Liaison Officer or state agreements not represented by the State Liaison Officer may be appealed to the State's NPS Region and if not resolved to the satisfaction of the sponsor, may be appealed to the Director and ultimately to the Secretary, if necessary.

    b. State Liaison Officer. Disagreements between the State Liaison Officer and the State's NPS Region may be appealed to the Director of NPS and, if not resolved satisfactorily at that level, may be appealed to the Secretary of the Department of the Interior.

B. Procurement Standards

Projects or portions thereof may be undertaken through contracts in accord with the procurement standards and guidelines set forth in Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, 43 CFR Part 12 except the provisions concerning the Davis-Bacon Act. This includes the procurement of supplies, equipment, construction and services.

Grantees and subgrantees will use their own procedures that reflect applicable state and local laws, provided the procurements conform to the requirements of 43 CFR Part 12.1 - .52.

1. Contracting with small and minority firms, Women's Business Enterprise, and Labor Surplus Area Firms. Affirmative steps must be taken by the project sponsor to assure small and minority businesses and women's business enterprises are utilized when possible. Affirmative steps shall include:

    a. including qualified small and minority businesses on solicitation lists;

    b. assuring small and minority businesses are solicited whenever they are potential sources;

c. when economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum small and minority business participation;

d. where the requirement permits, establishing delivery schedules that will encourage participation by small and minority business;

e. using the services of the Small Business Administration, the Minority Business Development Agency of the Department of Commerce, and the Community Services Administration, as required; and

f. if any subcontracts are to be let, requiring the prime contractor to take the affirmative steps in paragraph [i] through [v] above;

2. Labor surplus areas. Project sponsors are encouraged to procure goods and services from labor surplus areas.

C. LWCF Acknowledgement Signs

1. Permanent signs. Permanent signs shall be installed to acknowledge the federal-state-local partnership role in providing new high quality outdoor recreation areas and facilities. States may determine the type, size and placement of the sign as long as the LWCF logo is used (see #3 below).

2. Temporary signs. When significant acquisition, development, and/or combination projects totaling $500,000 or more are initiated, States are required by law to place appropriate temporary signage on or near the affected site, to the extent feasible, so as to indicate the action taken is a product of funding made available through the federal LWCF. Such signage shall indicate the percentage and dollar amounts financed by federal and non-federal funds.

   Publicizing an acquisition project by the installation of signs prior to the completion of the acquisition, particularly those involving the acquisition of several parcels, could seriously affect the negotiations for the properties to be acquired. Therefore, signing of acquisitions projects should be delayed until the acquisition of all parcels is completed and all relocations have occurred. Also, the display of dollar amounts for acquisition projects is optional where such display may be detrimental to the project or future acquisitions.

   For development and combination projects, such temporary signage shall be placed at the initiation of construction and remain until project is completed.

   Unless precluded by local sign ordinances, temporary signs shall be no less than 2 feet by 3 feet. The size of lettering should be based on the amount of information placed on the sign. The selection of colors will be at the discretion of the State; however, there should be sufficient contrast between the background and the lettering to make the sign readily visible without being intrusive. The sign should include the source, percent, and dollar amount of all federal, state and/or local funds. The second line on the temporary sign will indicate

whether the project is acquisition, development, or both. In addition to the NPS, the administrative acknowledgement may include the state agency responsible for the LWCF program. Here is a suggested format:

THE CITY OF XXXXX
Public Outdoor Recreation Site Development
Aided by the Federal
THE LAND AND WATER CONSERVATION FUND
Administered by the
National Park Service
U.S. Department of Interior

	Funding	
LWCF	**50%**	**$250,000**
State of XXX	**25%**	**$125,000**
City of XXX	**25%**	**$125,000**
Total Project		**$500,000**

Source of funding includes monies derived
from Outer Continental Shelf Federal Receipts

3. Use of LWCF logo. Use of the LWCF Logo on temporary and permanent project signs is required. NPS encourages its use as a part of the acknowledgement of LWCF assistance at entrances to outdoor recreation sites, at other appropriate on-site locations, and in folders and park literature. The acknowledgement of LWCF assistance will be checked during compliance inspections.

4. Allowable costs. Costs related to project acknowledgement are allowable costs as part of initial capital investment and may be shared by LWCF assistance. Replacement costs as a part of project operation and maintenance are not allowable.

D. Performance/Financial Management and Reporting.

1. Purpose. This section generally covers accounting, records, and reporting requirements. The State shall require all project sponsors to adopt the standards herein.

2. Financial responsibility. The State shall be responsible for the financial management of approved projects. Appropriate internal controls must, therefore, be adopted and installed to insure that the project is accomplished in the most efficient and economical manner.

3. Standards for grantee financial management systems. State and local government systems for the financial management of LWCF assisted activities shall be in accordance with 43 CFR 12 (OMB Circular A-102), and provide for:

   a. accurate, current, and complete disclosure of the financial results of each grant project;

b. records which identify adequately the source and application of funds for grant-supported activities. These records shall contain information pertaining to grant awards and authorizations, obligations, unobligated balances, assets, liabilities, outlays, and income;

c. effective control over and accountability for all funds, property, and other assets. The grantee shall adequately safe-guard all such assets and shall assure they are used solely for authorized purposes;

d. procedures for determining allowable and allocable costs in accordance with the provisions of OMB Circular A-87 and these regulations;

e. accounting records that are supported by source documentation. Separate project accounts shall be established and identified by the number assigned to the project by the NPS;

f. Audits to be made by the State in accordance with OMB Circular A-133 to determine, at a minimum, the fiscal integrity of financial transactions and reports, and compliance with laws, regulations, and administrative requirements. The State will schedule such audits with the required frequency, usually annually, but not less frequently than once every two years, considering the nature, size, and complexity of the activity; and

g. a systematic method to assure timely and appropriate resolution of audit findings and recommendations.

The State shall require all project sponsors to adopt all of the above standards.

4. Monitoring and reporting of financial and program performance. In accordance with 43 CFR Part 12 (Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments), the following sets forth the procedures for monitoring and reporting financial and program performance.

a. States shall constantly monitor the financial and program performance of approved projects to assure time schedules are being met, projected work units by time periods are being accomplished, and financial targets and other performance goals are being achieved.

b. For LWCF reporting purposes, performance and financial reporting for all active grants shall be accomplished by States in response to the NPS annual call for performance/ financial information. NPS will incorporate the state performance/financial information into one consolidated report for the entire LWCF State Assistance Program. Sufficient space will be provided on the listing of projects for the State to briefly report financial and performance status for each active grant. The NPS shall notify States of the information needed, reporting format and due dates. At a minimum, the report shall include:

(1) the status of the work required under the project scope including the percent of work completed and percentage of costs billed and whether the project will meet established target dates for completion;

(2) other pertinent information including, when appropriate, an analysis and explanation of cost overruns, time schedule delays and other similar problems encountered and their expected impact on the project; and

(3) a certification by the SLO noting the information is correct and complete, and all expenditures are for the purposes set forth in the grant agreement/amendment

c. If any performance review conducted by the State discloses the need for change in the Project Agreement, the State shall submit a request for an amendment at least 30 days prior to the project expiration date.

d. The NPS shall make site visits as frequently as practicable on a spot check basis to:

(1) review project accomplishments and management control systems, and

(2) to provide technical assistance as may be required.

5. Financial reporting. All recipients must comply with the reporting requirements as set forth in this section and in 43 CFR 12 as appropriate.

6. Retention and custodial requirements for records. In accordance with 43 CFR Part 12, the following policies will apply to records maintenance:

a. Financial records, supporting documents, statistical records, and all other records pertinent to a grant program shall be retained for a period of three years after final payment on a project. The records shall be retained beyond the 3 year period if audit findings have not been resolved.

b. State and local governments are authorized to substitute electronic copies in lieu of original records.

c. The Secretary of the Interior and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the state and local governments and their subgrantee that are pertinent to a specific project for the purpose of making audits, examinations, excerpts and transcripts.

d. The NPS shall submit, after project closeout and scanning, all copies of significant maps and records to the Federal Archives Record Center for retention into perpetuity and for compliance with Section 6(f)(3) of the LWCF Act

E. Payments

1. General. Grant payments will be made to States in a manner that minimizes the time elapsing between the disbursement by the State and the transfer of funds from the U.S. Treasury, whether such disbursement occurs prior to or subsequent to the transfer of funds. Grant payments are made through electronic fund transfer (EFT).

2. Monitoring electronic payments. Electronic Fund Transfer (currently SMARTLINK) is the required method of payment for States. Upon completion of an electronic payment on a given date, the State must concurrently (within 24 hours) submit a completed "LWCF Record of Electronic Payment" form to NPS Accounting Operations Division and copy the applicable NPS Office at the same time. Failure to adhere to this requirement will result in removing the State from SMARTLINK and placement on a "request for reimbursement" process through the NPS.

F. Audits

1. Purpose. Recipients must comply with the audit provisions of the Single Audit Act of 1984 (P.L. 98-502), and OMB Circular A-133, "Audit Requirements for State and Local Governments". These requirements have been incorporated into Department of Interior regulations at 43 CFR Part 12, Subpart F. In accordance with Circular A-133, required audits shall be submitted to the federal audit clearinghouse within the earlier of 30 days after receipt of the auditor's report or no later than nine months following the end of the State's fiscal year.

2. Exceptions. An audit exception is a determination by an appropriate authority that an item questioned by the auditor is not properly chargeable to the project agreement and should be disallowed. The NPS determines the allowance or disallowance of items questioned by the auditor. The NPS will be responsible for the review of audit reports received from cognizant federal agencies and/or the Office of the Inspector General (OIG), Department of the Interior pertaining to LWCF grants. Each Regional Director will be responsible for advising the States of the audit findings, together with recommendations and suggestions for overcoming the deficiencies disclosed by the audit, and also advise the State of the disallowance of any items.

   The Departmental Manual [360 and 361 DM 7.3] requires the State must formally respond to the OIG, through the Director of NPS, concerning audit exceptions within 90 days of the issuance of the audit report. This initial response should include:

   a. whether there is agreement with the audit findings and recommendations. If there is non-concurrence, the specific reasons must be stated, and

   b. recommendations or support documentation for corrective action (resolution) of the audit exceptions.

All audit exceptions must be fully resolved within six (6) months of the issuance of the audit report. If resolution of an audit exception indicates the need for reimbursement of the federal share, then such reimbursement must be made within 60 days after such resolution. After the six (6) month period from the date of issuance of the audit report, unresolved audit exceptions will be disallowed and reimbursement of the federal share must be made within sixty (60) days. Reimbursement of the federal share may be accomplished by electronic fund transfer.

G. Project Termination/Grant Closeout

This section prescribes project closeout procedures in accordance with 43 CFR Part 12.

1. Termination. The termination of a project means the cancellation of federal assistance, in whole or in part, under a project at any time prior to the date of completion.

   a. Termination by the State. The State may unilaterally terminate the project at any time prior to the first payment on the project. After the initial payment, the project may be terminated, modified, or amended by the State only by mutual agreement of the State and the NPS.

   b. Termination for cause. The NPS may terminate any project in whole, or in part, at any time before the date of completion, whenever it is determined the grantee has failed to comply with the conditions of the grant. The NPS will promptly notify the State in writing of the determination and the reasons for termination, together with the effective date. Payments made to States or recoveries by the NPS under projects terminated for cause shall be in accord with the legal rights and liabilities of the parties.

   c. Termination for convenience. The NPS or State may terminate grants in whole, or in part, when both parties agree that the continuation of the project would not produce beneficial results commensurate with the further expenditure of funds. The two parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination, the portion to be terminated. The project sponsor shall not incur new obligations for the terminated portion after the effective date, and shall cancel as many outstanding obligations as possible. The NPS may allow full credit to the State for the federal share of the non-cancelable obligations, properly incurred by the project sponsor prior to termination. An amendment to the project agreement is required for all terminations for convenience.

2. Suspension. The suspension of a grant is an action by the NPS that temporarily suspends federal assistance under the project pending corrective action by the project sponsor or pending a decision to terminate the grant by the NPS.

3. Grant closeout. The State must ensure all agreed-upon work as described in the project agreement is completed by the expiration date in the grant award document. The closeout of a grant is the process by which the NPS determines that all required work of a project and all applicable administrative actions, including financial, have been accomplished.

The following are minimum requirements of the closeout procedures:

a. During the active phase of the project, the NPS will make prompt payments to the State for allowable reimbursable costs until the project is administratively closed out.

b. Final payment will not occur until all required final reports and documents have been approved by the NPS to assure all aspects of the grant contract have been met.

c. Within 90 days after the date of completing the project or the grant expiration date, whichever comes first, both administrative and financial closeout of the grant must occur. During this 90 day period, the following documents are due to NPS before it can approve and process final payment:

(1) a final letter or report attesting to the completion of the project in accordance with the approved project agreement/amendment;

(2) a final on-site inspection report for development projects in accordance with the State's Inspection Agreement with NPS;

(3) a completed Description and Notification Form (DNF). This is only needed for projects where a change has occurred since the submission of the original DNF. If there was a change in scope not included in the grant agreement, then an amendment and revised DNF are required;

(4) a completed site plan (up to 14 inches x 17 inches in size) indicating the type and location of Fund-assisted facilities and/or acquired properties along with the official park or site name unless previously submitted or evident on the signed and dated Section 6(f) map;

(5) a signed and dated Section 6(f)(3) project boundary map if more accurate than the current one in the NPS file including the delineation of any newly added parcels as a result of the project;

(6) if applicable, a completed certification (PD/ESF page 12) by the SLO that the State has reviewed each appraisal associated with this project per federal requirements;

(7) in consultation with NPS, other required documentation not previously submitted; and

(8) Digital images of completed project (optional). Best images are those of people enjoying the new outdoor recreation resource.

b. The NPS shall make a settlement for any upward or downward adjustments to the federal share of costs after these reports are received. The project agreement, as signed by the State and the NPS, establishes a total cost and support ceiling for the project that

is based upon the project sponsor's best estimate of acquisition and development costs as foreseen at the outset of the project. As the project proceeds, adjustments are sometimes required in accord with changing processes, unforeseen problems or other conditions. When an upward adjustment is required, an amendment must be executed. When actual project costs are less than originally estimated, no amendment is necessary.

c. The NPS retains the right to recover an appropriate amount after fully considering the recommendations on disallowed costs resulting from the subsequent final audit.

CHAPTER 8 - POST-COMPLETION AND STEWARDSHIP

A. Purpose

Pursuant to Section 6(f)(3) of the LWCF Act and 36 CFR 59.3, this chapter contains the requirements for maintaining LWCF assisted sites and facilities in public outdoor recreation use following project completion and to assure that LWCF-assisted areas remain accessible to the general public including non-residents of assisted jurisdictions. These post-completion responsibilities apply to each area or facility for which LWCF assistance is obtained, regardless of the extent of participation of the program in the assisted area or facility and consistent with the contractual agreement between NPS and the State. Responsibility for compliance and enforcement of these requirements rests with the State for both state and locally sponsored projects. The responsibilities cited herein are applicable to the area depicted or otherwise described on the 6(f)(3) boundary map and/or as described in other project documentation approved by the NPS.

B. Operation and Maintenance

Property acquired or developed with LWCF assistance shall be operated and maintained as follows:

1. The property shall be maintained so as to appear attractive and inviting to the public.

2. Sanitation and sanitary facilities shall be maintained in accordance with applicable health standards.

3. Properties shall be kept reasonably open, accessible, and safe for public use. Fire prevention, lifeguard, and similar activities shall be maintained for proper public safety.

4. Buildings, roads, trails, and other structures and improvements shall be kept in reasonable repair throughout their estimated lifetime to prevent undue deterioration and to encourage public use.

5. The facility shall be kept open for public use at reasonable hours and times of the year, according to the type of area or facility.

6. A posted LWCF acknowledgement sign shall remain displayed at the project site pursuant to Chapter 7.

C. Availability to Users

1. Discrimination on the basis of race, color, national origin, religion, or sex. Under Title VI of the 1964 Civil Rights Act property acquired or developed with LWCF assistance shall be open to entry and use by all persons regardless of race, color, or national origin, who are

otherwise eligible. Title 43, Part 17 (43 CFR 17), effectuates the provisions of Title VI. The prohibitions imposed by Title VI apply to park or recreation areas benefiting from federal assistance and to any other recreation areas administered by the state agency or local agency receiving the assistance. Discrimination is also prohibited on the basis of religion or sex.

2. Discrimination on the basis of residence. Section 6(f)(8) of the LWCF Act provides, with respect to property acquired and/or developed with LWCF assistance, discrimination on the basis of residence, including preferential reservation, membership or annual permit systems is prohibited except to the extent reasonable differences in admission and other fees may be maintained on the basis of residence.

   Fees charged to nonresidents cannot exceed twice the amount charged to residents. Where there is no charge for residents, but a fee is charged to nonresidents, nonresident fees cannot exceed fees charged for residents at comparable state or local public facilities. Reservation, membership or annual permit systems available to residents must also be available to nonresidents and the period of availability must be the same for both residents and nonresidents.

   These provisions apply only to the recreation areas described in the project agreement. Nonresident fishing and hunting license fees are excluded from these requirements.

3. Discrimination on the basis of disability. Section 504 of the Rehabilitation Act of 1973 requires no qualified person shall, on the basis of disability, be excluded from participation in, be denied benefits of, or otherwise be subjected to discrimination under any program or activity that receives or benefits from federal financial assistance. The Americans with Disabilities Act of 1990 (P.L. 100-336) simply references and reinforces these requirements for federally-assisted programs.

4. Reasonable use limitations. Project sponsors may impose reasonable limits on the type and extent of use of areas and facilities acquired and/or developed with Fund assistance when such a limitation is necessary for maintenance or preservation. Thus, limitations may be imposed on the numbers of person using an area or facility or the type of users, such as "hunters only" or "hikers only." All limitations shall be in accord with the applicable grant agreement and amendments.

D. Leasing and Concession Operations Within a Section 6(f)(3) Area

A project sponsor may provide for the operation of a Section 6(f)(3) area by leasing the area/facility to a private organization or individual or by entering into a concession agreement with an operator to provide a public outdoor recreation opportunity at the Fund-assisted site.

As the principal grantee, the State is ultimately accountable for assuring compliance with the applicable federal requirements, and, therefore, the delegation or transfer of certain responsibilities to subgrantees or lessees does not relieve the State of its compliance burden. As the grant recipient, the State has agreed to provide suitable replacement property should the

public use of the leased or concessioned area/facility be restricted or the outdoor recreation resource be compromised.

All lease documents and concession agreements for the operation of LWCF-assisted sites by private organizations or individuals must address the following:

1. In order to protect the public interest, the project sponsor must have a clear ability to periodically review the performance of the lessee/concessioner and terminate the lease/agreement if its terms and the provisions of the grant agreement, including standards of maintenance, public use, and accessibility, are not met.

2. The lease/agreement document should clearly indicate that the leased/concessioned area is to be operated by the lessee/concessioner for public outdoor recreation purposes in compliance with provisions of the Land and Water Conservation Fund Act and implementing guidelines (36 CFR 59). As such, the document should require the area be identified as publicly owned and operated as a public outdoor recreation facility in all signs, literature and advertising, and is operated by a lessee/concessioner as identified in the public information to eliminate the perception the area is private.

3. The lease/agreement document should require all fees charged by the lessee/concessioner to the public must be competitive with similar private facilities.

4. The lease/agreement document should make clear compliance with all Civil Rights and accessibility legislation (e.g., Title VI of Civil Rights Act, Section 504 of Rehabilitation Act, and Americans with Disabilities Act) is required, and compliance will be indicated by signs posted in visible public areas, statements in public information brochures, etc.

E. Conversions of Use

Property acquired or developed with LWCF assistance shall be retained and used for public outdoor recreation. Any property so acquired and/or developed shall not be wholly or partly converted to other than public outdoor recreation uses without the approval of NPS pursuant to Section 6(f)(3) of the LWCF Act and these regulations. The conversion provisions of Section 6(f)(3), 36 CFR Part 59, and these guidelines apply to each area or facility for which LWCF assistance is obtained, regardless of the extent of participation of the program in the assisted area or facility and consistent with the contractual agreement between NPS and the State.

Responsibility for compliance and enforcement of these provisions rests with the State for both state and locally sponsored projects. The responsibilities cited herein are applicable to the area depicted or otherwise described on the 6(f)(3) boundary map and/or as described in other project documentation approved by the Department of the Interior. This mutually agreed to area normally exceeds that actually receiving LWCF assistance so as to assure the protection of a viable recreation entity.

Local sponsors must consult early with the State LWCF manager when a conversion is under consideration or has been discovered. States must consult with their NPS-LWCF manager as early as possible in the conversion process for guidance and to sort out and discuss details of the conversion proposal to avoid mid-course corrections and unnecessary delays. **A critical first step is for the State and NPS to agree on the size of the Section 6(f) park land impacted by any non-recreation, non-public use, especially prior to any appraisal activity.** Any previous LWCF project agreements and actions must be identified and understood to determine the actual Section 6(f) boundary.

If the NPS is alerted or otherwise becomes aware of an ongoing conversion activity that has not been approved, NPS shall request the State Liaison Officer (SLO) to advise the project sponsor of the necessary prerequisites for approval of a conversion and to discontinue the unauthorized conversion activities. If the conversion activity continues, NPS shall formally notify the State it must take appropriate action to preclude the project sponsor from proceeding further with the conversion, use, and occupancy of the area pending NPS independent review and decision of a formal conversion proposal (see Section 10 below).

The NPS Regional Director has the authority to disapprove conversion requests and/or to reject proposed property substitutions. This approval is a discretionary action and should not be considered a right of the project sponsor.

1. Situations that trigger a conversion include:

    a. Property interests are conveyed for private use or non-public outdoor recreation uses.

    b. Non-outdoor recreation uses (public or private) are made of the project area, or a portion thereof, including those occurring on pre-existing rights-of-way and easements, or by a lessor.

    c. Unallowable indoor facilities are developed within the project area without NPS approval, such as unauthorized public facilities and sheltering of an outdoor facility.

    d. Public outdoor recreation use of property acquired or developed with LWCF assistance is terminated.

2. Situations that may not trigger a conversion if NPS determines that certain criteria are met include:

    a. Underground utility easements that do not impact the recreational use of the park and is restored to its original surface condition (see Section F below).

    b. Proposals to construct public facilities, such as recreation centers and indoor pool buildings, within a Section 6(f)(3) protected area where it can be shown there is a gain or increased benefit to the public outdoor recreational opportunity. These proposals must be reviewed by the NPS as a "public facility request" (see Section H below). The

State should consult with the NPS early in the formative stages of developing proposals to construct indoor facilities on Section 6(f)(3) protected land (see Section H below).

c. Proposals for "temporary non-conforming uses," that is temporary non-recreation activities of less than a six-month duration within a Section 6(f)(3) protected area, must be reviewed by the NPS (see Section I below).

d. Proposals to build sheltered facilities or to shelter existing facilities within a Section 6(f)(3) protected area provided they do not change the overall public outdoor recreation characteristics and otherwise meet the sheltering criteria in Chapter 3. The NPS review and approval of such proposals will not trigger a conversion (see Section J below).

e. Proposals for changing the overall outdoor recreation use of a Section 6(f)(3) area from that intended in the original LWCF project agreement. These proposals must be reviewed by the NPS (see Section L below).

3. Prerequisites to the NPS consideration of conversions. Formal requests from the project sponsor for permission to convert LWCF assisted properties in whole or in part to other than public outdoor recreation uses must be submitted by the State Liaison Officer to NPS in writing and conform to the prerequisites set forth in 36 CFR 59.

States shall consult with NPS when conversions are proposed or discovered and prior to making the formal request to NPS. States shall use the Proposal Description and Environmental Screening Form (PD/ESF) to prepare its conversion proposal (see Chapter 4). The PD/ESF guides the development of the conversion proposal, including the incorporation of the following prerequisites that must be met before NPS will consider the formal conversion request:

a. All practical alternatives to the conversion have been evaluated and rejected on a sound basis.

b. The fair market value of the property to be converted has been established and the property proposed for substitution is of at least equal fair market value as established by a state approved appraisal (see Chapter 4 for appraisal guidance) excluding the value of structures or facilities that will not directly enhance its outdoor recreation utility.

c. The property proposed for replacement is of reasonably equivalent usefulness and location as that being converted. Depending on the situation, and at the discretion of the NPS, the replacement property need not provide identical recreation experiences or be located at the same site, provided it is in a reasonably equivalent location. Generally, the replacement property should be administered by the same political jurisdiction as the converted property. NPS will consider state requests to change the project sponsor for any replacement property when it is determined a different political jurisdiction can meet the criteria for replacement properties. Equivalent usefulness and location will be determined based on the following criteria:

(1) Property to be converted must be evaluated in order to determine what recreation needs are being fulfilled by the facilities which exist and the types of outdoor recreation resources and opportunities available. The property being proposed for substitution must then be evaluated in a similar manner to determine if it will meet recreation needs that are at least like in magnitude and impact to the user community as the converted site. This criterion is applicable in the consideration of all conversion requests with the exception of those where wetlands are proposed as replacement property.

Wetland areas and interests therein shall be considered to be of reasonably equivalent usefulness as compared to the recreational usefulness of the property proposed for conversion if they have been identified in the wetlands provisions of the Statewide Comprehensive Outdoor Recreation Plan (SCORP) in accordance with Section 6(f)(3) of the LWCF Act as amended (36 CFR 59.3) by Section 303 of the Emergency Wetlands Resources Act of 1986.

(2) Replacement property need not necessarily be directly adjacent to or close by the converted site. This policy provides the administrative flexibility to determine location recognizing that the property should meet existing public outdoor recreation needs. While generally this will involve the selection of a site serving the same community(ies) or area as the converted site, there may be exceptions. For example, if property being converted is in an area undergoing major demographic change and the area has no existing or anticipated future need for outdoor recreation, then the project sponsor should seek to locate the substitute area at another location within the jurisdiction.

(3) Should a local project sponsor be unable to replace converted property, the State would be responsible, as the primary recipient of federal assistance, for assuring compliance with these requirements and for the substitution of replacement property.

(4) The acquisition of one parcel of land may be used in satisfaction of several approved conversions (see Section 6 below) and vice versa.

d. The property proposed for replacement meets the eligibility requirements for LWCF assisted acquisition (see Chapter 3). The replacement property must constitute or be part of a viable recreation area. Viability and recreational usefulness is dependent upon the proposed outdoor recreation development plan and timetable for the development of the replacement parks. If full development of the replacement site(s) will be delayed beyond three years from the date of conversion approval, the conversion proposal shall explain why this is necessary (see Chapter 3.B.7).

For proposed replacement property with a history of contamination, proposals must address the nature of the contamination, how the contaminated area has been or will be

remediated, how the area will be developed into a safe, public outdoor recreation area, and how provisions will be put in place to monitor the new replacement parkland to ensure public health and safety in perpetuity. Certain contaminated areas may not meet the equal or greater recreational usefulness prerequisite for replacement land. Early coordination with NPS for conversion proposals involving contaminated replacement land, even if remediated, is required (see 3.4 below).

Unless each of the following additional conditions (also see Chapter 3) is met, land currently owned by another public agency may not be used as replacement land for land acquired as part of an LWCF project:

(1) The replacement land was not originally acquired by the sponsor or selling agency for recreation.

(2) The replacement land has not been previously dedicated or managed for recreational purposes while in public ownership.

(3) No federal assistance was provided in the replacement land's original acquisition unless the assistance was provided under a program expressly authorized to match or supplement LWCF assistance.

(4) Where the project sponsor acquires replacement land from another public agency, the selling agency must be required by law to receive payment for the land so acquired (see Chapter 3.A.9).

An exception may be made to this condition only in the case of development projects for which the project sponsor's match was not derived from the cost of the purchase or value of a donation of the land to be converted, but from the value of the development itself. In this case, public land that has not been previously dedicated or managed for recreation/conservation use may be used as replacement land even if this land is currently owned by the project sponsor or is transferred from one public agency to another without cost.

e. In the case of Section 6(f)(3) protected areas that are partially rather than wholly converted, the impact of the converted portion on the remaining area shall be considered. If such a conversion is approved, the unconverted area must remain recreationally viable or be replaced as well.

f. All necessary coordination with other federal agencies has been satisfactorily accomplished including, for example, compliance with Section 4(f) of the Department of Transportation Act of 1966.

g. The guidelines for environmental review under NEPA have been satisfactorily completed and considered by NPS during its review of the proposed Section 6(f)(3) action. In cases where the proposed conversion arises from another federal action, NPS

final review of the State's proposal shall not occur until the NPS is assured all environmental review requirements for the other federal action have been met, e.g., Army Corps of Engineer permits.

The environmental review process must analyze not only the Section 6(f)(3) area proposed for conversion, but also the development of the replacement parkland. The purpose and scope of the environmental review must focus on the impacts on the "human environment" resulting from the loss of the Section 6(f)(3) parkland, impacts on any remaining Section 6(f)(3) parkland for partial conversions, and the development of new Section 6(f)(3) replacement park(s). The scope of the environmental review should not include impacts of the action precipitating the conversion on resources beyond the Section 6(f)(3) boundary, such as impacts of a new housing development or a school on a neighborhood.

The environmental analysis must be conducted in a neutral and factual manner and result in statements that reflect this same neutrality so the interested and affected public can focus on and understand the details of the proposed federal action of converting parkland including the replacement of new parkland according to 36 CFR 59. The environmental analysis documents should not include statements that promote or justify the action precipitating the conversion, such as proclaiming that the subject parkland is the best location for a new fire station.

For detailed guidance on NEPA and how to conduct environmental reviews for LWCF conversions, consult Chapter 4 of this manual, and the NPS.

h. Adherence to state intergovernmental review procedures as appropriate (see Chapter 4).

i. The proposed conversion and substitution are in accord with the SCORP.

4. State preparation of conversion proposal for NPS review: To avoid any unnecessary delays, duplication of effort, and mid-course corrections, the States shall consult with NPS early when conversions are proposed or discovered to ensure:

a. the extent of impact from the conversion activity on Section 6(f)(3) protected area is mutually agreed upon; and

b. the acceptability of proposed replacement parkland has been explored prior to State/local sponsor expenditure of resources on appraisals and the required environmental review process to be undertaken in accordance with NEPA.

The State shall coordinate the development of the conversion proposal including ensuring the project sponsor complies with applicable federal, state and local laws, regulations and permit requirements. As the proposal is developed, the State may enlist the assistance of NPS to provide technical guidance as needed, especially for complex and controversial conversions. A State's submission of a formal conversion request to NPS is a State's

endorsement of the conversion. If a State does not concur or endorse the conversion, then the proposal should not be forwarded to NPS for formal review and decision.

5. NPS review of the State conversion proposal. NPS will conduct an independent review of the proposal using the conversion prerequisites and any other critical factors that may have arisen during proposal development. If the State has adequately addressed the prerequisites, and NPS finds no other reason to deny the request, the NPS administrative record will be documented as such and an amendment will be signed approving the conversion.

6. Banking excess fair market value of replacement land for future conversions. The acquisition of one parcel of replacement land may be used in satisfaction of several approved conversions.

   Excess fair market value (FMV) of a replacement property can be "banked" for a period not to exceed five years from the date of the initial conversion amendment. During this time period, the same project sponsor may use the remaining value to make up the FMV difference in cases where the subsequent proposed replacement property satisfies the equal usefulness criterion but its appraised FMV falls short of the equal fair market value requirement.

   The initial replacement property with the excess fair market value may not be used to satisfy the equal usefulness criterion for subsequent conversions unless additional conversions are anticipated by the sponsor at the time of the original conversion request and the accompanying documentation clearly addresses how the replacement property would satisfy the equal usefulness criteria for the original conversion as well as those that are anticipated.

7. Conversions on leased land. Should a conversion occur on leased land during the term of the lease, the State must comply with the conversion requirements of Section 6(f)(3) including the provision of replacement land. In this instance, the conversion of the original lease can be replaced with a leasehold interest for a period of time that is not less than the time remaining on the original lease, and, which fulfills the recreation commitment agreed to in the original lease agreement.

   For existing projects that involve leases, the responsibility for retaining the property in recreation terminates at the end of the lease period unless the grant agreement calls for some other arrangement. Lease agreements containing a renewal clause that can be exercised by the lessee must be reviewed to ensure that Section 6(f)(3) compliance will continue throughout the duration of the next lease period.

8. Conversion proposal documentation. A conversion requires an amendment to the original project agreement. Therefore, the amendment should be submitted concurrently with the formal conversion request or at such time as all details of the conversion have been worked out with NPS.

   The formal conversion proposal submission to NPS must include the following items:

a. A transmittal letter briefly describing the conversion proposal and requesting NPS review and approval

b. Standard Form 424 for amendments (see Chapter 7)

c. PD/ESF including Step 4, the environmental screening form, and an environmental assessment document analyzing the entire conversion proposal (the converted parkland and the replacement parkland in one document).

d. LWCF project amendment form identifying changes to the original Section 6(f)(3) boundary caused by the conversion and to establish a new 6(f) boundary around the replacement site(s)

e. Signed and dated Section 6(f)(3) boundary map for any remaining parkland resulting from a partial conversion, and for the replacement site(s)

f. Description and Notification Form (DNF)

Once the conversion has been approved by NPS, replacement property should be immediately acquired and developed according to the replacement proposal timetable. If development will be delayed beyond three years from the date of NPS conversion approval, then a request for delayed development beyond three years with a justification for the delay must be made to NPS (See Chapter 3.B.7.c).

9. Small conversions. Small conversions are composed of small portions of Section 6(f)(3) protected areas that amount to no more than 10 percent of the 6(f) protected area or five acres, whichever is less. States should consult with NPS prior to developing the small conversion proposal.

Because small conversion proposals are less complex, NPS review and decision can be facilitated when:

a. Minor or no environmental impacts would occur on resources being removed from Section 6(f)(3) protection, on the remaining Section 6(f)(3) area, and on the contiguous new replacement parkland by placing it under Section 6(f)(3) protection per the environmental screening form. This includes consideration of impacts to historic resources per the Section 106 process of the National Historic Preservation Act. The entire conversion proposal is categorically excluded from further environmental review under NEPA (see Chapter 4).

b. The proposed conversion is not controversial.

c. The replacement property is contiguous to the original Section 6(f)(3) area.

.

The State's proposal must include:

d. Transmittal letter describing the entire small conversion proposal.

e. Standard Form 424

f. PD/ESF with the portion for conversions completed indicating that a categorical exclusion is justified.

g. LWCF project amendment form.

h. Description and Notification Form (DNF)

i. Revised 6(f) boundary map indicating the deletion of the small converted area and the addition of the replacement property.

10. Discovering unauthorized conversions. When it is discovered that a Section 6(f)(3) area has been converted without NPS approval, a conversion proposal must be submitted and reviewed by NPS for retroactive action. .The NPS shall notify the State it is in violation of the grant contract, program regulations, and law, and an immediate resolution of the unapproved conversion must be expedited.

    If it is discovered that an unauthorized conversion is in progress, the State must notify the project sponsor to cease immediately until the conversion process pursuant to 36 CFR 59.3 has been satisfactorily completed.

    Resolution of the conversion will require State and NPS review of the conversion proposal as previously set forth in Section E.4 above including the provision of suitable replacement property.

    If the sponsor has already provided replacement property without NPS approval, the eligibility of the replacement land must meet the same Section 6(f)(3) requirements as if it had not yet been acquired. It is incumbent upon the State to make the case that the replacement land fully meets these requirements.

    Failure by the State to take steps to follow this procedure shall be considered cause for NPS to apply penalty options described in Section N below.

11. Conversions with delayed parkland replacement. Exceptions to the immediate replacement requirement (see Section 8 above) will be allowed only when it is not possible for replacement property to be identified prior to the State's request for the conversion. An express commitment must be received from the State to satisfy Section 6(f)(3) substitution requirements within a specified period normally not to exceed one year following conversion approval.

Such proposals are not routine and must include sufficient evidence to justify why such a delay is necessary.

F. Underground Utility Easements and Rights-of-Way

The State may allow underground utility easements within a Section 6(f)(3) area as long as the easement site is restored to its pre-existing condition to ensure the continuation of public outdoor recreational use of the easement area within 12 months after the ground within the easement area is disturbed. If restoration exceeds the 12 month period, or the easement activities result in permanent above-ground changes, NPS shall be consulted to determine if the changes will trigger a conversion. If present or future outdoor recreation opportunities will be impacted in the easement area or in the remainder of the Section 6(f)(3) area, a conversion will be triggered.

G. Commercial Signage in Section 6(f)(3) Areas

Commercial signs are only allowable within Section 6(f)(3) boundaries when the advertising is attached to allowable park structures such as benches, fencing, walls, and buildings and are not inconsistent with the park setting and/or the built environment in which it is located (e.g., athletic fields). Signs may face either outside or inside the park. Commercial advertising in the form of a stand-alone structure such as a billboard that creates a footprint in the park, or commercial signage permanently affixed to a natural feature within the 6(f) area, is a conversion regardless of which direction it faces.

H. Proposals to Construct Public Facilities

Public facility requests will only be approved if the public facility clearly results in a net gain in outdoor recreation benefits or enhances the outdoor recreation use of the entire park, and the facility is compatible with and significantly supportive of the outdoor recreation resources and opportunities of the Section 6(f)(3) protected area. The State shall use the PD/ESF to document its public facility proposal using the following criteria and submit it along with a project amendment and a recommendation for federal approval for NPS review and decision.

The NPS will consider requests to construct <u>sponsor-funded</u> public facilities when the following criteria have been met:

1. Uses of the facility will be compatible with and significantly supportive of outdoor recreation resources and uses at the rest of the site and recreation use remains the overall primary function of the site. The proposed public facility will include~~s~~ a recreation component and will encourage outdoor recreation use of the remaining Section 6(f) area.

2. All design and location alternatives have been adequately considered, documented and rejected on a sound basis.

3. The proposed structure is compatible and significantly supportive of the outdoor recreation resources of the site, whether existing or planned. The park's outdoor recreation use must

continue to be greater than that expected for any indoor uses, unless the site is a single use facility, such as a swimming pool building, which virtually occupies the entire site.

Examples of uses which would not ordinarily be approved include, but are not limited to, a community recreation center which takes up all or most of a small park site, clinics, police stations, restaurants catering primarily to the general public, fire stations, professional sports facilities or commercial resort or other facilities which: (1) are not accessible to the general public; or, (2) require memberships; or, (3) which, because of high user fees, have the effect of excluding elements of the public; or, (4) which include office, residential or elaborate lodging facilities.

Restaurant-type establishments with indoor dining/seating that cater primarily to the outdoor recreating public must be reviewed under this public facility policy. Other park food service operations such as snack bars, carry-out food service, and concession stands with outdoor dining including pavilions and protected patios are allowable without further NPS if the primary purpose is to serve the outdoor recreating public.

4. Potential and future benefits to the total park's outdoor recreation utility must be identified in the proposal. Any costs or detriments should be documented and a net recreation benefit must result.

5. The proposed facility must be under the control and tenure of the public agency that sponsors and administers the original park area.

6. The proposal has been analyzed pursuant to NEPA, including providing the public an opportunity to review and comment on the proposal if required as part of the NEPA review.

7. All applicable federal requirements for approval are met.

8. The proposal has been adequately reviewed at the state level and has been recommended by the SLO.

I. Requests for Temporary Non-Conforming Uses Within Section 6(f)(3) Areas

All requests for temporary uses for purposes that do not conform to the public outdoor recreation requirement must be submitted to and reviewed by the State. The State, in turn, will submit a formal request to NPS describing the temporary non-conforming use proposal.

Continued use beyond six-months will not be considered temporary, but will result in a conversion of use and will require the State/project sponsor to provide replacement property pursuant to Section 6(f)(3) of the LWCF Act.

1. Criteria. NPS will use the following criteria to evaluate each request:

   a. The size of the parkland area affected by any temporary non-recreation use shall not result in a significant impact on public outdoor recreation use. This means that the site of the temporary activity should be sufficiently small to restrict its impacts on other areas of a Fund-assisted park.

   b. A temporary use shall not result in permanent damage to the park site, and appropriate mitigating measures will be taken to ensure no residual impacts on the site once the temporary use is concluded.

   c. No practical alternatives to the proposed temporary use exist.

   d. All applicable federal requirements for approval are met.

   e. The proposal has been adequately reviewed at the state level and has been recommended by the SLO.

2. Required proposal documentation. The State's formal proposal to NPS shall include:

   a. SLO recommendation;

   b. PD/ESF providing a complete description of the proposed temporary use, including:

      (1) start and completion dates;

      (2) identification of the portion of the site affected, including a map showing the relationship of the temporary use site to the full area protected under 6(f)(3) and a justification of why the area needed is the minimum necessary for the proposed use;

      (3) an analysis of the alternatives to the proposed use that were considered;

      (4) a description of both immediate impacts on the site as a result of the temporary use and any residual or long-term impacts on the site's environment or on recreation use;

      (5) a description of any appropriate mitigation actions that may be necessary and a schedule for their implementation; and,

   c. An acknowledgement by the SLO a full conversion will result if the temporary use has not ceased after the maximum six-month period allotted.

J. Sheltering Facilities within Section 6(f)(3) Areas

NPS approval is required to shelter an existing facility located within a Section 6(f)(3) protected area. See Section 3.C.7 for further guidance.

K. Obsolete Facilities

Project sponsors are not required to continue operation of a particular recreation area or facility beyond its useful life. However, Section 6(f)(3) of the LWCF Act requires project sponsors maintain the entire area within the Section 6(f)(3) boundary in some form of public outdoor recreation use.

Notwithstanding neglect or inadequate maintenance on the part of the project sponsor, a recreation area or facility may be determined to be obsolete if:

1. reasonable maintenance and repairs are not sufficient to keep the recreation area or facility operating;

2. changing recreation needs dictate a change in the type of facilities provided;

3. park operating practices dictate a change in the type of facilities required; or,

4. the recreation area or facility is destroyed by fire, natural disaster, or vandalism.

States may determine a facility is obsolete and permit its use to be discontinued or allow a particular type of recreation use of the LWCF assisted area to be changed provided that the project record maintained by the State is documented by the sponsor with a justification statement for determining obsolescence and the State concurs in the change. However, NPS approval must be obtained prior to any change from one LWCF allowable use to another when the proposed use would significantly contravene the original plans for the area. See Section L below for further guidance.

If, in the judgment of the State, the facility is needed and was lost through neglect or inadequate maintenance, then replacement facilities must be provided at the current value of the original investment.

LWCF assistance may be provided to renovate outdoor recreation facilities that have previously received LWCF assistance if the State determines the renovation is not required as a result of neglect or inadequate maintenance and the State documents the project record to that effect.

L. Significant Change of Use

Section 6(f)(3) of the LWCF Act requires project sponsors maintain the entire area defined in the project agreement in some form of public outdoor recreation use. NPS approval must be obtained prior to any change from one eligible use to another when the proposed use would significantly contravene the original plans or intent for the area as described in the original LWCF project(s).

NPS approval is not required, however, for each and every facility use change. Uses within a Section 6(f)(3) protected area should be viewed in the context of overall use and should be

monitored in this context. A change from a swimming pool with substantial recreational development to a less intense area of limited development such as a passive park, or vice versa, would, for example, require NPS approval.

States shall notify NPS in writing of proposals to significantly change the use of Section 6(f)(3) areas in advance of their occurrence. NPS will expedite a determination of whether a formal review and approval process will be required. A primary NPS consideration in the review will be the consistency of the proposal with the Statewide Comprehensive Outdoor Recreation Plan.

If the change in use proposal requires a formal review and decision by NPS, the State shall complete the Proposal Description and Environmental Screening Form (PD/ESF) found in Chapter 4.

Changes to other than public outdoor recreation use constitute a conversion and will require NPS approval and the substitution of replacement land in accordance with Section 6(f)(3) of the LWCF Act

M. Post-Completion Inspections

1. Purpose. In order to determine whether properties acquired or developed with LWCF assistance are being retained and used for outdoor recreation purposes in accordance with the project agreement and other applicable program requirements, a state post-completion inspection is to be made within five years after final billing and at least once every five years thereafter.

   The following points should be taken into consideration during the inspection of properties that have been developed for public use:

   a. Retention and use. Is the Section 6(f)(3) boundary in tact and the property being used for outdoor recreation purposes including those intended through the projects funded with LWCF assistance?

   b. Appearance. Is the property attractive and inviting to the public?

   c. Maintenance. Is upkeep and repair of structures and improvements adequate? Is there evidence of poor workmanship or use of inferior quality materials or construction? Is vandalism a problem? Is the area being maintained?

   d. Management. Does staffing and servicing of facilities appear adequate?

   e. Availability. Is there evidence of discrimination? Is the property readily accessible and open to the public during reasonable hours and times of the year?

   f. Signing. Is the area properly signed to allow for user information and safety, and proper acknowledgement of the federal Land and Water Conservation Fund?

g. Interim use. Where lands have been acquired but not yet developed, the inspection should determine whether the interim uses of the property are in accordance with agreements with the NPS.

2. Reporting. Within 90 days of completion of an on-site inspection, States shall submit to NPS a post-completion inspection report for only those projects which have compliance problems. The report should include the date of inspection, description of the finding, and a summary report of corrective actions taken or to be taken.

   For all other sites inspected with no compliance problems, the State shall only report to NPS the project number and date of inspection, and shall retain the actual inspection report with the State LWCF project file. States shall submit a report of all LWCF project sites inspected at least annually and by September 30.

   Post-completion inspection reports shall also be completed for those projects in which the facilities have been deemed obsolete. The report should include certification by the State Liaison Officer that the facility is obsolete and that such obsolescence is not a result of neglect or inadequate maintenance on the part of the project sponsor.

3. Applicability. The provisions of this section apply to the Section 6(f)(3) area encompassing the area or facility assisted by the LWCF, regardless of the extent of LWCF assistance in that area or facility. That is, in cases where assistance is provided only for an acquisition, the entire park or recreational area involved, including developments on the lands so acquired, are subject to the provisions of this section. Where development assistance is given, the lands of the park or recreation area identified on the Section 6(f)(3) boundary map are subject to this section.

4. State responsibility. Responsibility for enforcement of the provisions of this chapter rests with the State. The NPS will inspect LWCF assisted areas and facilities from time to time, but it shall conduct such visits in concert or through consultation with the State agency or State Liaison Officer.

5. Costs. The costs of making post-completion inspections by the State are allowable overhead charges for LWCF assistance and are allowable costs covered by the indirect cost rate.

6. NPS inspections. Properties acquired or developed with LWCF assistance shall be available for inspection by the NPS Director or other NPS representatives.

N. Penalties for Failure to Comply with Federal Laws and Regulations

Pursuant to 43 CFR Part 12.83, when the NPS determines a State has violated or failed to comply with applicable federal law, or the regulations governing this program with respect to a project, NPS may withhold payment of federal funds to the State on account of such project, withhold funds for other projects of the State, withhold approval of further projects of the State,

and take such other action deemed appropriate under the circumstances, including debarment and suspension pursuant to Executive Order 12549 at 43 CFR 12.100-.510, until compliance or remedial action has been accomplished by the State to the satisfaction of NPS.

A.6 - Attachment F:
California Outdoor Recreation Plan (2008)

ATTACHMENT F

California Outdoor Recreation Plan 2008

State of California
Resources Agency

An Element of the California Outdoor Recreation Planning Program

The preparation of this study was financed in part through a planning grant from the National Park Service, United States Department of the Interior, under the provisions of the Land and Water Conservation Fund Act of 1965 (Public Law 88-578, as amended).

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California
Outdoor Recreation Plan 2008

An Element of the
California Outdoor Recreation
Planning Program

Arnold Schwarzenegger
Governor

Mike Chrisman
Secretary for Resources

Ruth Coleman
Director of Parks and Recreation

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Executive Summary

California State Parks' 2008 California Outdoor Recreation Plan (CORP) is the comprehensive statewide outdoor recreation planning document that reflects the current and projected changes in California's population, trends and economy.

A Statewide Comprehensive Outdoor Recreation Plan (SCORP) is required of every state in order to be eligible for grants from the Land and Water Conservation Fund Act. The LWCF Act requires the SCORP to include the following: a) the name of the state agency with authority to act for California in dealing with the Secretary of the Interior for the purposes of the LWCF Act, b) an evaluation of the demand for and supply of the outdoor recreation resources and facilities in the state, c) a program for the implementation of the Plan, d) certification by the governor that ample opportunity for public participation has taken place in Plan development, e) other necessary information as may be determined by the Secretary.

The LWCF Act also requires the States to operate and maintain by acceptable standards the properties or facilities acquired or developed for public outdoor recreation use with LWCF assistance. Section 6(f)(3) applies to each area or facility for which LWCF assistance is obtained, regardless of the extent of that assistance. The Section requires that property acquired or developed with LWCF assistance be retained and used for public outdoor recreation in perpetuity. The subject property cannot be wholly or partly converted to other than public outdoor recreation uses without the approval of NPS.

The state agency with the authority to act for California in dealing with the Secretary of the Interior for the purposes of the LWCF Act is the California Department of Parks and Recreation (DPR). This plan serves as a comprehensive outdoor recreation plan for DPR since it outlines outdoor recreation needs statewide and identifies strategies for meeting those needs. California complies with the remaining LWCF Act requirements both through its CORP and through additional documents such as the forthcoming final report on the survey of Public Opinions and Attitudes on Outdoor Recreation in California.

This 2008 CORP update improves upon the 2002 CORP version. Some of the improvements include:

- The Past Planning Grant Progress and Future Products chapter illustrates the trajectory of DPR's planning process.
- The California Protected Areas Database is a new inventory of protected open space lands and recreation areas. The CPAD chapter provides a good overview of the kinds of information available through the database.
- The California Recreation Policy chapter outlines the state's strategies, priorities and actions, including indoor recreation, accessibility, preservation of natural and cultural resources and examples of policy implementation.

- This Plan updates all the 2002 outdoor recreation issues of statewide importance and includes two new issues: 1) The Lack of Linkages and Seamless Delivery of Recreation Opportunities, and 2) The Need for Workforce Development and Succession Planning.

The plan also brings up to date the listing of the state's outdoor recreation providers and their roles and programs, *Wetlands*, which guides the state's identification of wetland priorities and actions, and two pivotal updated chapters; *Public Opinion and Attitudes*, and the *Issues and Actions*.

The *Public Opinion and Attitudes* and the *Issues and Actions* are the focus and heart of CORP. Understanding and analyzing the connection between the *Public Opinion and Attitudes* survey data which evaluates Californian's demand for outdoor recreation resources and facilities, and the *Issues and Actions* that explores ways that recreation providers can both accommodate current demands for outdoor opportunities and prepare to meet the needs of future generations is the groundwork of CORP.

California State Parks considers CORP as our state's strategy for identifying the a wide range of ways in which recreation providers can deal with obstacles and create the outdoor recreation opportunities to meet public demand now and in the coming years. California's strategic priorities include:

- Projects that provide opportunities for the top 15 outdoor recreation activities identified in the latent demand scoring in the survey of Public Opinions and Attitudes on Outdoor Recreation in California
- Projects that provide outdoor recreation opportunities for those underserved communities identified using the California Protected Areas Database, such as communities in the Central Valley
- Projects that support the acquisition and preservation priorities being pursued by the state's wetland preservation organizations
- Projects that support the five goals of California's Recreation Policy
- Projects that provide outdoor recreation activities for children, such as those ten activities listed in the Children's Outdoor Bill of Rights
- Projects that develop the regional trail corridors identified within the 2002 California Recreational Trails Plan and its scheduled update

Projects meeting one or more of these strategic goals will receive priority in the distribution of LWCF grant moneys through the Open Project Selection Process.

Introduction

This edition of the California Outdoor Recreation Plan (CORP) provides a strategy for statewide outdoor recreation leadership and action to meet the state's identified outdoor recreation needs. The plan is the product of the continuing outdoor recreation-planning program of California State Parks (CSP). The National Park Service provides funding assistance through the Land and Water Conservation Fund (LWCF) program to ensure this Plan is revised and updated periodically to reflect current and expected changes in California's large and complex population and economy. The last CORP was updated in 2002. This edition supersedes the 2002 CORP. The CORP details planning considerations essential for effective administration of the LWCF program.

The LWCF Act requires the states to operate and maintain by acceptable standards the properties or facilities acquired or developed for public outdoor recreation use with LWCF assistance. Section 6(f)(3) of the LWCF Act stipulates that no property acquired or developed with LWCF assistance shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Department of the Interior. The main points within Section 6(f)(3) include:

- Section 6(f)(3) applies to each area or facility for which LWCF assistance is obtained, regardless of the extent of that assistance.
- Property acquired or developed with LWCF assistance shall be retained and used for public outdoor recreation in perpetuity.
- Property cannot be wholly or partly converted to other than public outdoor recreation uses without the approval of NPS.
- In many cases, even a relatively small LWCF grant in a park of hundreds or thousands of acres provides protection to the entire park site.

Description of the CORP Process, Policy, and Audience

The Plan was developed with ample opportunity for public participation - through research and using input and feedback from a select advisory committee, recreation professionals and public comment. The plan identifies outdoor recreation issues of statewide importance and separates out those that can be addressed through the LWCF. The Plan contains components that evaluate public demand for outdoor recreation activities and includes a quantitative statewide inventory that will be used to evaluate the supply of outdoor recreation resources during the LWCF Open Project Selection Process.

The Plan's intended audience includes park and recreation providers, private citizens, elected officials and key decision makers. This plan is also designed to provide policy guidance to all public agencies – federal, state, local, and special districts – engaged in providing outdoor recreational lands, facilities and services throughout California. The CORP will help them get involved in California's many recreation and land and water protection programs and help coordinate outdoor recreation and environmental conservation programs.

California State Park's Role in Developing the CORP

California's state-level Outdoor Recreation Planning Program continues more than 50 years of effort by CSP. CSP serves a central role in this process as a matter of leadership, and because it is the state agency actively engaged directly providing outdoor recreation opportunities to Californians and many out-of-state and foreign visitors. In addition, CSP administers federal and state grant funds which are disbursed to appropriate state agencies and to the state's 836 municipal county, and special district park and recreation agencies (figure per California State Parks Office of Grants and Local Services).

Overview of CORP Content

The primary objective of the current CORP is to determine the outdoor recreation issues–the problems and the opportunities most critical in California, and to develop a comprehensive strategy by which state, federal, and local agencies might best address them. This plan is comprehensive in its scope, considering the full range of outdoor recreation issues and needs throughout the entire state. The plan is based on information collected from 2003 through 2008, takes into consideration the current demographic, economic, political, and environmental conditions, and then explores and analyzes the outdoor recreation issues that will be of concern to public agencies in the next five years.

The specific CORP chapters include:

- A strategy for meeting California's outdoor recreation needs.
- A summary of the trends and challenges currently affecting outdoor recreation demands and preferences.
- Preliminary results from the 2007 survey of Public Opinions and Attitudes on Outdoor Recreation in California.
- A statewide inventory of public open space and recreation lands. The California Protected Areas Database (CPAD) is now available for download and/or viewing in a user-friendly online interface.
- A wetlands component detailing the various public and private entities dedicated to wetland acquisition, restoration and containing descriptions of the wetland types and areas that should receive priority for acquisition in California.
- Direction developed through the adoption of the 2005 California Recreation Policy. This policy considers how recreational opportunities are provided—the lands, waters, facilities, programs and support functions—and recognizes the considerable health, personal, social, economic and environmental benefits served by the many important dimensions of recreation.
- The issues that significantly impede the provision or effective management of recreation lands, facilities, programs and services that meet public demand for quality outdoor recreation opportunities, and the actions to

remedy these issues, encouraging statewide coordination and collaboration.
- A summary of past LWCF California Outdoor Recreation Planning Program accomplishments funded through LWCF planning grants and descriptions of future CORP planning projects that have been submitted for LWCF consideration.
- A descriptive evaluation of the public agencies providing outdoor recreation opportunities in California.

The CORP's appendices include:
- A summary of the planning process used to complete this CORP and its elements.
- A list of the CORP Advisory Committee members.
- A summary of the Open Project Selection Process for awarding Land and Water Conservation Fund grants.

This current CORP was designed to meet the specific program responsibilities of the federal Land and Water Conservation Fund Act, whose concerns are outdoor recreation, land acquisition and facility development, redevelopment, and rehabilitation as well as preservation of the public park and recreation lands. This plan, however, encompasses broader interests than just these capital outlay functions and preservation functions.

This document and its recommendations realistically reflect the political and administrative capacity of the State of California to guide, influence, or direct the outdoor recreation policies and programs of agencies in state government and at local government levels. The plan, consequently, emphasizes issues and actions mainly of concern to state and local park and recreation agencies. Federal agencies and private-sector recreational providers, over which the State has much less influence, are, therefore, only briefly discussed.

General Objectives for the Plan

As a comprehensive planning document, this CORP edition will accomplish the following:

- Serve as a comprehensive strategy and action guide: Following the discussion of the most critical outdoor recreational issues, the CORP explores a wide range of ways in which recreation providers can overcome obstacles and create the opportunities the public will demand in coming years. Individual agencies and recreation providers are encouraged to take necessary steps in their own jurisdiction. CORP identifies and analyzes the most critical outdoor recreation issues–the broad problems and opportunities that will facilitate or hinder the public's outdoor recreational opportunities in the future.

- Provide leadership: As the agency responsible for the statewide outdoor recreation planning, and for producing this document, California State Parks seeks to provide leadership in the areas of information development and policy guidance.

- Provide project selection criteria: Criteria were prepared by CSP for selecting state and local government projects to receive funding from the federal Land and Water Conservation Fund. These criteria are consistent with the actions recommended to address the major issues identified in this plan. The allocation of funds is known as the Open Project Selection Process (OPSP). The OPSP criteria will be reviewed or evaluated after the CORP update has been published in spring 2009. Until then, the current criteria, as identified in the June 2008 LWCF Procedural Guide, will continue to be used.

- Maintain funding eligibility: Regular, periodic production of this planning document and maintenance of the state‘s overall comprehensive outdoor recreation plan will maintain funding eligibility for the Land and Water Conservation Fund.

- Provide a source of information: The California Outdoor Recreation Plan provides a concise overview, a point-in-time status report on the social, economic, environmental, and political conditions that affect the provision of outdoor recreational opportunities across the state. The CORP also evaluates the supply of and demand for public outdoor recreation in California.

California's Comprehensive Outdoor Recreation Strategy

The analysis, conclusions and implications of the 2007 survey of Public Opinions and Attitudes on Outdoor Recreation in California and the California Protected Areas Database, policy developed through the public outreach processes for California's Recreation Policy, the Children's Outdoor Bill of Rights, the Central Valley Vision and the CORP, and wetlands research, all have informed the development of this strategy for meeting the state's outdoor recreation needs.

The seven major priority areas below comprise the state's strategy for meeting California's outdoor recreation needs and will serve as a statewide guide for funding proposed development or acquisition projects. Project proposals will receive priority when they address the following outdoor recreation priorities:

- Projects that provide opportunities for the top 15 outdoor recreation activities identified in the latent demand scoring in the survey of Public Opinions and Attitudes on Outdoor Recreation in California:
    1. Walking for fitness or pleasure
    2. Camping in developed sites
    3. Bicycling on paved surfaces
    4. Day hiking on trails
    5. Picnicking in picnic areas
    6. Beach activities
    7. Visiting outdoor nature museums, zoos, gardens or arboretums
    8. Visiting historic or cultural sites
    9. Attending outdoor cultural events
    10. Off-highway vehicle use
    11. Driving for pleasure, sightseeing, driving through natural scenery
    12. Swimming in a pool
    13. Wildlife viewing, bird watching, viewing natural scenery
    14. Outdoor photography
    15. Swimming in freshwater lakes, rivers and/or streams

- Projects that provide or improve outdoor recreation opportunities in the geographic region identified in the California State Parks' Central Valley Vision, Implementation Plan:
    - River access for swimming, angling, boating and other water sports
    - Varied recreation opportunities, including group picnic areas, updated and increased camping facilities, areas for sunning and open areas for kite flying, pick-up games and unstructured play
    - Trails, including multi-use trails for equestrians, hikers, walkers and bikers; water trails for rafters and boaters; and off-highway vehicle use areas
    - Resource protection including preservation of riparian woodlands, oak and sycamore groves, native grasslands and vernal pools

    - Interpretation of the Central Valley's culture and history especially related to California Indians, agriculture, water development, immigrants, and the oil and gas industry

- Projects that provide outdoor recreation activities for children, such as those listed in the Children's Outdoor Bill of Rights:
    1. Discover California's past
    2. Splash in the water
    3. Play in a safe place
    4. Camp under the stars
    5. Explore nature
    6. Learn to swim
    7. Play on a team
    8. Follow a trail
    9. Catch a fish
    10. Celebrate their heritage

- Projects that provide outdoor recreation opportunities for those underserved communities identified using tools like the California Protected Areas Database (CPAD). The CPAD will be used to demonstrate that future parks and recreation project proposals meet an outdoor recreation need for protected open space and recreation lands.

- Projects that support the wetland priorities being pursued by the state's wetland preservation organizations. The bullets below summarize their wetland ecological areas of focus:
    - Seasonal, permanent and semi-permanent freshwater wetlands
    - Riparian areas and other stream corridors
    - Tidal/coastal wetland ecosystems including bay habitats
    - Creeks and lakes
    - Vernal pools

- Projects that support the goals of California's Recreation Policy
    - Adequacy of recreation opportunities
    - Leadership in recreation management
    - Recreation's role in a healthier California
    - Preservation of natural and cultural resources
    - Accessible recreation experiences

- Projects that develop the trail corridors identified in the 2002 California Recreational Trails Plan and its scheduled update

Trends and Challenges

Meeting the park and recreation needs of all current and future residents should be a goal of all park and recreation providers in California. Towards that end, it is essential that all park and recreation stakeholders have a basic understanding of both the state's demographics and the trends that are likely to influence the demand for outdoor recreation now and in the future.

I. Robust Population Growth

One of the greatest challenges affecting park and recreation providers is the enormous increase in the number of new Californians. Fueled by births and migration, California's population grew from 29 to 33 million during the 1990s - an increase of almost 12.15 percent. The California Department of Finance estimates that as of January 1, 2008 California's population was 38 million - an increase of almost 11 percent. This robust pace of growth is expected to continue, with the population projection for 2020 increasing to over 44 million Californians.

A. Urbanization means greater population densities

Most of California's growth has been in its major metropolitan areas: Los Angeles, San Diego, and the San Francisco Bay Area. California now has 67 cities with populations exceeding 100,000 and 20 cities with populations exceeding 200,000. Cities are getting larger, squeezing out the open spaces for parks and disconnecting the state's biological resources. In 2000, California had an average of 217.2 persons per square-mile compared to the US average of 79.6.

It's not just the cities, the urban densities and per-square-mile population for urbanized counties is equally impressive. The ultimate urbanized county is San Francisco, which is both city and county and contains 15,935.77 persons per square mile. Eight of California's 58 counties have densities greater than 1,000 persons per square mile.

Most Urbanized Counties (Population per square mile)

County	Area (Sq. mi)	2006 Pop Est.	Pop. (Sq. mi)
San Francisco	**744,041**	**46.69**	**15,935.77**
Orange	**3,002,048**	**789.4**	**3,802.95**
Los Angeles	**9,948,081**	**4,060.87**	**2,449.74**
Alameda	**1,457,426**	**737.57**	**1,975.98**
San Mateo	**705,499**	**449.07**	**1,571.02**
Sacramento	**1,374,724**	**965.65**	**1,423.63**
Contra Costa	**1,024,319**	**719.95**	**1,422.76**
Santa Clara	**1,731,281**	**1,290.69**	**1,341.36**

Source: U.S. Census Bureau

B. Intra-state relocation shifts demand into new areas

Many Californians are moving inland, away from high-cost, high-density coastal counties. The Sierra foothills are seeing the greatest percentage of growth in the state. The Inland Empire is the second fastest growing region, with Riverside County growing 26 percent and San Bernardino County growing almost 17 percent in the 2000s.

Fastest Growing Counties 2000 – 2008(est.)

Riverside	**26.00%**
Placer	**25.50%**
Imperial	**19.19%**
Kern	**19.07%**
Madera	**18.41%**
San Joaquin	**17.80%**
Sutter	**17.68%**
Merced	**17.51%**
San Bernardino	**16.81%**
Yuba	**16.28%**

Source for both tables: CA Dept. of Finance

Regions

Sierra Foothills:	
Placer	**25.50%**
El Dorado	**13.03%**
Calaveras	**12.08%**
Mariposa	**6.93%**
Inland Empire	
Riverside	**26.00%**
San Bernardino	**16.81%**

The Central Valley's population is projected to nearly double, from 7.8 million in 2000 to 14 million in 2030. The Central Valley makes up 19% of California's land but only contains 4% of the state's protected public lands. California State Parks has identified the Central Valley as an underserved region for parks and recreation facilities, programs and services. State Parks' Central Valley Vision Implementation Plan seeks to redress this imbalance, assigning priorities to projects that provide or improve outdoor recreation opportunities in the geographic region outlined on the map on the facing page.

California Central Valley
Shasta
Redding
Lassen
Tehama
Plumas
Sierra
Colusa
Nevada
Placer
Sutter
Yolo
Sacramento
El Dorado
Napa
Alpine
Amador
Solano
Calaveras
Marin
Tuolumne
Mono
Stockton
San Joaquin
Contra Costa
San Francisco
Alameda
San Mateo
Stanislaus
Mariposa
Inyo
Santa Clara
Merced
Madera
Santa Cruz
Fresno
Monterey
San Benito
Tulare
Kings
San Luis Obispo
Bakersfield
Kern
Santa Barbara
Ventura
Los Angeles
December 11, 2008

II. Demographic Shifts

A. Ethnic and Cultural Diversity

Today, California's 38 million residents are multi-ethnic and multi-cultural. Since the largest racial group (white) is now less than 50% of the population, there is no ethnic majority in the state. According to the U.S. Census 2000 data, Hispanic and Asian/Pacific Islander populations accounted for 61 percent and 27 percent, respectively, of California's growth in the last decade. Census data also revealed that Hispanic population growth was driven mostly by natural increase, while Asian/Pacific Islander population increased mostly from immigration.

Between 2000 to 2020, California's population is projected to grow by 31 percent. By 2020 California's population of European descent will have grown only 4 percent, while the Hispanic population will have grown 58 percent, and the Asian/Pacific Islander population will have grown 55 percent. The African American population will have grown 20 percent, and American Indian population will have grown 29 percent.

California's population mix will have shifted even more by 2030, when Hispanics will be the largest demographic group, comprising 43 percent of the state's population.

B. Baby Boom and Baby Bounce

Nearly one-third of the state's population is between 35 and 55 years of age. In 20 years, this group, which encompasses the Baby Boom generation, will be active seniors 55 to 75 years old. That is twice the size of the current 55-75 population. With life expectancy and good health increasing, researchers predict tomorrow's seniors will be more active, and will stay active as senior citizens for a longer period of life than previous generations.

At the other end of the spectrum are the 27 percent of Californians under 18 years of age. According to the California Department of Finance, while the nation's birth rates were flat during the 1980's, the birth rates in California rose sharply.

C. Income Inequality

As California's population increases, the number of people at the lower end of the income scale is increasing at a disproportionately higher rate. Recreation becomes a crucial quality of life issue, and people with lower income rely more heavily on public recreational facilities. Studies have shown that those with higher incomes have common interests: nature, saving time, willing to pay to avoid waiting, and interpretation, adding value to an outdoor recreation experience. Most want free time in large chunks to provide a psychological release from work.

Very little is known about the needs of those with low income. Most often surveys do not adequately reflect their values and opinions due to survey techniques that are not appropriate or relevant enough to solicit meaningful responses. It is suspected that outdoor recreation needs of low-income people are different, mostly due to the lack of discretionary income, time and transportation options for outdoor recreation. Access to recreation opportunities is a big issue with the poor and much of their leisure revolves around TV and activities close to home. Children learn their leisure patterns from parents, friends and school. One survey found lower participation in outdoor recreation activities based on income levels, education levels, and length of time in the U.S. Barriers to participation included lack of finances, lack of transportation, lack of free time, and lack of information about recreation opportunities.

D. Shifting Interests and Preferences

As the stress of jobs, traffic, and urban noise increases, so does the need to escape. Traditionally, people have 'escaped to parks,' and more so in difficult economic times when affordable recreation and vacations are a priority.

The use of California's park and recreation areas is heavy and continues to increase. With the softening of the national economy, rising amount of home foreclosures and the volatile nature of current gasoline prices, Californians are choosing to vacation closer to home, now called a 'staycation,' traveling more within the state, visiting in-state destinations such as state and national parks.

E. Heightened Importance of Outdoors for Recreation

It is no secret that Californians love the outdoors. In the study on Public Opinions and Attitudes on Outdoor Recreation in California 2007, 98 percent of the respondents indicated that viewing the scenic beauty is an important part of the enjoyment of their most favorite activities. In addition, 93 percent of the respondents said that feeling in harmony with nature was also important to their enjoyment of the outdoors. More than 87 percent of the respondents agreed that recreation programs help improve people's health. A majority, 78.1% of respondents agreed that recreation programs help reduce crime and juvenile delinquency and 74.9% agreed that recreation and park agencies create jobs and help the economy.

F. High Demand for Traditional, Outdoor Recreation

Californians spent approximately 2.15 billion days participating in outdoor recreation activities during 2007. Traditional recreation remains popular, and as more Californians take advantage of state, local and federal parks, the demand for recreation facilities will only increase.

Generally, Californians tend to participate in activities that are less expensive, require less equipment, and need fewer technical skills. The Public Opinions and Attitudes Survey 2007 discovered that Californians' top 15 activities (by participation) were:

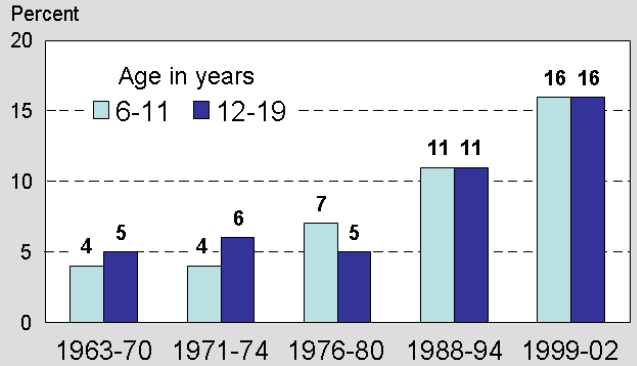
1.	Walking for fitness or pleasure	74.2%
2.	Driving for pleasure, sightseeing, driving through natural scenery	59.8%
3.	Beach activities	59.2%
4.	Swimming in a pool	50.9%
5.	Day hiking on trails	46.9%
6.	Wildlife viewing, bird watching, viewing natural scenery	45.9%
7.	Jogging and running for exercise	39.8%
8.	Bicycling on paved surfaces	36.3%
9.	Outdoor photography	33.3%
10.	Using open turf areas	33.3%
11.	Using play equipment, play structures, tot-lots	32.8%
12.	Organized team sports such as soccer, football, baseball, softball, basketball	25.6%
13.	Fishing – freshwater	21.4%
14.	Bicycling on unpaved surfaces and trails	15.9%
15.	Surfing or boogie boarding, windsurfing	14.1%

G. Health Concerns

1. Obesity rates in children and adults

Results from the 1999-2002 National Health and Nutrition Examination Survey (NHANES), using measured heights and weights, indicate that an estimated 16 percent of children and adolescents ages 6-19 years are overweight. As shown in Figure 1, this represents a 45 percent increase from the overweight estimates of 11 percent obtained from NHANES III (1988-94).

Figure 1. Prevalence of overweight among children and adolescents ages 6-19 years



NOTE: Excludes pregnant women starting with 1971-74. Pregnancy status not available for 1963-65 and 1966-70. Data for 1963-65 are for children 6-11 years of age; data for 1966-70 are for adolescents 12-17 years of age, not 12-19 years.
SOURCE: CDC/NCHS, NHES and NHANES

The prevalence of obesity continues to be a health concern for adults, children and adolescents in the United States. Data from the most recent

NHANES survey shows that among adult men the prevalence of obesity was 31.1% in 2003—2004, and 33.3% in 2005—2006, a small but not statistically significant change. Among adult women, the prevalence of obesity in 2003—2004 was 33.2%, and in 2005—2006 was 35.3%, again a small but not statistically significant change.

Obesity increases the risk for serious health conditions like type 2 diabetes, high blood pressure, and high cholesterol — all once considered exclusively adult diseases. Obese kids may also be prone to low self-esteem that stems from being teased, bullied, or rejected by peers. Kids who are unhappy with their weight may be more likely than average-weight kids to develop unhealthy dieting habits and eating disorders, such as anorexia nervosa and bulimia, and they may be more prone to depression, as well as substance abuse.

Parks and Recreation systems throughout the country make a vital contribution to this fight against obesity. State and local parks, recreation facilities, and the recreation programs available to the public are true health promoters and the professionals who run the programs are effective health educators influencing concrete changes in the health of local communities.

2. Children and Nature

Children's lives have moved indoors and inside their handheld devices: essentially screen spaces have replaced green places. Access to and use of computers, the Internet and hand held devices increased dramatically in the past decade. Studies conducted in association with the Kaiser Family Foundation determined that:

- Between 1999 and 2005:
  - The number of 8 to 18 years olds with access to a home computer increased by 13%, to a total of 86%;
  - Internet access for 8 to 18 years olds increased by 27%, a total of 74% of children are now "on-line;"
  - The number of 8 to 18 year olds who spend more than an hour online each day increased by 17% for a total of 22%.
- Between 1987 and 2003, the average person spent 327 more hours, which is 13 and a half additional days, with entertainment media.
- Children between the ages of six months and six years spend an average of 1.5 hours a day with electronic media.
- Children between the ages of 8 and 18 years spend an average of nearly 6.5 hours a day with electronic media.
- Nearly one third of children from six months to six years of age live in households where the TV is on all or most of the time.

A growing body of research confirms that spending time in nature benefits everyone, particularly children. Studies across the United States have found that

children who directly experience the natural world are healthier in every major way — intellectually, emotionally, socially, spiritually and physically.

III. Physical Activity Rates from the Public Opinions and Attitudes Survey
Californians were asked to indicate their level of physical activity in the past month. In general, the majority (77 percent) had been physically active. Eighty-seven percent reported participating in moderate activity for at least 10 minutes at a time and 52 percent reported participating in vigorous physical activity. Among those reporting moderate levels of activity, the highest percentage participated three times per week (21 percent) and most commonly spent an average of 72 minutes in the activity. Likewise, the highest percentage of those reporting vigorous levels of activity also reported participating three times per week and spent an average of 74 minutes in the activity. According to the National Center for Health Statistics (2007), approximately 31 percent of adults engage in regular physical activity during their leisure time. Results of the current research suggest Californians meet (and exceed) the national average.

When specifically asked about their levels of physical activity in parks, the majority of Californians reported participating in either light to moderate (77 percent) levels of activity during park visits. In fact, only 8.9 percent said they mostly sat while at parks.

During their time at parks, nearly 26 percent of Californians reported spending 31 to 60 minutes being physically active whereas the highest percentage (29.6 percent) spent 30 minutes or less. However, 22 percent said they spent more than 2 hours being physically active in parks. Parks clearly play an important role in encouraging physical activity among Californians.

H. Other Preferences, Favorites, Shifts, and Interests

1. Nature Study, including Wildlife Viewing
One of the activities that have shifted dramatically in the past decade is wildlife viewing, bird watching and viewing natural scenery. Between 1987 and 2002, it was one of the few activities that had steadily increased in popularity. According to the 2007 Public Opinions and Attitudes Survey on Outdoor Recreation, participation in nature study has dropped by almost 30% since 2002. Compared to the 2002 survey, fewer Californians participated in virtually all the recreation activities included in the survey. Even though activity participation percentages may drop, ongoing population growth can continue to hold steady or increase the real number of Californians participating in these activities.

2. Adventure and high-risk activities
There is a continuing interest in a broad range of adventure activities such as mountain biking, scuba diving, kite surfing, and wilderness backpacking. Included in this group are activities that are perceived to be high-risk, including rock climbing, bungee jumping, hang gliding, zip-lining and using sky bridges.

Research suggests that this demand is from a variety of age groups including the Baby Boom generation, which continues to hike, mountain bike, kayak, and engage in other physically active, resource-based recreation.

3. High-tech recreation

One of the outdoor recreation activities with a high-tech focus is geocaching. This activity is best described as a modern treasure hunt where participants try to find a hidden cache (treasure) using a map and a geographic positioning system (GPS) receiver. Since the first geocache was hidden in 2001 the amount of geocaches has reached over 700,000 globally by the end of 2008. To address the high-tech recreation trend, California State Parks has also added WiFi access to several State Park units. Many other technical advances are improving the equipment used for alpine and Nordic skiing, snow shoeing, kayaking, skate boarding, and mountain biking.

4. Some traditional activities in decline

Not all outdoor recreation activities are increasing in popularity. Hunting and fishing, for example, continue to decline. According to the U.S. Fish and Wildlife Service, interest in hunting and fishing among young people has been in decline since the early 1990s. According to a comparison between the 2002 and 2007 Public Opinions and Attitudes Survey on Outdoor Recreation, participation rates among adults dropped from 34 percent to 21.4 percent. Hunting has similarly declined, with adult participation dropping from 9 to 3.8 percent in the last five years.

Millions of American golfers have left the sport in recent years. The total number of U.S. golfers has decreased from about 30 million to about 26 million since 2000. A study by the United States Tennis Association that also determined that the popularity of tennis has declined due in part to the amount of time spent with electronic games. Baby Boomers, at an early age, often grew up participating with their families in many of these activities, but Generation X and Generation Y children grew up with computers and video games.

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Public Opinions and Attitudes

Introduction

The survey of Public Opinions and Attitudes on Outdoor Recreation in California is a key component of the California Outdoor Recreation Planning Program, evaluating the demand for outdoor recreation resources and facilities in the state. The survey focuses on Californians' participation in and demand for a variety of outdoor recreation activities and their opinions, attitudes and values relating to outdoor recreation experiences. The collection of this data provides park and recreation professionals an insight into the evolving recreation needs of Californians.

The survey was first conducted in 1987 and has been repeated at five-year intervals. The methodology and most of the current survey questions are consistent with the earlier data collection efforts. This allows any significant recreation trends to be addressed through long-range planning efforts. The survey also quantifies unmet or latent demand, which are those activities that the survey respondent would do more frequently if given the opportunity. Parks and recreation providers will be better able to accommodate California's future recreation needs by focusing their efforts on these unmet demands.

Brief Description of the Survey Techniques

This 2007 survey used the same techniques as in years past in order to collect comparable data. The telephone survey participants were chosen at random and represent a statistically significant sample of all California adults. Out of the 2,780 respondents who completed the adult telephone survey, 1,222 of them also completed a longer mail-back survey and 397 of their 12-17 year old children completed the youth mail-back survey. It is important to note that while the adult survey is statistically representative of California's population, the youth survey is not. As in prior years, incentives were provided to encourage completion of the mail-back surveys. The telephone survey provided a sample that represents the characteristics, behaviors and opinions of California adults, age 18 and over. The telephone survey sample is also statistically representative of five major California regions - the Central Valley, San Francisco Bay area, Los Angeles, Other Southern California and Northern California - based on the populations residing in those regions during the 2000 census.

The survey also provided statistically valid statewide samples of several other demographic categories measured in the 2000 census, including age, ethnicity, level of education, marital status, income and gender.

Methodology Changes Since the 2002 Survey

The telephone, adult mail-back and the youth-mail back surveys were significantly revised in an effort to increase the response rates as compared to the 2002 survey. Most of the questions from prior surveys were asked again in 2007 to provide important trend data, several new questions were added. A series of questions about the levels and frequency of physical activity were added to help collect data on the relationship between health and outdoor recreation among Californians. Another multi-part question asked respondents their opinions on potential management actions on addressing and adapting to climate change and global warming.

A pre-survey technique not used in prior years convened a series of youth focus groups to improve and refine the youth mail-back survey. Due to the relatively small numbers of completed prior year surveys, findings from the focus groups were used to revise the survey and increased the number of completed surveys.

The survey instruments will appear in the appendix of the stand-alone Public Opinions and Attitudes survey report to be published in spring 2009.

Summary of the Preliminary Survey Results

This 2007 survey successfully met its goals for numbers of completed surveys and statistically representative samples of various census categories. Overviews of the three survey instruments are provided below, along with detailed descriptions of the questions and preliminary analysis of the findings.

Adult Telephone Survey Results

The telephone survey gathered 2,780 survey responses to 37 questions, including eight standard demographic questions on the respondents' education, marital status, household makeup, income, ethnicity, age, residence address and zip code. Several of the questions measured park visit frequency, two solicited respondent's satisfaction with park facilities, respondent's opinions on their current condition and the travel time from the respondent's home to their most frequent recreation destination. Two multi-part questions asked respondents about the facilities or amenities they used and what activities they did during their last park visit.

Nine questions asked respondents about their level, frequency and duration of physical activity, both during their park visit and anytime when they were not working during a typical week. Three questions asked whom the respondent usually visited a park with and how many were adults and how many were children. A multi-part question asked about children's participation in activities at the park.

Frequency of Park Visits Within the Last Year
California's park and recreation areas are well used. Eighty-eight percent of the telephone survey respondents had visited a park within the last six months. On average, respondents visited parks approximately 6 days in their most recent month surveyed and spent 8.5 hours during their last visit. The majority of these respondents reported visiting parks one or more times per week (35.5%) or once or twice a month (26.2%). Of the respondents who reported visiting a park more than one year ago, 25% said their last visit was one to 2 years ago and nearly 30% said their last park visit was five or more years ago.

When Respondents Last Visited a Park		
Characteristic	**%**	**n**
Visited within the last month	73.7	2049
Visited within the last 6 months	14.3	397
Visited within the last 12 months	5.4	150
Visited more than 1 year ago	6.6	184
* Adult Telephone Survey, n=number of survey respondents		

When asked about the amount of time they currently spend in outdoor recreation activities compared to five years ago, 37% of respondents reported spending more time, 32% reported about the same amount of time, and 31% reported spending less time participating in outdoor recreation activities.

Satisfaction with Park Facilities

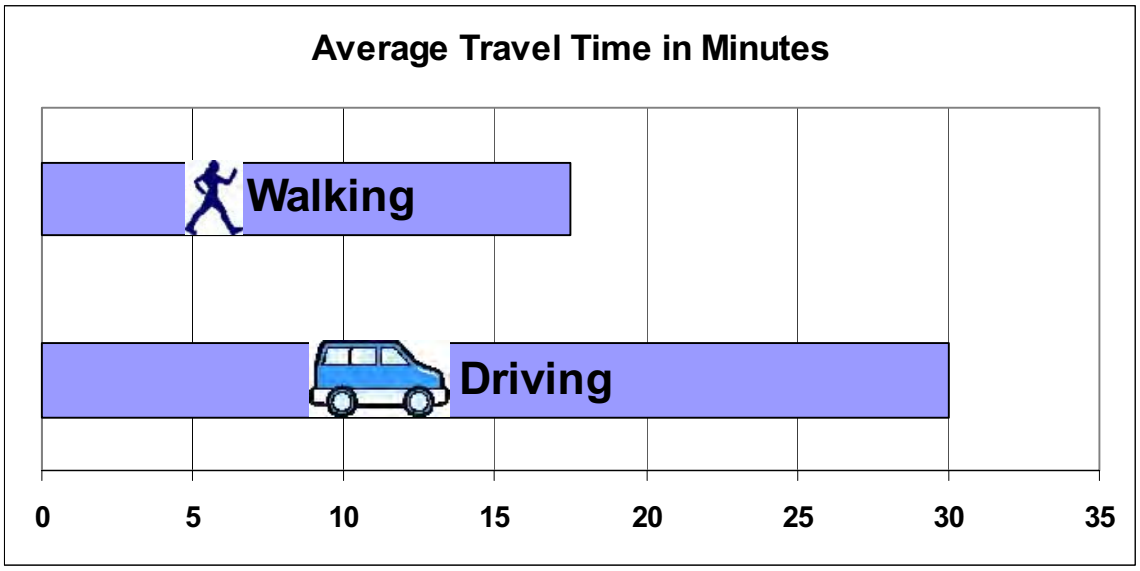
Public support for park and recreation programs, areas and facilities is necessary to the protection, improvement and development of existing and new facilities. People are likely to advocate for areas and facilities that meet their needs. Overall, the majority of respondents were satisfied with the park facilities and services currently available to them; in fact, less than 3% reported any dissatisfaction.

Condition of Park Facilities

California's population growth can make it increasingly difficult for park and recreation providers to keep up with the demand. However, among respondents who have lived in California for at least 5 years, 34% believe the overall condition of public outdoor recreation areas and facilities have improved over the last five years and 38.4% thought their condition had remained the same.

Travel Times

All Californians should have access to park and recreation facilities within walking distance of where they live and work. On average, respondents spent 30 minutes driving and 17 minutes walking to the place they most often went. However 28.4% spent more than 20 minutes and of those, 9.2% spent more than 60 minutes driving to the place they most often went for recreation. This reflects the need for access to facilities closer to where people work and live. Other modes of transportation that respondents used to get to parks included bicycles, public transportation, wheelchairs and skateboards.



Time Spent Physically Active in Parks and During Non-work Hours

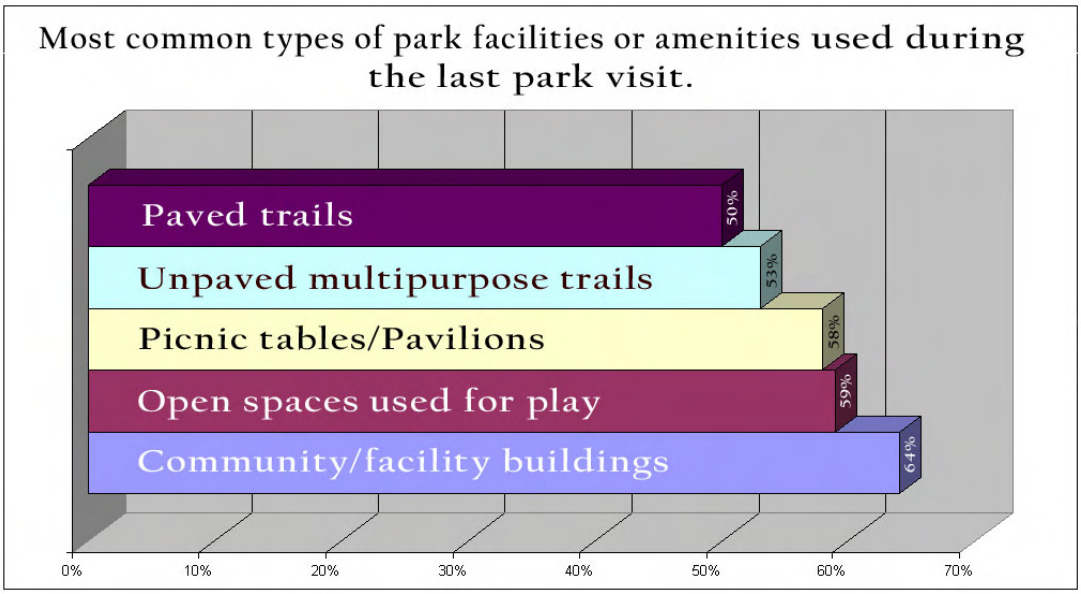
Forty-eight percent of the respondents reported spending over 31 minutes being physically active in parks, demonstrating the importance of recreation areas in promoting physical activity. Of these, 22% said they spent more than 2 hours

being physically active in parks. The majority of respondents reported participating in light (36%) to moderate (41%) levels of activity when visiting a park. In fact, only 9% said they mostly sat while at parks. Light physical activity includes standing and walking or strolling at a slow pace.

In general, the majority of respondents (77%) participated in other physical activities or exercises during the past month. Eighty-seven percent reported participating in moderate activity for at least 10 minutes at a time and 52% reported participating in vigorous physical activity. The majority of respondents who participated in moderate physical activity reported doing so three times per week (21%) and most commonly spent an average of 72 minutes in the activity. Moderate physical activities include playing tennis and walking at a moderate pace. The majority of respondents who participated in vigorous physical activity also reported doing so three times per week (25%) and most commonly spent an average of 74 minutes in the activity. Vigorous physical activities include jogging or playing soccer or basketball.

Facility Types Used and Activity Types

In order to adequately provide for current and future users, park and recreation professionals must understand which types of facilities are used the most and which are in the greatest demand. The most commonly used facility types included community/facility buildings, open spaces to play, picnic tables/pavilions, unpaved multipurpose trails and paved trails. Fewer than 20% of respondents reported using amusement (e.g., park train ride) areas (19%), tennis or basketball courts (19%), dog park areas (16%), botanical gardens (15%) or skate parks (6%).



The most common activities adult respondents participated in were walking (49%), playing (30% - e.g., Frisbee, playing catch with a ball, kite flying, playing with children), sedentary activities (24%) and eating/picnicking (24%).

Respondents participated the least in fishing (5%), active water sports (4%), tennis (2%), martial arts/tai chi/yoga (<1%) and in-line skating (<1%).

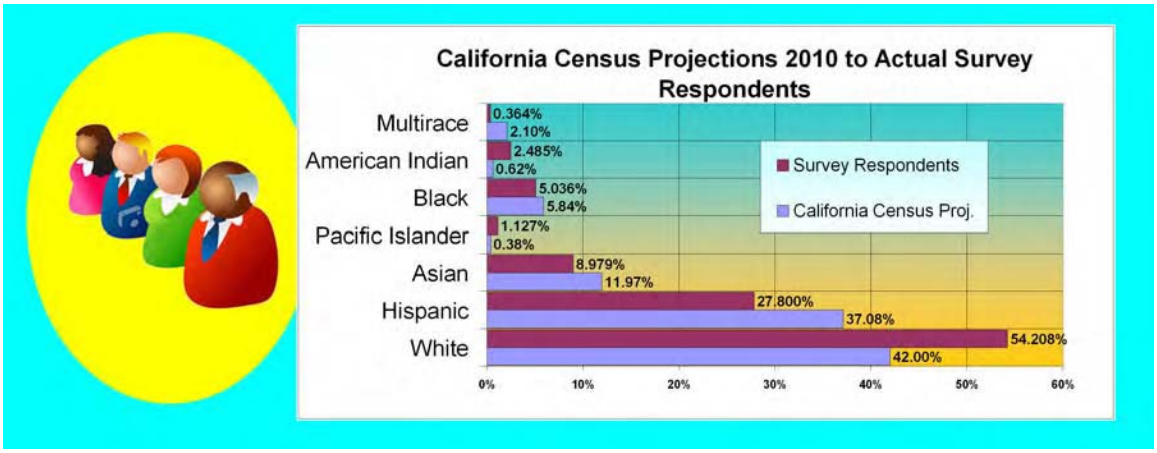
Adults reported that their park companions under the age of 18 most frequently participated in playing (e.g., Frisbee, playing catch, kite flying, playing with children) (73%) followed by sports (e.g., baseball, soccer, football, basketball) (37%), walking (22%) and picnicking/eating (21%).

Visitor Group Characteristics

To plan and manage appropriate facilities, it is important to understand whom Californians commonly recreate with. Respondents primarily went to parks with family (56%) or both family and friends (31%). Fewer than 15% of respondents went alone, with a pet or an organized group. Other companions mentioned by respondents were a care provider, co-workers, daycare children and a personal trainer. While the number of companions who accompanied respondents to parks varied, respondents most commonly went to parks with two other companions over the age of 18 and no one under the age of 18.

Respondent Demographics

Fifty-one percent of the survey respondents were male and 49% were female. The majority were 25 to 44 years old (44%), of White ethnicity (59%), married (53%) and living as a couple with one or more children under the age of 18 at home. Most respondents had earned a Bachelor's degree (26%), were employed full-time (45%) and earned between $50,000 and $74,999. The majority of respondents lived in Los Angeles (27%), Southern California (25%) and the San Francisco Bay area (21%). On average, they had lived in California for 31 years and in their current community for 16 years. The survey had quotas of respondents from five geographic areas based on the percentage of the state's population living in those areas during the 2000 census. The chart below also compares the survey respondents' ethnicity to the state's projected ethnic makeup for 2010.



Adult Mail-back Survey Results

Respondents who agreed to complete the adult mail-back survey were asked eleven multi-part questions. The general topics included facility preferences, activity participation and demand, willingness to pay for favored activities and their preferred types of outdoor recreation areas.

The survey asked respondents why they engaged in their favorite outdoor recreation activity and asked for their opinions on several recreation-related statements and the possible privatization of recreation-related activities and services. They were asked what kind of emphasis governmental recreation providers should place on various recreation management activities. A 26-part question also asked which if any of several potential barriers discouraged them from being physically active in a park. A final question asked respondents' opinions on various management actions to address climate change.

More detailed descriptions of the questions and preliminary findings from the 1,222 completed adult mail-back surveys are included below.

Providing Park Facilities and Services
This question asked respondents how important they thought it was to provide each of 23 park and recreation facilities and services in California. The choices ranged from community swimming pools to off-highway areas.
Respondents rated the following seven facilities and services as the most important:

Importance of California Park and Recreation Facilities and Services.

Facility/Service[1]	Importance		
	Mean	**Mode**	**N[2]**
Play activity areas for tots and young children	4.2	5	1222
Wilderness type areas where no vehicles or development are allowed	4.1	5	1221
Areas and facilities for environmental and outdoor education programs	4.1	5	1221
Multi-use turf areas for field sports such as softball, baseball, soccer, and/or football	4.1	5	1220
Picnic sites for large groups	4	4	1221
Trails for multiple, non-motorized activities such as hiking, mountain biking or horseback riding	4	5	1220
Hard surface trails for biking, jogging, and fitness walking	4	5	1221

[1] Rated on a scale from 1 = not at all important to 5 = very important. [2]N is the # of responses.

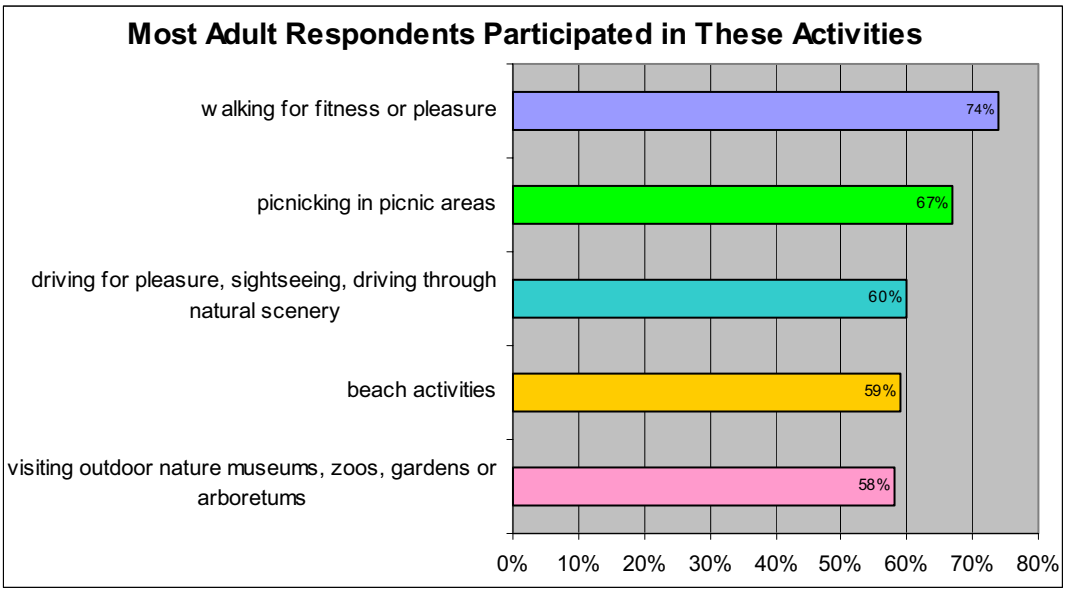
Facilities rated as the least important were:

Importance of California Park and Recreation Facilities and Services.			
	Importance		
Facility/Service[1]	Mean	Mode	N[2]
Areas for the legal use of off-highway vehicles such as motorcycles, dune buggies, 4-wheel drive vehicles, or all-terrain vehicles	2.9	3	1220
Public hunting areas especially managed for waterfowl like ducks and geese	2.5	1	1219

[1] Rated on a scale from 1 = not at all important to 5 = very important. [2] N is the # of responses.

Activity Participation and Demand Rates

Californians enjoy a diverse range of recreation opportunities. The most popular activity among adult respondents is walking for fitness or pleasure. On average, adult respondents spent more days during the past 12 months walking for fitness or pleasure (73 days) and jogging or running for exercise (61 days) than any other activity.



When asked which recreation activities they would like to participate in more often, the majority of adult respondents chose: 1) walking for fitness or pleasure (46%), 2) camping in developed sites with facilities such as toilets and tables (45%), 3) bicycling on paved surfaces (45%) and 4) day hiking on trails (44%).

When asked how much they would be willing to pay to participate in their favorite activity, second favorite activity, and third favorite activity, adult responses varied greatly. Adults said they would be willing to pay between $0 (using play equipment/play structures/tot lots) and $16-20 (sail boating) for their favorite activity; between $0 (outdoor photography) and $5-10 (target shooting/including

pistol and skeet) for their second favorite activity and between $0 (Jogging and running for exercise on trails, streets, sidewalks) and $5-10 (backpacking/motor boating) for their third favorite activity.

When asked about the importance of a variety of items to their favorite activities, adult respondents rated the following as the most important: 1) to have fun, 2) to be with family and friends, 3) to relax and 4) to view the scenic beauty. Adult respondents rated "meeting new people" as the least important factor for participating in their favorite activity.

Outdoor Recreation Area Visitation

Respondents were then asked for the number of days they had visited four types of outdoor recreation areas within the last year. The areas included: 1) highly developed parks and recreation areas, 2) developed nature-oriented parks and recreation areas, 3) historical or cultural buildings, sites, or areas and 4) natural and undeveloped areas. The majority of adult respondents reported visiting each of these areas 1 to 5 days during the past 12 months.

Days Respondents Visited Recreation Areas During the Past 12 Months.						
Outdoor Recreation Area Type	**0**	**1-5**	**6-10**	**11-20**	**21-50**	**>50**
	%	**%**	**%**	**%**	**%**	**%**
Highly developed parks and recreation areas	9.9	31.8	14.0	13.3	14.9	16.1
Developed nature-oriented parks and recreation areas	12.3	41.5	15.0	11.5	9.0	10.0
Historical or cultural buildings, sites, or areas	22.2	47.9	13.3	6.0	2.6	8.0
Natural and undeveloped areas	21.9	41.2	11.4	9.4	6.2	9.9
* Adult Mail-Back Survey						

Parks and Recreation Opinion Statements

Respondents were asked for their level of agreement with various statements concerning outdoor recreation lands and facilities in California, ranging from statements of need for recreational areas to opinions about the impact that recreation and park agencies have on creating jobs and helping the economy.

The majority agreed with all statements except for two: 1) recreation areas for camping or overnight use are needed and 2) private businesses should provide some of the outdoor recreation services at government owned facilities. The majority said they neither disagreed nor agreed with these statements. Statements that received the highest levels of agreement were: 1) recreation programs help improve people's health, 2) fees collected at each park, wildlife

and recreation area should be spent on that area and 3) rules and regulations in parks and outdoor recreation areas should be enforced.

Privatization Preferences
This question solicited respondents' opinions on privatizing nine types of recreational work and services currently performed by government recreation providers. The most support was reported for: 1) rental of recreational equipment such as boats, camping equipment, 2) food services such as the sale of ready-to-eat food and beverages and 3) sponsorship of contests, races, and special events.

Governmental Emphasis on Park and Recreation Facilities, Programs, Services
The majority of adult mail-back survey respondents said that the most governmental emphasis should be placed on: 1) cleaning up pollution of the ocean, lakes, rivers and streams in park and recreation areas, 2) maintaining or caring for park and recreation areas, 3) protecting natural resources, 4) protecting historic resources and 5) remodeling and improving existing facilities. Providing more organized activities/special events and building new facilities were perceived as needing about the same emphasis they were currently receiving.

The Amount of Emphasis State and Federal Government Outdoor Recreation Agencies in California Should Place on Aspects of Outdoor Recreation.

Idea	Less Emphasis		About the Same Emphasis		More Emphasis		Don't Know/ Unsure	
	%	n	%	n	%	n	%	n
Cleaning up pollution of the ocean, lakes, rivers and streams in park and recreation areas	2.1	26	14.1	171	77.8	945	6.0	73
Maintaining or caring for park and recreation areas	1.5	18	21.8	265	71.9	874	4.9	59
Protecting natural resources	2.5	31	20.5	250	71.5	870	5.4	66
Protecting historic resources	2.9	35	25.2	307	66.6	810	5.3	65
Remodeling and improving existing facilities	2.5	31	25.1	305	65.2	793	7.2	87
Buying additional parkland and open space for recreation purposes	6.4	78	33.0	401	50.2	610	10.4	127
Providing educational programs	5.3	64	38.5	468	49.3	599	6.9	84
Providing more organized activities and special events	10.5	127	44.1	536	36.0	438	9.4	114
Building new facilities	10.6	128	45.8	556	34.0	412	9.6	117

* Adult Mail-Back Survey, n=number of respondents

Physical Activity and Recreation Constraints

Gang activity, alcohol and drug use in parks, and poorly maintained parks were perceived as the most limiting factors to respondents' physical activity. The least limiting factors were handicap accessibility and the availability of commercial visitor services. This new question asked about the potential barriers to respondents being more physically active in a park. The 26 choices included limited park hours, cost of the activity and a lack of public transportation to the park.

Climate Change Opinion Statements

Adult respondents were in agreement with all of the following management actions except "do nothing," where 54% strongly agreed that this was not a solution:

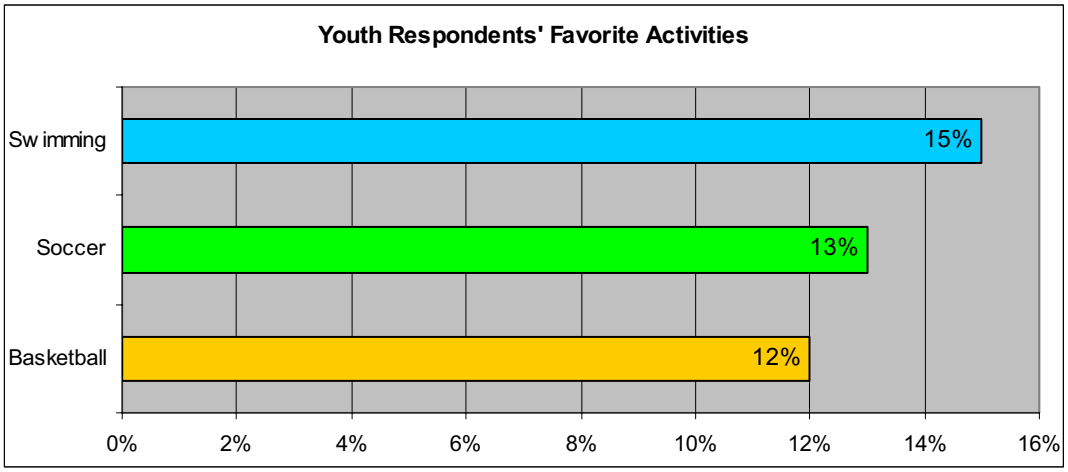
1) reduce climate-changing gases
2) anticipate the effects of climate change
3) educate Californians
4) do nothing.

Youth Mail-Back Survey Results

Adult respondents who completed the telephone survey were also asked if they had any children between the ages of 12-17 living at home. The adult was asked for their permission to send a youth activities survey to one of the children. The mail-back youth survey generated 397 completed responses to its 10 questions. The questions all dealt with outdoor recreation activity preferences, participation and demand and asked for the reasons why youth participated in those activities and what may have prevented their participation in others. Due to the limited number of surveys returned, the results are not representative of California's youth. However, the data collected still provide insight into youth activity patterns and preferences and is therefore included in this summary.

Favorite outdoor activity

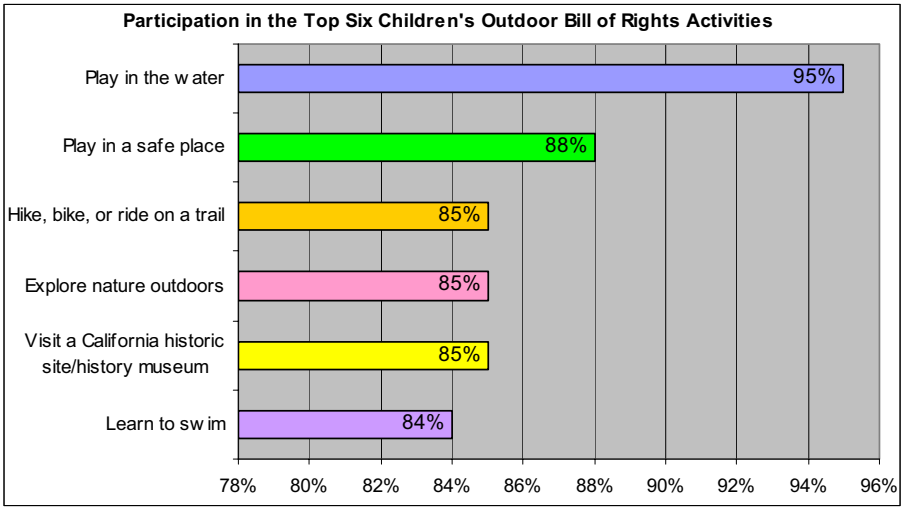
The favorite activity question was open-ended and therefore yielded diverse responses. The most common outdoor activity reported was swimming (15%), followed by soccer (13%) and basketball (12%). When asked why these activities were their favorites, the majority of youth respondents said it was for fun and enjoyment (83.9%) and to do something with their friends and family (68%). Only 50% said their activity was their favorite because they could be outside.



The majority of youth respondents participated in their favorite activity with friends (86%) and immediate family members (57%). It is interesting to note that approximately 35% participated in their favorite activity by themselves. Thirty-two percent of youth respondents reported equal participation in their favorite activity in other areas or parks both in and outside of their neighborhood, but within their town or city. Less than 12% of youth participated in their favorite outdoor activity in their own yard. Other open-ended responses were reported with the most common location being school.

Activity participation and demand rates

When responding to a question about the California Children's Outdoor Bill of Rights activities, at least 80% had either played in the water, played in a safe place, hiked/biked/rode on a trail, explored nature outdoors, visited a California historic site/museum and/or learned to swim. The lowest participation was reported for catching a fish. However, nearly 58% had reported doing this, which still reflected the majority of respondents.



When asked which activities they participated in during the past 12 months, at least 75% reported walking on streets/sidewalks/paths/trails in their community, swimming in a pool, jogging or running and playing in a park. Fewer than 10% of youth reported participating in hunting, snowmobiling and cross-country skiing.

Among the activities they would like to participate in more, the majority chose horseback riding (47%), sledding/ice-skating/snow play (45%), snowboarding (45%), swimming in a pool (45%) and jet skis or wave runners (45%).

When youth respondents were asked to select actions that could help them participate in outdoor activities more often, the majority said that: 1) providing more recreation areas closer to their home (65%), 2) providing areas for activities that are just for kids their age (56%) and 3) providing equipment (56%) would increase their participation. Providing safer ways to get to recreation areas close to their home was only perceived as helpful by 37% of youth respondents.

When asked about constraints to their activity participation, 41% of the youth respondents said they were too busy to participate in outdoor activities and 49.6% said they were sometimes too busy. In addition, 47% would sometimes rather be on the internet and 47% indicated it is sometimes too hot or cold outside. One in four youth (25%) do not have a family member to do outdoor activities with.

Demographics
Youth respondents were approximately 53% male and 47% female. The ages of the respondents were relatively well distributed with approximately 17% in each age category of 13, 14, 15, and 16. The majority of youth respondents were of White ethnicity (39%). However, Asians (25%) and Hispanics (20%) also represented a substantial portion of respondents. In addition, nearly 31% of youth respondents resided in Los Angeles County.

Overall Recommendations

Although Californians are regularly visiting parks, they also feel they need more maintenance and care. This focus should include law enforcement efforts, pollution control, and overall maintenance for facilities.

Because Californians visit a diverse range of types of parks, from natural to cultural and developed to remote or wildness focused, this diversity should be maintained.

Locale is important. Recreation providers should continue to evaluate the accessibility of local parks for all citizens in California. Having local parks will continue to encourage increased use by local community members.

A large majority of Californians are physically active – and therefore, parks and recreation facilities and areas/resources should continue to provide increased access and promote safe and accessible venues for physical activity.

Although Californians are generally pleased with existing facilities, park and recreation providers should continually seek ways to provide a safe environment as well as maintain existing facilities. Additionally, continuing to provide access to trails or safe walking routes, hiking activities will help meet the demands of outdoor recreation participants in California.

Californians are concerned about the health of the environment, with more than two-thirds suggesting that pollution, maintenance of existing facilities, and preservation of cultural and historic heritage should become areas of primary focus by recreation and park providers.

Californians believe that private businesses should continue to provide rental equipment, food services, and sponsorship of events on publicly managed facilities and resources. Approval of private services is increasing, however most Californians believe the job of law enforcement and management of areas should remain with the public park and recreation agencies.

Californians think park and recreation agencies should address climate change by education, reducing greenhouse gases, and management actions to mitigate the impacts. They agree that doing nothing is not an option. Therefore, agencies

providing park resources and recreation should play a proactive role in education and mitigating the impacts of global climate change.

Youth generally participate in activities in and around their neighborhoods or in their community, therefore providing safe and accessible local recreation activities for all youth should remain a high priority.

Youth continue to enjoy access to safe venues for walking, bicycling, etc. including paths, trails, sidewalks, access to swimming pools, and playing in a park. Access to safe and local venues for these activities should remain a high priority for continued youth participation.

Youth identified an increased desire to have greater access to snow play activities (sledding, ice skating, snow boarding), swimming in a pool, and motorized water sports. Opportunities for winter activities for youth from both urban and rural environments should be maintained.

It appears youth are participating in 6 of the 10 activities identified by the COBR. Programs should continue to focus on all 10 activities and continue to pay special attention to wildlife viewing (catch or view fish), celebrating their heritage, camping overnight, and playing on a team.

Because youth appear to be “too busy” often times to participate in outdoor activities, park and recreation professionals should continue to provide accessible activities close to home and in safe environments, and providing the equipment necessary to participate.

Full-Length Public Opinions and Attitudes Survey Report

This chapter presents a preliminary analysis of the data available while this Plan was prepared. A more detailed analysis and interpretation of the survey findings will be published in the survey report in spring 2009. This final report will include comparisons with prior survey data, an analysis of regional responses, and concluding recommendations for addressing the outdoor recreation needs identified in the survey.

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California's Protected Areas Database

Introduction

The evaluation of the supply of outdoor recreation lands is a fundamental requirement of the California Outdoor Recreation Plan (CORP) and an important tool for identifying outdoor recreation resources and needs statewide. In 2006, California State Parks was awarded a Land and Water Conservation Fund grant to complete a statewide inventory of public open-space and recreation lands. This project contributes significantly towards the evaluation of the statewide supply of local outdoor recreation resources.

The California Protected Areas Database (CPAD) will be used by LWCF applicants statewide to demonstrate that their project proposals meet an outdoor recreation need for protected open space and recreation lands. The CPAD illustrates the distribution of protected areas throughout the state, identifying those regions that are lacking parks, such as the Central Valley. DPR is currently developing selection criteria funded by the "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" that use the CPAD as a tool for determining if proposed grant projects duplicate existing park resources, so that priority is given to park projects proposed for underserved areas. The CPAD was introduced during the public outreach development of the Issues and Actions as a local and regional tool for implementing the Actions through identifying outdoor recreation needs and priorities.

Initially, the intent was to start with a pilot GIS database for six Sacramento Area Council of Government counties and then expand the database to include the rest of the state. During the initial research into available contractors however, it was found that a non-profit organization, GreenInfo Network, had already begun a virtually identical searchable inventory and had already successfully compiled and developed a GIS database for all of Southern California and the Bay Area. California State Parks was able to leverage its grant monies by providing GreenInfo Network with the funds necessary to finish collecting the data for the entire state. This fortuitous collaboration provided a unique opportunity for both California State Parks and the GreenInfo Network to complete a project that for the individual agency might have been cost prohibitive.

The California Protected Areas Database (CPAD) is an inventory of all land in California that is protected in fee ownership primarily for open-space use. It includes everything from small urban parks to large national parks. In total, CPAD includes 48 million acres of protected lands in over 14,000 units owned by about 750 agencies.

CPAD will be a powerful tool for park and recreation providers for assessing the supply of and demand for outdoor recreation resources. There are many

potential uses for the dataset, such as mapping and analyzing the spatial arrangement of park and recreation resources within California communities. CPAD will also be a valuable tool for the general public. Using the ParkInfo interactive map, any user can access the dataset online to locate the park and open-space recreation lands near them. This easy-to-use search engine is available through a new California State Parks Internet site at www.FindRecreation.parks.ca.gov.

CPAD is the most comprehensive and accurate inventory ever done for the state. The table below indicates the breadth and depth of the data collected.

TOTAL NUMBER OF UNITS INVENTORIED BY COUNTY					
County	**# of Units**	Madera	26	San Mateo	357
Alameda	529	Marin	299	Santa Barbara	382
Alpine	17	Mariposa	15	Santa Clara	486
Amador	10	Mendocino	39	Santa Cruz	247
Butte	102	Merced	90	Shasta	125
Calaveras	5	Modoc	24	Sierra	12
Colusa	27	Mono	46	Siskiyou	39
Contra Costa	347	Monterey	351	San Luis Obispo	168
Del Norte	17	Napa	245	Solano	214
El Dorado	39	Nevada	25	Sonoma	293
Fresno	407	Orange	855	Stanislaus	230
Glenn	17	Placer	186	Sutter	33
Humboldt	37	Plumas	27	Tehama	34
Imperial	185	Riverside	701	Trinity	14
Inyo	17	Sacramento	357	Tulare	132
Kern	207	San Benito	17	Tuolumne	22
Kings	28	San Bernardino	1,023	Ventura	651
Lake	21	San Diego	1,666	Yolo	134
Lassen	21	San Francisco	240	Yuba	135
Los Angeles	2,272	San Joaquin	152	**Total**	**14,397**

How was CPAD created?

CPAD was completed by GreenInfo Network with major financial support from California State Parks, but also with prior funding from many other agencies, organizations and private foundations, including:

Annenberg Foundation	Bay Area Open Space Council
California State Coastal Conservancy	Central Coast Open Space Council
Great Valley Center	Resources Legacy Fund Foundation
Sierra Nevada Conservancy	Southern California Open Space Council
University of California, Davis Information Center for the Environment/Great Places Program	

CPAD has been developed using a wide range of data sources, including previous databases (e.g. Public Conservation and Trust Lands), parcel data from counties, ownership data files from agencies and other research. The following processes were used to update CPAD:

- The updating process began with evaluation of a GIS layer developed in the late 1990s by the California Resources Agency, which used GNIS (Geographic Names Information System) and other data to create rough boundaries of urban parks.
- GreenInfo Network surveyed cities statewide and received responses from cities that provided either GIS data or maps that were fairly easily digitized. They researched related agencies, city web sites for the cities that did not respond and secured lists of parks and other collateral information. During this process they found that many cities had no available GIS data on their parks and often only schematic (possibly not to scale, not geo-referenced or just diagrammatic) maps on their websites.
- The data was then sifted through for each city, checking and crosschecking various data sources (road maps and atlases, etc.) to come up with the final layer. Where there was data, park boundaries were matched up with assessor's parcels, and in all cases GreenInfo used high-resolution aerial photography to determine boundary placement.
- Because the protected lands database does not track sites that are solely recreation buildings (and only public recreation lands in any case – not privately owned sites), what is shown as an urban park may not be all the recreational site locations that an individual city may show. There may also be some sites where the exact footprint of the park may not be clear since it could not always be determined if the onsite buildings were part of the park or not.
- There has also been a significant effort to align all protected lands with assessor parcel data. This was accomplished by acquiring GIS parcel data, overlaying it on aerial photographs and comparing it with our existing GIS boundaries. The GIS boundaries were then moved to match assessor parcels, even if an open space or park agency had provided GIS files that

showed a slightly different location. The standard is to use the assessor parcels as the final geometric boundaries (realizing there are still issues with assessor boundaries in a few areas).

What is CPAD and what does it contain?

The California Protected Areas Database is a GIS inventory of all protected open-space lands in the State of California. The database contains lands held in fee ownership by public agencies and non-profits - it does not contain data on private conservation and other similar public-agency easements. The lands in CPAD range from national forests to small urban parks. Federal, state, county, city, special district and non-governmental agency holdings are included and have been mapped at high levels of accuracy.

CPAD has been developed to support conservation and open-space/recreation planning and public access. It is not an inventory of all public lands. For example, city halls, water treatment plants and other government-owned facility lands are not included. At the city level, recreation facilities that do not include significant open-space have not been included (e.g. swimming pools, recreation halls, ball courts, etc., where these are not part of a park with green space).

<u>What CPAD includes:</u>

- Lands that are permanently protected for open-space purposes by public agencies or non-profit organizations.
- Fee lands only – easements are being developed in a separate database.
- Some special use lands, such as publicly owned cemeteries and golf courses.

The inventoried lands typically fall into one or more of these categories:

- Habitat Conservation – Wildlife or plant reserve protected specifically for habitat
- Recreation – Active recreation, picnicking (city parks, parks with developed areas)
- Open-space – Open land serving a broad range of purposes
- Historical/Cultural – Museums, historic sites
- Forestry – Active forest harvesting, tree growth for forestry (publicly owned only)
- Agriculture – Crop lands including developed pastures
- Ranching – Dry and grazing pasture
- Water Supply – Watersheds, waterways
- Scenic Area – If officially designated
- Flood Control – Flood plains, flood control channels

<u>What CPAD does not include:</u>

- Green areas that are parts of schools unless there is a defined agreement to allow those for public use.

- Military lands used primarily for military purposes – a separate data layer of military lands is available at CaSIL (the California Spatial Information Library).
- Conservation scores (United States Geological Survey Gap codes).
- Tribal lands of the Native American sovereign nations.

The data is collected in the series of discrete fields described in the table below:

INCLUDED DATA FIELDS	
Attribute Title	**Definition**
Holding_ID	Unique ID for each holding unit
Hold_Name	Name of the Holding (a holding is a discrete parcel of land – more than one holding may comprise a park or other such designation). Not all Holdings have names due to funding limitations and agency data.
Unit_ID	ID for each unit. Units are made up on one or more Holdings. For example, a State Park is one unit, but may consist of many holdings, some contiguous and some at a distance from each other.
Unit_Name	Name of the Unit
Agency_ID	Unique ID that identifies the agency that owns or administers the land
Agency_Nam	The name of the agency that owns or administers the land
County	County the protected land is within
Type	Type of ownership – fee, easement, mixed or transfer (transfer is a temporary status used by land trusts and others who are shifting ownership to another agency)
Agency_Typ	Federal, State, County, City, Special District, Non-Profit (mostly land trusts)
Land_Water	Identifies whether or not the land is submerged/tidal
Access	Type of access – Open Access, Restricted Access (i.e., permit required), No Access
Prim_Use	The primary use of the protected land (not available for all Holdings)
GIN_Acres	GIS calculated acreage, may not match official agency records

How will CPAD be used?

Online Search Engine - ParkInfo
CPAD is available through the ParkInfo search engine where users can locate parks and other open-space recreation opportunities anywhere in California. ParkInfo is an interactive Internet-based map that allows any user to easily search for open-space and recreation lands using the Google Maps interface. Users can search for parks by zip code, county, city, or by proximity to their home address. They can also point, click, pan and zoom on the interactive web

map. Some of the map attributes include owning-agency name, public-access status, acreage, and a link to the managing agency's webpage.

Currently, urban parks only include those sites that have a significant percentage of open space compared to structures – recreation facilities that are primarily buildings are generally not included. However, data is currently being collected to include campgrounds, major regional trails, and some urban facilities such as ball courts, recreation centers, and pools.

The ParkInfo search engine is currently available through both the California State Parks webpage at www.FindRecreation.parks.ca.gov and GreenInfo Network's www.parkinfo.org. The ParkInfo portal (as seen below) can be inserted into any webpage using very basic technology. Anyone interested in providing the ParkInfo search engine (below) on a webpage may contact GreenInfo Network.

Use of the Database

CPAD is a relational database linking information about land holdings with information about the agencies that own and operate these lands. The dataset is available as both an ESRI file geodatabase and as an ESRI shape file (Environmental Research Systems Institute - designer and developer of GIS technology). This detailed data can be used in a variety of ways, including:

- Assessing the availability of open-space and recreation lands
- Evaluating the nexus between local, state and federal recreation resources by political districts
- Analyzing statistical factors such as the number of park acres per 1,000 residents within a political subdivision
- Identifying the location of state/federal funded outdoor recreation projects (grants) by year, type, and political subdivision.
- Overlaying park and recreation areas on aerial photographs to show facilities, natural features, man-made features, adjacent land uses and other similar characteristics.
- Providing maps and reports depicting the current supply of park and recreation resources. This could be done for the entire state, or by city, county, special district, Assembly/Senate district or region.
- Comparing park locations with demographic data to map and identify underserved neighborhoods and communities.
- Identifying potential linkages or natural connections between resource lands held in public ownership.
- Helping guide the acquisition of new parkland and recreation areas.

The inventory database search engine will be housed by the state's CERES (California Environmental Resources Evaluation System) program at CaSIL (California Spatial Information Library) and is available (for non-commercial use only) by download at http://casil.ucdavis.edu/frs/?group_id=115.

What is next for CPAD?

The database has been designed to accommodate later additional attributes, such as campsites, recreation facilities, and etc. The Planning Division is currently working with GreenInfo Network on these additional efforts:

- A comprehensive inventory of public campgrounds throughout the State
- A collection of spatial data on the 23 major regional trails highlighted in the California Recreational Trails Plan
- A sample inventory of urban recreation facilities, like pools, ball courts, and recreation centers.

It is hoped that this additional information will also become available to the public through the online public search engine.

As with any large data gathering program, there are likely to be lands that have been missed, wrongly included or miss-attributed. These errors are expected to be corrected over time.

GreenInfo Network will continue maintenance of the CPAD to the extent the financial resources are available. Discussions about the best strategy for updating CPAD are in process and any interest other state entities may have for supporting this major effort is welcome. If you are interested in the current status of CPAD, you want more technical information, or you would like to be involved in supporting updates, visit www.calands.org.

Wetlands

Beginning in 1988, Section 303 of the Emergency Wetlands Resources Act requires each Statewide Comprehensive Outdoor Recreation Plan (SCORP) to specially address wetlands as important outdoor recreation resources. Section 303 also amends the Land and Water Conservation Fund (LWCF), authorizing wetlands as suitable replacements for LWCF lands being converted to other uses. This element includes the wetland conservation plans and processes which guide the identification of wetland conservation priorities and protection actions within California.

The LWCF Grants Manual requires that this wetlands component provide evidence of consultation with the State agency responsible for fish and wildlife resources – in this case the California Department of Fish and Game (DFG). Planning Staff solicited comments and suggestions on this Wetlands component from the chief of DFG's Comprehensive Wetland Habitat Program and received feedback that the list of wetland planning efforts below was comprehensive.

The LWCF Manual also stipulates that the wetlands component contain a listing of those wetlands types which should receive priority for acquisition, however California does not maintain a list of specific wetland types that are a high priority for conservation in California. Most of the state's work focuses in specific regions of importance carried out by one or more of the state's wetland conservation organizations. Therefore, the local and or regional wetland priorities specific to each of the wetland planning efforts described below have been included in a separate table following the descriptions below. Wetland projects submitted for LWCF consideration must be endorsed beforehand by one or more of the following organizations.

Wetland Conservation Plans and Processes
California's Wetlands
http://ceres.ca.gov/ceres/calweb/wetlands.html

Wetlands support ecosystems vital for the survival of many fish, aquatic life forms, birds, and plants. Wetlands improve water quality, flood control, groundwater recharge, erosion control, maintain biological diversity, and provide a variety of outdoor recreation opportunities. Only ten percent of the wetlands that existed before European settlement and only five percent of all coastal wetlands remain in California.

In response to the shrinking wetlands, government agencies have implemented legal use restrictions; acquired wetlands for protection, restoration and management; and implemented statewide wetland planning strategies and partnerships. These measures have gone far to protect the state's wetlands, but not all of them are subject to government authority, particularly those located on private lands, where recent Supreme Court decisions have reduced wetlands'

protection. California has, therefore, prioritized increasing public-private partnerships to restore and manage wetlands on private lands.

National Wetlands Priority Conservation Plan
http://www.fws.gov/policy/660fw4.html

The U.S. Fish and Wildlife Service is responsible for preparing the National Wetlands Priority Conservation Plan (NWPCP), authorized by the 1986 Emergency Wetlands Resources Act (EWRA). The NWPCP's ongoing program provides decision-making guidance on acquiring important, scarce and vulnerable wetlands and establishing other non-acquisition protection measure priorities. Section 301 of the EWRA requires the Secretary of the Interior to establish, periodically review, and revise a National Wetlands Priority Conservation Plan that identifies federal and state acquisition priorities for various types of wetlands and wetland interests.

The NWPCP is an ongoing program and continues to provide guidance for making decisions regarding wetland acquisition. The NWPCP applies only to wetlands that would be acquired by federal agencies and states using LWCF appropriations.

California Wetlands Conservation Policy
http://ceres.ca.gov/wetlands/policies/governor.html

California's Governor signed the California Wetland Conservation Policy (Executive Order W-59-93) in August 1993. The policy coordinated statewide activities for wetland preservation and protection. The Resources Agency and the California Environmental Protection Agency work together in implementing the threefold policy goals:

- Ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property.

- Reduce procedural complexity in the administration of state and federal wetlands conservation programs.

- Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.

Statewide policy initiatives, geographically based regional strategies, and an interagency wetlands task force were established to direct and coordinate the administration and implementation of the policy.

The statewide policy initiatives include a wetlands inventory, wetland planning, improved administration of existing regulatory programs, landowner incentives, mitigation banking, development and expansion of other wetlands programs, and the integration of wetlands policy and planning into other environmental and land use processes.

The California Statewide Wetlands Inventory compiles the U.S. Fish and Wildlife Service National Wetland Inventory and other available data into a comprehensive wetlands data layer. This layer provides the baseline from which to monitor gains or losses to state wetlands.

California Wildlife Action Plan
http://www.wildlifeactionplans.org/california.html

"California Wildlife: Conservation Challenges", prepared by California's Department of Fish and Game (DFG), is the state's Wildlife Action Plan, the comprehensive wildlife conservation strategy developed in response to the U.S. Fish and Wildlife Service's State Wildlife Grants Program. It identifies the California wildlife species and habitats, including wetland habitats, of greatest conservation need, describes major stressors affecting the state's native wildlife and habitats, and recommends actions to restore and conserve California's wildlife. The plan identifies special status species of plants and animals, many of which depend on wetland habitats. Growth and development, water management conflicts, invasive species, and climate change have major consequences for these species, ecosystems, and habitats across the state. Other stressors, such as pollution, urban or agricultural runoff, recreational pressures, or human disturbance, threaten native plants and animals in parts of California. The plan recommends better integration of wildlife conservation considerations into transportation planning, local and regional planning, land-use decision-making, working with cities and counties to secure sensitive habitats and key habitat linkages, and allocating sufficient water for ecosystem uses and wildlife needs. Specific recommendations for nine wildlife regions are presented.

The California Legacy Project
http://legacy.ca.gov/

The California Legacy Project was a Resources Agency initiative that involved a broad range of government agencies and citizen organizations. Working collaboratively, it developed a suite of tools and maps to help Californians make the important decisions about conserving and protecting the state's working lands and natural resources. The project ended in 2004.

North American Waterfowl Management Plan
http://www.fws.gov/birdhabitat/NAWMP/

In California, the waterfowl habitat protection, restoration, and enhancement processes set in motion by the North American Waterfowl Management Plan (NAWMP) and other partnerships play key roles in setting wetland conservation priorities. Joint ventures and other important regional wetland conservation efforts in California include:

- Southern California Wetlands Recovery Project http://www.scwrp.org/ The Southern California Wetlands Recovery Project (SCWRP) is a broad-based partnership of public agencies, non-profits, scientists, and local communities working cooperatively to acquire and restore rivers, streams, and wetlands in coastal Southern California. Its goal is to accelerate the pace, extent, and effectiveness of coastal wetland restoration through developing and implementing a regional prioritization plan for the acquisition, restoration, and enhancement of Southern California's coastal wetlands and watersheds. The SCWRP's geographic scope is from Santa Barbara County's Point Conception to the Mexican border. SCWRP partners work together to identify wetland acquisition and restoration priorities, prepare plans for these priority sites, pool funds to undertake these projects, implement priority plans, and oversee post-project maintenance and monitoring. Among recent SCWRP accomplishments is the restoration of 570-acre Bolsa Chica, a coastal estuary adjacent to Bolsa Chica State Beach.

- San Francisco Bay Joint Venture http://www.sfbayjv.org/ The San Francisco Bay Estuary is the nation's second largest and perhaps most biologically significant estuary on the Pacific coast. The San Francisco Bay Joint Venture (SFBJV) brings together public and private agencies, conservation groups, development interests, and others to restore wetlands and wildlife habitat in San Francisco Bay watersheds and along the Pacific coasts of San Mateo, Marin, and Sonoma counties. The goal of the SFBJV is to protect, restore, increase, and enhance all types of wetlands, riparian habitat, and associated uplands throughout the San Francisco Bay region to benefit birds, fish, and other wildlife.

  SFBJV is accelerating the ambitious effort to restore San Francisco Bay, including high profile acquisitions and restorations of salt ponds and bayland pastures. Since 1996, SFBJV partners have protected, restored, or enhanced over 62,000 acres of wetlands, lakes, creeks, and adjacent uplands in the Bay area.

- Central Valley Joint Venture http://centralvalleyjointventure.org The Central Valley Joint Venture (CVJV) brings together conservation organizations, public agencies, private landowners, and other partners interested in the conservation of Central Valley bird habitat. The mission of the CVJV is to

"work collaboratively through diverse partnerships to protect, restore, and enhance wetlands and associated habitats for waterfowl, shorebirds, water birds, and riparian songbirds, in accordance with conservation actions identified in the Joint Venture's Implementation Plan." The Plan was rewritten and updated in 2006, expanding it from its original focus on waterfowl to include six bird groups: wintering waterfowl, breeding waterfowl, non-breeding shorebirds, breeding shorebirds, water birds, and breeding riparian songbirds.

- The Inland Wetlands Conservation Program (IWCP) http://www.wcb.ca.gov/Pages/inland_wetlands_conservation_program.html was created within the Wildlife Conservation Board (WCB) by legislation in 1990, to carry out the programs of the CVJV by awarding grants to nonprofit organizations, local governmental agencies, and state departments to restore and enhance wetlands.

  Since 1992, the CVJV partners have protected, restored, and enhanced over 520,000 acres of habitat. For example, in 2008, Ducks Unlimited Inc., a CVJV partner, began its American and Sutter Basins Wetlands Project, which will protect, restore, or enhance 3,737 acres of wetlands, riparian forests, and associated uplands.

- Riparian Habitat Joint Venture http://www.rhjv.org/ California Partners in Flight initiated the Riparian Habitat Joint Venture (RHJV) project in 1994. The vision of the RHJV is to restore, enhance, and protect a network of functioning riparian habitat across California to support the long-term viability of land birds and other species. A wide variety of other species of plants and animals will benefit through the protection of forests along the rivers, streams, and lakes.

  RHJV members' projects contribute significantly to restoration of riparian habitats, especially in the Central Valley. For example, River Partners, an RHJV partner, has restored over 6,000 acres of riparian habitat along the major rivers of California since 1998, and recently planted its millionth tree.

- Pacific Coast Joint Venture http://www.pcjv.org/ The Pacific Coast Joint Venture (PCJV) was established in 1991. The PCJV works primarily in 18 focus areas from northern California to British Columbia, Alaska, and Hawaii. The focus areas in northwestern California include key habitats for water birds at the Eel River Delta, Humboldt Bay, and Lakes Earl and Tolowa.

- Intermountain West Joint Venture http://www.iwjv.org/ The Intermountain West Joint Venture (IWJV) is a public/private partnership dedicated to the conservation of bird habitat in parts of 11 western states stretching from Canada to Mexico, including northeastern California. The mission of IWJV is to facilitate the long-term conservation of key avian habitat including planning,

funding, and developing habitat projects that benefit all biological components of Intermountain ecosystems.

The joint venture's implementation plan was rewritten in 2006. Important bird habitats it identifies in California include Ash Creek, Modoc National Wildlife Refuge, Sierra Valley, the Klamath Basin, Eagle Lake, Goose Lake, Lake Almanor, Honey Lake, and Mono Lake.

- CALFED Bay Delta Program http://calwater.ca.gov/index.aspx The San Francisco Bay/Sacramento-San Joaquin River Delta formed by California's two largest rivers, the Sacramento and San Joaquin, is a drinking water source for millions of Californians and home to hundreds of plant and animal species. It supports the bulk of the state's commercial salmon industry and irrigates much of California's farmland. The CALFED Bay-Delta Program was formed in 1995 to develop and implement a 30-year plan to restore the ecological health of the Bay and Delta, improve water supply reliability and water quality, and stabilize the Delta's foundation of levee systems. The Program is a collaboration between numerous state and federal agencies with a mission to improve California's water supply and the ecological health of the San Francisco Bay/Sacramento-San Joaquin River Delta.

  As part of its implementation of the CALFED Bay-Delta Program, the Department of Fish and Game is developing the Bay-Delta Conservation Plan. http://resources.ca.gov/bdcp/. The goal of the Bay-Delta Conservation Plan (BDCP) is to help recover endangered and sensitive species and their habitats in the Delta in a way that also will provide for sufficient and reliable water supplies. The Plan is scheduled to be completed in mid 2010. The BDCP will:
  - Identify and implement conservation strategies to improve the overall ecological health of the Delta
  - Identify and implement ecologically friendly ways to move fresh water through and/or around the Delta
  - Address toxic pollutants, invasive species, and impairments to water quality
  - Provide a framework to implement the plan over time

- Suisun Marsh Protection Plan
  http://www.bcdc.ca.gov/pdf/planning/plans/suisun_marsh_plan.pdf
  Suisun Marsh comprises approximately 85,000 acres of tidal marsh, managed wetlands, and waterways between San Francisco Bay and the Delta. It includes more than ten percent of California's remaining wetlands. Suisun Marsh plays an important role in providing wintering habitat for waterfowl, supports a diversity of plant communities, and provides habitats for a variety of fish and wildlife, including several rare and endangered species.

Conservation of Suisun Marsh is governed by the San Francisco Bay Conservation and Development Commission's Suisun Marsh Protection Plan and by the Suisun Marsh Preservation Agreement between agencies with responsibilities in the marsh. The objectives of the Suisun Marsh Plan are to preserve and enhance the quality and diversity of the Suisun Marsh aquatic and wildlife habitats and to assure retention of upland areas adjacent to the Marsh in uses compatible with its protection.

In recent years, Suisun's tidal marshes were restored at Hill Slough and the Blacklock site, and other restorations are being planned. A new Suisun Marsh Habitat Management, Preservation, and Restoration Plan is being prepared to carry out the Suisun Marsh Preservation Agreement and update the Suisun Marsh Protection Plan.

Wetland Priorities for Acquisition and Conservation

California Wildlife Action Plan
http://www.wildlifeactionplans.org/california.html
Although species of concern are listed in the Wildlife Action Plan's Wildlife Species Matrix, the Department of Fish and Game does not have information on specific wetland types that are a high priority for conservation in California.

North American Waterfowl Management Plan
http://www.fws.gov/birdhabitat/NAWMP/

This Plan outlines its ultimate objectives in terms of the abundance and distribution of North American waterfowl populations. Its goal is to meet population objectives through the wise application of local or regional-scale habitat conservation actions guided by regional habitat conservation objectives. To accomplish this, Plan partners strive to quantitatively link regional waterfowl habitat objectives with continental waterfowl population objectives. Empirical and conceptual biological models provide means to link population and habitat objectives (see Appendix A).

The table below is a guide to California's wetland conservation organizations and their wetland priorities. Wetland projects submitted for LWCF consideration must be endorsed by one of the organizations on the following page.

California's Wetland Conservation Organizations	Ecological Areas of Focus	Organizational Objectives
Southern California Wetlands Recovery Project	Tidal wetland ecosystems, stream corridors, riparian areas	Acquire privately-owned tidal wetland ecosystems
		Develop comprehensive restoration plans
		Plan and implement restoration
		Acquire private parcels in tidal wetland ecosystems that are primarily publicly owned
		Develop restoration plans for tidal wetland ecosystems
		Develop plan and implement enhancement
		Acquire large areas of wetland or riparian habitat or floodplain or areas that add to an existing preserve of contiguous wetland habitat or stream corridor
		Provide focused assessment of watershed functioning, stressors, priorities, and identification of specific projects
		Plan and implement priority projects to preserve or restore ecological functioning of stream corridors as identified in watershed assessment or planning document. This can include urban stream restoration projects that are a priority in the watershed
		Acquire smaller wetland areas, riparian habitat or floodplain not contiguous with an existing preserve
		Develop comprehensive watershed management plans
		Plan and implement restoration projects to restore ecological functioning of stream corridors that are not part of a broader watershed planning/management effort
San Francisco Bay Joint Venture	Bay habitats, seasonal wetlands, creeks and lakes	Secure, restore, and improve wetlands, riparian habitat, and associated uplands by applying incentives and using non-regulatory techniques
		Strengthen, promote new funding sources
		Improve habitat management on public and private lands through cooperative agreements and incentives
		Support monitoring and evaluation of habitat restoration projects, research to improve future restoration projects.
Central Valley Joint Venture	Seasonal, permanent and semi-permanent wetlands, riparian areas, rice and agricultural cropland	Protect in perpetuity existing wetland habitats.
		Secure adequate power and water supplies for wetland management.
		Restore and protect in perpetuity former wetlands.
		Enhance all existing wetlands.
		Enhance waterfowl habitat on agricultural lands.
		Project, enhance or restore habitat and water needs of six bird groups including: wintering waterfowl; breeding waterfowl; wintering shorebirds; breeding shorebirds; waterbirds; and riparian songbirds.

California's Wetland Conservation Organizations	Ecological Areas of Focus	Organizational Objectives
Riparian Habitat Joint Venture	Riparian areas	Identify and develop technical information based on sound science for a strategic approach to conserving and restoring riparian areas in California.
		Promote and support riparian conservation on the ground by providing guidance, technical assistance and a forum for collaboration.
		Develop and influence riparian policies through outreach and education.
Pacific Coast Joint Venture	Tidal/coastal wetland ecosystems, riparian areas, former agricultural cropland	Ensure the long-term maintenance of habitat values and natural ecological processes in coastal wetland ecosystems.
Intermountain West Joint Venture	Aspen woodland, grassland, dry forest, sagebrush steppe, riparian areas, aquatic-wetland, agricultural cropland	Facilitate the long-term conservation of key avian habitat including planning, funding, and developing habitat projects that benefit all biological components of Intermountain ecosystems
		To protect 1.5 million public and private acres through facilitation of conservation easements, management agreements, incentive programs, and stewardship programs.
		To restore and enhance 1 million acres of wetland habitat through direct habitat improvement programs.
		To enhance all bird habitat through direct habitat improvement programs, public education, and cooperation with partners.
		Protect, restore, enhance and/or maintain key Intermountain bird populations and their habitats on a variety of land ownerships.
		Facilitate partnerships which are voluntary and non-regulatory for private and other landowners at various scales.
		Work across political boundaries to assist with the formation of nontraditional cooperative efforts.
		Maintain a biological planning effort which is based on the best science available, employs an adaptive approach, and guides a practical approach to project development.
		Foster a monitoring and evaluation program that centers on program evaluation, project tracking, and applied science needs.

California's Wetland Conservation Organizations	Ecological Areas of Focus	Organizational Objectives
CalFed Delta-Bay Program	Stream corridors, riparian areas, agricultural cropland, tidal wetland ecosystems	To improve California's water supply and the ecological health of the San Francisco Bay/Sacramento-San Joaquin River Delta.
		To improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species.
		To provide financial and technical assistance for watershed activities that help achieve the mission and objectives of CALFED, and to promote collaboration and integration among community-based watershed efforts.
		Through seminars train graduates equipped with the skills and technology transfer network to make significant improvements in the management of key California watersheds
		Address toxic pollutants, invasive species, and impairments to water quality
Suisun Marsh Plan of Protection	Riparian areas, tidal wetland ecosystems	Preserve and enhance managed seasonal wetlands
		Implement a comprehensive level protection/improvement program
		Protect ecosystem and drinking water quality, while restoring habitat for tidal marsh-dependent sensitive species

California's Recreation Policy

The five priority areas of focus within the Recreation Policy were developed as a response to the issues identified in the 2002 CORP. California's 2005 Recreation Policy outlines the state's strategies, priorities and actions for addressing the outdoor recreation issues of statewide significance. The Recreation Policy was then introduced during the development and public outreach of the CORP as a guide for updating the state's outdoor recreation Issues and Actions. Priorities identified during the Recreation Policy's development and public outreach process were integrated into the following chapter on Issues and Actions.

The Recreation Policy was proposed as a future element of the California Outdoor Recreation Planning Program in the 2002 CORP. The proposed Policy element was considered consistent with the 2002 CORP Issue: The Status of Parks and Recreation. The associated Action item called for stakeholders to: "Commission research to document the economic, social, heritage, cultural, recreational, health, public safety, and physiological benefits of parks and recreation programs and services in California." The current Recreation Policy update was funded through an amended 2003 LWCF planning grant and the Policy was completed in 2005.

Policy Background and Goals

Since the first policy was created in 1962, the California Recreation Policy has continuously reaffirmed the varied and increasingly important roles that park and recreation lands, facilities and programs play in bringing value to lives of Californians and their communities. Recreational opportunities provide Californians the freedom to develop their innate capabilities, intelligently use their energies, and enrich their health and well-being. Research consistently points toward recreation as essential to the physical and emotional well-being of individuals and society. It is therefore important that all Californians be provided with adequate opportunities by which they can pursue their recreational interests.

In recognition of this, the State Legislature has delegated responsibility for preparing California's Recreation Policy to the State Park and Recreation Commission. Public Resources Code (Section 540) and the Commission's Statements of Policy direct that: "The Commission shall formulate, in cooperation with other state agencies, interested organizations and citizens, and shall recommend to the Director (of the Department of Parks and Recreation) for adoption by him/her, a comprehensive recreational policy for the State of California."

This updated and comprehensive 2005 policy is directed at recreation providers at all service levels: federal, state, and local agencies and special districts; private suppliers; and quasi-public or nonprofit organizations. It is intended that all suppliers of park facilities and recreation opportunities will be guided by

California's Recreation Policy as they work to provide the high quality recreation experiences Californians have come to expect and which they deserve.

Policy Development and Public Outreach

The process used by the Commission in developing the 2005 California Recreation Policy has been open and inclusive. A twenty-seven member Policy Oversight Committee, involving representatives from public, private and non-profit groups, provided initial direction and later review to the effort. Early drafts of the policy were shared at a number of meetings and venues; written comments were solicited; the policy was posted on the Department's website; and was a topic on the Commission's April 2005 meeting agenda. Along the way, comments were received from well over 100 organizations and individuals.

California's Recreation Policy

This 2005 California Recreation Policy is intended to be broad in scope and considers the full range of recreation activities – active, passive, indoors and out-of-doors. This timely policy considers the means by which recreational opportunities are provided – the lands, waters, facilities, programs and support functions – and it recognizes the considerable health, personal, social, economic and environmental benefits served through the many important dimensions of recreation.

To simplify and make the process more meaningful, the policy has been divided into five general areas:

1. **Adequacy of recreation opportunities**
2. **Leadership in recreation management**
3. **Recreation's role in a healthier California**
4. **Preservation of natural and cultural resources**
5. **Accessible recreational experiences**

1. Adequacy of recreation opportunities

The supply of parklands, water, open space, recreation facilities and services must be adequate to meet future and current demands, particularly in the state's most populated areas.

It is State policy that:

An ample supply of park and recreation areas, along with their associated open space and natural areas, facilities, beaches and waterways, trails and programs should exist throughout California so all people can safely engage in near-home activities as well as opportunities to visit distant locations for extended leisure time or vacation pursuits.

Particular attention should be given to providing access to parklands and natural and developed recreation areas in and near the urban areas where most Californians live. In heavily populated areas, careful attention should be given to the acquisition and protection of natural and cultural resource lands, waters and open space. It is also important to recognize the need for critical recreational facilities in rapidly growing rural areas.

Public service providers closest to the recreation resources, and particularly to the sources of recreation demand, shall have the primary responsibility for providing comprehensive recreation opportunities in urban, suburban and rural areas of these cities, counties and special districts. It will be the responsibility of state agencies to take the lead where resources or recreation demands are of regional or far-reaching significance.

Parklands and trails should be promoted for the broad-scale economic and non-economic benefits they provide, whether through opportunities for physical activity, increased jobs, attracting tourists, supporting local communities, drawing in new businesses to park-friendly communities, providing vital concession operations or increasing property values.

2. Leadership in recreation management

Leadership, cooperation and partnership must be demonstrated at all levels to ensure that quality recreation resources, opportunities, programs and services are provided.

It is State policy that:

The State of California, through its Department of Parks and Recreation, should encourage and actively stimulate and coordinate active participation of federal, state, and local agencies, as well as the private and nonprofit sectors, in providing park and recreation lands, waters, facilities and programs.

Local public and private decision makers have an important leadership role in ensuring that a full range of stimulating, enjoyable and safe recreation experiences are available to their constituents, regardless of their skills, abilities or income levels. The State, by means of grants and

technical assistance, shall creatively aid local service providers in the realization of this vision and the vital delivery of these services.

Federal, state and local decision makers and program administrators should weigh the quality of life outcomes associated with park and recreation services in equal measure with other critical community services when considering the allocation of funding and staffing resources.

California's public and private schools, colleges and universities should support their undergraduate, graduate and postgraduate programs for training professionals in park and recreation management. In addition, they should support efforts related to conducting research (e.g., visitor's surveys, facility inventories and activity studies) on park and recreation related subjects and encourage beneficial internship programs at public agencies and non-profit organizations with the understanding that these worthwhile programs provide the future leadership for the park and recreation movement.

Providers in the private, quasi-public and nonprofit sectors are essential partners in the provision of recreation services. They should be encouraged to develop and operate a wide range of recreation resources, and to provide a considerable range of recreation opportunities on both private and public lands where appropriate.

Californians should have the opportunity to, and are encouraged to, actively participate as volunteers in support of recreation facilities and programs.

3. Recreation's role in a healthier California

Meaningful recreation activities, facilities, programs and increased opportunities for physical activity are vital to improving the health and well-being of Californians.

It is State policy that:

Park and recreation land, facilities and programs should be recognized as a positive force for individuals, families, communities and society, fostering extensive community pride, increasing productivity, significantly reducing crime and healthcare costs, and playing a vital role in preventing significant health ailments through physical activity.

Recreation programs should be available for all Californians, particularly for children and youth, to encourage inventive play and support lifelong physical activity and emotional well-being.

Park and recreation professionals should also promote and support increased physical activity among Californians, which is critical to combating the obesity epidemic and preventing serious, chronic conditions like heart disease and diabetes. Park and recreation professionals should also actively take forward the unified and clear message that abundant parks, sports activities and recreation programs provide youth the opportunity to be involved in positive, supervised activities, and that recreation services play a critical role in reducing truancy, teen pregnancy, gang involvement and juvenile delinquency while building self-esteem and improving school performance.

Recreation providers should evaluate the availability and adequacy of facilities and programs to serve California's growing number of seniors associated with an aging population and make necessary adjustments to serve this increasingly important population. Senior programs should actively promote healthy lifestyles, physical activity, continued learning, and community engagement, including intergenerational activities.

Park and recreation providers at all levels should seek opportunities to collaborate with other critical social service programs in such fields as education, health care, housing, juvenile justice and social welfare.

Park and recreation professionals should understand and be able to convey the importance of providing quality passive recreation opportunities that assist the user in enjoying that quiet and solitude of a passive experience.

4. Preservation of natural and cultural resources

Educating Californians about their state's invaluable resources is a critical part of ensuring these resources continue to be available for the enjoyment of current and future generations.

It is State policy that:

A comprehensive environmental ethic should be fostered among all Californians, particularly its children and youth, to encourage wise use of the state's finite natural and cultural resources.

Californians should be made aware of California's unique and important environmental, ecological, scenic, historical and educational resources and opportunities contained within parks, recreation areas, open space and resource lands.

Inspiring educational materials should be available that have consistent core messages designed to conserve, protect and respect resource values and raise individual awareness to potential concerns.

Attention should be given to the conservation of critical habitat for special status plant species and wildlife, and the restoration of important natural areas such as wildlife corridors and wetlands. The preservation of and education about cultural and historic resources such as archaeological sites, historic trails or notable buildings should receive similar noteworthy attention.

To ensure resource lands, waterways and habitat will continue to be available for future generations, consideration should be given to protecting working farms and ranch lands with important natural and cultural resources through voluntary land protection agreements.

Recreation areas should be planned and carefully managed to provide optimum recreation opportunities without damaging significant natural or cultural resources. Management actions should strive to correct problems that have the potential to damage sensitive areas and degrade resources.

5. Accessibility to all Californians

All citizens have the right to enjoy California's park and recreation legacy.

It is State Policy that:

Physical barriers and administrative obstacles should be eliminated so California's park and recreation lands, waters, facilities, activities and programs are accessible to all who want to enjoy them.

Through careful planning and farsighted parkland acquisition in California's urban areas, Californians should have safe access to a park or other recreation area within walking distance of where they live.

Low income communities and communities embodying California's great diversity should be provided the same access to healthful outdoor settings, well-maintained facilities, and professionally competent programs as are enjoyed by all other Californians.

Employees of park and recreation service providers at all levels should reflect the diversity of California's people in order to better understand the needs and preferences of California's changing population.

Policy Implementation

Ongoing efforts within California State Parks to implement the Recreation Policy include expanding the State Park System, particularly in the State's most populated areas, **to help address the adequacy of recreation opportunities**. Los Angeles State Park State Recreation Area and Rio de Los Angeles State Historic Park (SHP) were both named and classified in 2005 and Rio de Los Angeles SHP was opened to the public opened in 2006. General plans for Bidwell-Sacramento River State Park, Malibu Creek State Park, Los Angeles SHP and Rio de Los Angeles SHP have all been completed since the Recreation Policy was drafted.

The Office of Grants and Local Services continues to provide **leadership in recreation management** through financial and technical assistance - to local units of government, including cities, counties, and districts that are authorized to acquire, develop, operate and maintain park and recreation areas - through matching grants for acquisition or development of lands and facilities that provide or support public outdoor recreation.

The independent non-profit California Roundtable on Recreation, Parks and Tourism **continues its leadership efforts** to foster public and private efforts to provide quality sustainable outdoor recreation in California. The Roundtable's membership includes representatives from the outdoor recreation industries, user groups, environmental organizations, academia, and recreation providers, with a goal to improve marketing and communication and increase funding and public support.

To help **increase recreation's role in a healthier California** and due to recent concerns about youth detachment from outdoor activities, lack of physical exercise and increased health risks, the Roundtable also adopted the California Children's Outdoor Bill of Rights, which recommends a fundamental list of experiences that every child in California would benefit from experiencing before entering high school. Numerous studies document that children who do these things are healthier, do better in school, have better social skills and self-image, and lead more fulfilled lives.

As part of ongoing efforts to **promote preservation of natural and cultural resources**, California State Parks has received a national preservation award for preserving Gold Rush history in Columbia State Historic Park. State Parks was also awarded $2.3 million in the "California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002" grants to preserve history and culture. In late 2005 State Parks was nearing completion of a five-year, $9 million natural ecosystem restoration program, funded through the "California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002", and including over 140 separate ecosystem restoration projects. State Parks also joined communities and organizations throughout

California in 2007 to participate in the 23rd Annual California Coastal Cleanup Day

State Parks has also continued its **efforts to provide parks access to all Californians** through its FamCamp, Outdoor Youth Connection and Beach Play Day programs. FamCamp was founded in 1995 by the California State Parks Foundation with California State Parks to provide low-income families with greater access to California's state parks, build family bonds and break down social and financial barriers for underprivileged families through a guided weekend group camping trip for approximately 1,600 children and family members each year. The 2007 11th annual Beach Play Day also brought over 700 inner-city youth to Huntington State Beach to learn about outdoor physical fitness, building self-esteem and healthy living options.

Issues and Actions

Introduction

This chapter of the California Outdoor Recreation Plan (CORP) identifies outdoor recreation issues and needs of statewide importance based upon, but not limited to, input from the CORP's public participation program. These statewide issues include the most pressing concerns broadly affecting California's park and recreation service providers. This document provides guidance for the planning, acquisition and development of needed recreation lands and facilities by detailing these concerns and identifying actions to address them. This effort to identify the issues and actions is required to develop California's strategy for meeting outdoor recreation needs statewide. This Plan identifies those issues and needs California will address through the LWCF and those issues that need to be addressed by other means.

This edition updates the prior CORP; the six issues and their related actions were used as the starting point for public participation and discussion about their continued relevancy and whether they still reflected California's large and diverse population. The six issues were carried forward and two new issues were introduced.

The determination of the needs, issues and actions and formulation of the state's strategy to meet these needs have been informed by analysis of a combination of data sources, including the conclusions and implications of the 2007 survey of Public Opinions and Attitudes on Outdoor Recreation, policy developed through the CORP public workshops, planning studies and the Advisory Committee, the public outreach processes for California's Recreation Policy, the Children's Outdoor Bill of Rights, and the Central Valley Vision, as well as California's trends, challenges and wetlands research.

The public participation process involved sessions with a 20-member CORP Advisory Committee, a survey of California Park and Recreation Society members, a California Roundtable on Recreation, Parks and Tourism discussion and four public workshops. The public outreach program is discussed in more detail in the California Outdoor Recreation Plan Public Outreach section of the Appendix.

This Issues and Actions chapter explores ways that recreation providers can both accommodate current demands for outdoor recreation opportunities and prepare to meet the needs of future generations. The remainder of this chapter is organized around the eight key issues, with a summary of each and examples of progress that has been made in the last five years. Actions to address each issue follow, separated into those potentially eligible for LWCF assistance and those that would need to be addressed using other means. This identification of statewide issues and actions is an important component of the CORP planning

and development process by providing guidance to direct California's strategies, priorities and actions for the obligation of the state's LWCF apportionment.

Issues and their Issue-Specific Actions

1. Lack of Access to Public Park and Recreation Resources

Summary of this Issue
Providing more accessible and safer park settings can promote inspiration, discovery, learning and encourage outside activities, active living and a healthy lifestyle for all Californians. Understanding and meeting the public's recreation needs helps remove barriers limiting public use of outdoor recreation areas and ensures that parks and recreation remains relevant, viable and important to our current and future population. Park and recreation agencies can embrace the diversity of California's population and remove barriers by providing services, facilities and programs that meet the needs of a diverse pool of current and potential park users and by providing opportunities for young people from all backgrounds to experience parks and recreation facilities, programs and services.

All park and recreation lands, facilities, programs and services need to be fully accessible to all Californians; by increasing accessibility, relevance will be increased as well. Restricted access is more than just physical barriers; it includes barriers of proximity, relevancy, safety, or inadequate transportation to outdoor recreation lands. Environmental barriers can involve the recreation settings themselves, including unfamiliar terrain, animals, plants and insects. Demographic obstacles include those that do not serve the changing recreation preferences of park visitors. Different ethnic and generational groups recreate and use facilities differently than do prior generations. Administrative obstacles to access include a lack of cooperation and coordination between park and recreation providers, a lack of connectivity between local resources and a lack of information about emerging recreation trends.

Other key points included in this issue are:

- Safety and security in many park and recreation areas needs to keep pace with increases in use, user conflicts, inappropriate behaviors and illegal activities.
- Many parks and recreation facilities, programs and services have barriers such as distance, location, fees, environmental restrictions, security, access for persons with disabilities, traffic and the lack of public transportation.
- Physical, environmental, demographic and administrative obstacles can impede participation in outdoor recreation opportunities.
- Many park and recreation facilities, programs and services need to be made more relevant to meet the demands of segments of California's rapidly changing population, such as the elderly, youth, single parent families, ethnic groups, new immigrants and persons with disabilities.

- In their efforts to protect resources, park and recreation providers have difficulty making changes such as removing accessibility obstacles or responding to public demand for new opportunities.
- Economic and other pressures can cause LWCF compliance and conversion issues, occasionally leading to the loss of existing parks.

Examples of Progress on the Actions for this Issue Since 2002

Some of the actions suggested in the prior CORP for addressing this issue have been implemented. Examples include:

- The California Protected Areas Database is a new Internet-based search engine that allows the public to find parks near their homes or other favorite locations. The database includes a statewide inventory of federal, state, county, city and special district open-space and outdoor recreation lands and facilities. The public can search for parks near them by address, city or zip code and then produce a list of the nearby parks, a map showing their locations, driving directions and a list of webpage links to the various managing agencies.
- The State Parks publication "Park and Recreation Trends in California 2005" examines trends affecting parks, recreation areas, programs and services. By understanding these trends, providers can assess recreation needs, analyze market demands and niches and identify those recreation programs likely to be successful. This allows providers to better understand which types of parks and outdoor recreation opportunities are needed and which facilities and programs are likely to be supported.
- The mission of the State Parks Office of Community Involvement (OCI) is to develop and implement programs that increase services to non-traditional park users and underserved communities. The OCI Outdoor Youth Connection™ and Youth Leadership Institute provide teenagers affiliated with community-based organizations the chance to experience outdoor activities, camping, team-building and leadership. OCI's FamCamp® program provides camping opportunities for underserved populations who do not normally have access to the outdoors.
- The "California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002" supported progress on this issue. The projects below are some examples of how the funding was used:
    - Quarry Lakes ADA Fishing Pier – a City of Fremont project constructing an ADA fishing pier with accessible parking, picnic tables, BBQs, paths and a fish cleaning station at Quarry Lakes Regional Recreation area, $995,000.
    - Clayton Downtown Park – development of a one-acre community park in downtown Clayton, located in the outer San Francisco Bay area, $220,000.
- Examples of projects funded through LWCF include:
    - Grant Hill Park Development, upgrading tot lot, adjacent picnic area and drinking fountain for disabled access, including accessible

parking and path of travel at the existing Grant Hill Neighborhood Park in San Diego, $122,808.
- McCray Park Development, renovating a playground and picnic area to meet ADA guidelines in McCray Park in the Town of Oildale near Bakersfield, $39,895.

Specific Actions to Address the Access Issue
The following actions include some considered still relevant from the prior CORP and some new actions generated during the public participation process.

These actions are potentially eligible for LWCF assistance:

1. Provide outdoor recreation lands and facilities:
   - Pursue acquisition opportunities to provide open space and public access to water features such as the ocean, lakes, rivers, streams and creeks.
   - Pursue urban acquisition and development opportunities close to where people live and work and where current recreation opportunities are inadequate.
   - Increase the number of group picnic areas and camping opportunities to respond to California's changing demographics and recreation preferences.
   - Increase the number of available campsites in popular and emerging camping areas and provide cabins, tent cabins, yurts, or other affordable lodging for park visitors who prefer these camping alternatives.
   - Provide alternative park elements, such as off-leash dog areas, interactive water features, climbing walls, rope features and exercise features.
   - Provide opportunities for outdoor adventure and extreme sports experiences.
   - Develop more areas and opportunities for off-highway motorized recreation.
   - Promote and use existing LWCF 6(f)(3) protection as a tool to prevent the loss of existing parks.

2. Improve access to outdoor recreation areas:
   - Acquire and develop trails providing safe routes to parks from places where people live or work, or trails linking parks and other outdoor recreation areas, such as the regional trail corridors identified in the California Recreational Trails Plan.

3. Provide information:
   - Maintain, improve and add key elements to the California Protected Areas Database to continue to provide information to the public and recreation providers about outdoor recreation lands and facilities. Use the database and other information to evaluate the adequacy of outdoor recreation opportunities in different communities.
   - Document levels of use and need at popular recreation areas.

- Continue to track emerging trends and changing demographics affecting access, relevance, safety and barriers affecting the pursuit of outdoor recreation opportunities. Conduct research where needed and disseminate reports to park and recreation providers.
- Survey trail users statewide to collect data on the various types of use, the most popular trails, the typical trail miles traveled, the perceived benefits of trail use, the highest priority trail needs and trail user demographics.
- Survey or interview youth regarding their recreation participation, needs and preferences.
- Conduct and publish research on how trails can better meet needs of youth and seniors, the ecological benefits of good trail design and the social and cultural barriers that effect trail use.
- Research and develop parks and recreation benchmarks, such as the number of parks and recreation acres per 1000 residents available in various areas throughout California.

These actions would probably need to be addressed by means other than assistance from the LWCF:

1. Provide new kinds of outdoor recreation areas in neighborhoods with high-density housing and worksites, such as 'vertical parks', rooftop gardens, or sky parks, to create outdoor recreation opportunities in emerging urban centers.

2. Provide recreation programs to better serve Californians:
   - Establish and fund inclusive camping programs to attract urban or non-traditional park users.
   - Incorporate senior and cultural planning into community centers.
   - Improve public transit access to parks and recreation areas and trail connections.

2. The Lack of Linkages and Seamless Delivery of Recreation Opportunities

Summary of this Issue

Parks and recreation areas, facilities, programs and services need better coordination in urban or rural areas where many public, private, non-profit or other park and recreation providers have individual recreation areas, facilities, programs and services. State outdoor recreation agencies also need to better coordinate their delivery of recreation opportunities. Providers differentiate between park and recreation entities at the expense of emphasizing the range of recreation opportunities available to the public. Strengthening the connections between all public, private and non-profit parks and recreation agencies and organizations that share common missions and goals can help provide a seamless delivery of recreation opportunities to all Californians.

The links between parks and recreation areas, facilities, programs and services and healthy individuals, healthy communities and a healthy environment need to be more clearly demonstrated and communicated to the decision makers and the public. These linkages can be physical connections, such as trails or greenways linking nearby parks. These links can also be programmatic connections, like a multi-agency fitness program coordinating several local areas. Interpretive connections can also link resources, educating visitors about the resources at several protected sites in a region, such as a coastal area or mountain range.

Coordinated action addressing a shared problem can also build linkages and encourage seamless delivery of recreation services. The Children in Nature Campaign is an important example, through which many outdoor recreation agencies are addressing the disconnect between today's children, nature and the outdoors. To develop and maintain long-term positive connections with the park users and the public at large we must instill in our children the need and desire to promote and preserve outdoor recreation opportunities. This will help ensure the public's support for financing to protect, manage and improve current and future parks and recreation resources and facilities.

Other key points included in this issue are:

- Trails connectivity between the responsible organizations is sometimes lacking or not fully communicated to the public.
- There is little promotion of other parks and recreation areas, facilities and programs beyond those within a individual agency's responsibility.
- There is no central clearinghouse where parks and recreation-related information is made accessible to the public or recreation providers.
- There are more opportunities for partnerships between health agencies and park and recreation providers than currently exist.
- There is an increasing need for multi-generational parks and recreation areas, facilities, programs and services and a stronger link between parks and recreation and social service providers.
- The connection between outdoor recreation, physical activity and health needs is not emphasized enough by park and recreation providers. More research is needed to make the connection between health issues and outdoor recreation, such as the link between park-poor communities and higher obesity rates in children.

<u>Examples of Progress on the Actions for this Issue Since 2002</u>
Although this issue has been newly articulated since the prior CORP, some examples of progress already made were provided during the public participation process:

- Several public outreach participants described partnerships between local park and recreation providers and area schools. These include joint-use agreements providing schools access to recreation areas and facilities they lack and giving local park and recreation providers access to the programming facilities they lack. One agreement made a city swimming pool

available to a school and made the school's turf areas available for city programs during non-school hours.

- A number of city councils, county boards of supervisors and non-profit organizations have agreed on joint development of regional trail projects. Some counties identify trail connectivity in their master plans and have partnerships and joint-use/joint project agreements with nearby cities, counties and non-profit organizations.
- The State Parks publication "Health and Social Benefits of Recreation" makes the strong connection between parks and recreation areas, facilities and programs and health. The report documents the positive impacts that parks and recreation can have on the physical, mental and social health of individuals and their communities.
- The "California State Parks Partners" publication describes the projects, programs and benefits from the partnerships between State Parks and 120 organizations. This publication provides numerous examples of the benefits that linked and coordinated efforts like these can offer parks and recreation providers.
- The "California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002" supported progress on this issue. The projects below are some examples of how the funding was used:
    - Emeryville Greenway Park - Powell to 59th, a bike and pedestrian trail development project for a linear park along a rail corridor that links the neighboring community to Oakland and Berkeley, $220,000.
    - Solana Beach Coastal Rail Trail and Park, a 1.8 mile segment of a proposed 42-mile non-motorized trail extending from the Oceanside transit station to the Santa Fe Depot in San Diego, $220,000.
- Examples of projects funded through LWCF include:
    - Santiago Creek Trail development, a 1.4 mile trail along Santiago Creek in Santa Ana,.$255,073.
    - San Dieguito River Park Mule Hill/San Pasqual Trail, a 9.4 mile trail for hikers, bicyclists and equestrians in the San Dieguito River valley Regional Open Space Park in Escondido, $183,200.

<u>Specific Actions to Address the Linkages and Seamless Delivery Issue</u>
The following actions were generated during the public participation process and are potentially eligible for LWCF assistance:

1. Improve trail connectivity between outdoor recreation areas and improve the seamless delivery of recreation opportunities:
    - Increase and publicize public trail access and connectivity to recreation features in urban areas.
    - Complete the missing components of existing regional trails through partnerships with the trail-owning agencies or organizations.
    - Explore and create partnerships for developing regional parks and greenways.

2. Connect health and parks and recreation:
   - Provide areas where children can connect with the outdoors and engage in active outdoor activities, such as climbing trees, digging, exploring and unstructured play.
   - Provide outdoor recreation play equipment that integrates physical activity and stimulates children's imagination.
   - Continue to evaluate and report on the health and quality-of-life benefits of parks and recreation.

These actions would probably need to be addressed by means other than assistance from the LWCF:

1. Improve branding and marketing for outdoor parks and recreation areas, facilities, programs and services both individually and statewide.

2. Emphasize the seamless delivery of park and recreation services between public agencies and associated non-profit organizations.

3. Promote development of multi-generational fitness facilities, programs and services.

3. The Need to Protect and Manage Natural Resource Values

Summary of this Issue

The natural resource values that make California a special place to live and play are being subjected to unrelenting pressures. Repeated public opinion surveys show that natural resources are highly valued by park and recreation participants. However, overuse, poor management and fragmentation of parks and recreation areas can significantly degrade those natural resources. The increasing numbers of visitors and changing trends in recreational activities are affecting ecosystems, disrupting and displacing wildlife, degrading the natural and scenic qualities of outdoor recreation areas and therefore directly affecting the visitor's recreational experience.

This issue speaks to the importance of providers working together to preserve, manage and maintain outstanding examples of California's ecosystems. The following under-protected habitat types in California are these, which according to a gap analysis, are less than 20% protected on publicly owned lands:

- Diablan Sage Scrub
- Blue Oak Woodland
- Valley Sink Scrub
- Valley Oak Woodland
- Coastal Prairie
- California Walnut Woodland
- Great Valley Cottonwood Riparian Forest
- Juniper-Oak Cismontane Woodland

- Great Valley Oak Riparian Forest
- Northern Interior Cypress Forest
- Great Valley Mesquite Scrub

In addition, the following under-represented resource types which exhibit physical features not well represented in California should also receive priority for acquisition or restoration:

- Representative examples of landscapes and the identifying [or key or signature] geologic features for under-represented portions of the Modoc, Klamath, and eastern portion of the Sierra bioregions that are not protected by other land managing agencies.
- Significant fossil resources, such as concentrations of significant vertebrate fossils, multiple species assemblages representing ancient environments, and trace fossils (e.g. footprints) of ephemeral conditions.
- Type localities of geologic formations found only in California and lacking existing significant protection by other land management agencies.
- Special geologic features not well represented in the SPS include volcanoes and volcanic features (e.g. lava tubes, columnar basalts, and inverted topography), glaciers and glacial features, limestone caves, thermal features, and tombstone rocks.

Park and recreation providers must also pursue sustainable policies and encourage management practices that ensure the long-term protection and viability of natural resources. Parks and recreation facilities and systems must be designed to be low maintenance, use sustainable materials wherever possible, be resource efficient and produce minimal waste.

Finally, since climate change threatens much that we value and protect, parks and recreation areas, facilities, programs and services should be used to teach visitors about the impacts of climate change, inspiring them to make positive lifestyle changes that reduce climate change impacts. Our parks should become models of climate-change best practices, highlighting what is at risk and what can be done about it. Decisions about land acquisitions and outdoor recreation improvements should consider climate change impacts and park and recreation providers should maximize the carbon-sequestering potential of their forests, wetlands and other habitats when consistent with their missions.

Other key points included in this issue are:

- Cumulative impacts from multiple poorly-planned or under-funded projects can significantly damage natural resource values.
- Public agency resource management practices are often not well communicated to or understood by the public, decreasing public support for environmental protection measures.
- Cooperation among outdoor recreation providers on managing ecosystems and biological diversity can be fragmented and inconsistent.

- Collaboration and regional coordination on the problems of urban encroachment, pollution, erosion, wildfire management and non-native, invasive species can also be inconsistent.
- There is not a strong enough connection in the public mind between clean air, water and parks, open space and recreation.
- Richard Louv's "Nature Deficit Disorder" identifies the problematic disconnect between today's children and the outdoor nature experience.
- Economic and other pressures can cause LWCF compliance and conversion issues, occasionally leading to the loss of existing parks.

Examples of Progress on the Actions for this Issue Since 2002

- California's Department of Fish and Game has prepared the "California Wildlife Action Plan" to guide conservation of the state's important habitats. Many regional plans also guide protection of important natural habitats.
- Key natural resource areas have been secured to protect fish and wildlife habitats and scenic outdoor recreation areas. These include coastal wetlands, redwoods, oak woodlands and other forests, vernal pools, rangelands and other important habitats. Significant progress has been made in restoring coastal and inland wetlands, some salmon and steelhead rivers and streams and riparian woodlands. Conservation of these areas was accelerated by three voter-approved bond measures, Propositions 40, 50 and 84. The projects below are some examples of how the funding was used:
    - Bidwell-Sacramento River Sp / Brayton Project, acquisition of 85 acres of walnut orchard on the Sacramento River as an addition to the existing State Park. The property will be restored with native vegetation, $2.2 million, "California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002".
    - Coast wetlands - SF Bay Area Project, a cooperative wetland habitat restoration project to restore approximately 570 acres of tidal marsh and enhance approximately 126 acres of saltpan and 95 acres of seasonal wetlands on the Eden Landing Ecological Reserve in Alameda County, $1.3 million, The "Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002".
- Examples of projects funded through LWCF include:
    - Trancas Parkland Acquisition, acquisition of approximately 33.37 acres for open space in the City of Napa, $99,893.
    - Arastradero Preserve Acquisition, acquisition of approximately 13 acres within the Arastradero Open Space Preserve in the City of Palo Alto, $162,385.
    - Study Pavilion, Development of a Nature Study Pavilion, wind wall, walkways, amphitheater and support facilities at the Prime Desert Woodland Preserve in the City of Lancaster, $153,073.

    . .
- Other examples of progress on this issue are programs reconnecting children and nature to foster environmental awareness and develop future resource advocates. Cities have introduced the concept of environmental sustainability

to students by promoting recycling programs taught in the local schools. Some other programs include:

Children's Outdoor Bill of Rights - the California Roundtable on Recreation, Parks and Tourism

Great American Backyard Campout – National Wildlife Federation, Outdoor Industry Foundation

State Parks Off-Highway Motorized Vehicle program's youth-focused 'Tread Lightly' that encourages resource protection while engaging in off-highway activities.

- State Parks recently held the first climate change symposium on impacts to biodiversity and has developed tools, resources, strategies and actions focusing on climate change 'adaptation'. These will help land management decision-makers in local, regional and state governments follow a detailed process for climate change preparedness and planning

Specific Actions to Address this Natural Resource Issue

Most of the actions suggested for this issue fall within the project selection criteria for LWCF assistance:

1. Protect, restore and acquire outdoor recreation areas with important natural resource and scenic values that include the following priorities:
    - Projects linking parkland and other protected areas
    - Projects protecting key watersheds from land conversions
    - Properties supporting relatively large areas of under-protected major habitat types, ecological regions or that have unique biological values, wetland or riparian areas
    - Conservation projects should consider priorities in the California Wildlife Action Plan, joint venture plans, habitat conservation and species recovery plans and other regional habitat protection plans.
    - Promote and use existing LWCF 6(f)(3) protection as a tool to prevent the loss of existing parks.

2. Practice sustainability and reduce recreation impacts:
    - Conduct studies that identify recreational impacts on the environment and recommend mitigation measures.
    - Incorporate sustainability, energy efficiency and environmental awareness into recreational development projects with recycled, energy efficient and sustainable materials and design.

3. Prioritize acquisition and development of natural systems:
    - Continue to develop land acquisition strategies prioritizing under-represented critical ecosystems and land suitable for resource-based recreation.
    - Prioritize restoration projects and identify funding sources for natural systems where overuse and misuse has compromised the area's ecological integrity.

These actions would probably need to be addressed by means other than assistance from the LWCF:

1. Educate youth:
   - Continue to work with local school districts to educate youth on the importance of preserving and protecting natural resources.
   - Continue to pursue the goal of giving K-12 students the experience of visiting a resource-based park during their time in school.
   - Continue efforts to increase environmental awareness among youth through supporting programs like Tread Lightly, Leave No Trace and providing field trips to natural parks.

2. Educate the public:
   - Foster a stronger public connection between clean air, clean water and the impacts of and remedies for global warming, and parks, recreation and open space.
   - Increase the presence of park and recreation providers at wildlife and nature events as stewards and interpreters of these resources.
   - Provide more interpretive displays (in prominent locations such as in visitor centers, use areas and trailheads) and programs that communicate natural resource efforts.

4. The Need to Preserve and Protect Californian's Cultural Heritage

Summary of this Issue

California's rich and diverse cultural heritage is not well understood and its preservation and protection needs better statewide coordination. The state Heritage Corridors authorized by the Public Resources Code have been neglected. Funding to complete many cultural resources projects and to preserve, protect and interpret existing cultural resources is often inadequate. The problem of fiscal sustainability prevents the effective management of cultural resources in ways that ensure their long-term protection and integrity.

There is also a need to increase the use of diverse cultural heritage resources to create and strengthen the connections of community and families with each other and with their shared cultural heritages. California needs to acquire, maintain and interpret a broad spectrum of cultural resources that reflect the diverse cultures of California. A high percentage of respondents in the survey of public opinions and attitudes visited historic or cultural sites and museums at least once during a 12-month period. The survey results also indicated a high unmet-demand for more of these recreational opportunities.

Other key points included in this issue are:

- There is a high unmet-demand for cultural resource activities and a need for more effective statewide coordination to meet this demand.
- The management, interpretation, preservation and effective use of California's cultural resources for education, public outreach and heritage tourism is inconsistent statewide.
- The acquisition and development of cultural resources also needs statewide coordination. Only a few agencies consider protecting cultural resources as a primary part of their mission.

Examples of Progress on the Actions for this Issue Since 2002

- California's preservation leaders gathered at a Cultural Heritage Resources Summit to assess the status of historic and cultural resource preservation in California. One of the Summit's conclusions was that California's historic preservationists, arts and cultural communities should come together as a unified constituency to work toward common goals. Another recommendation was to create a permanent entity responsible for protecting and enhancing California's historical and cultural heritage.
- In response to this Summit recommendation, the California Cultural and Historical Endowment (CCHE) was established to tell the stories of California as a unified society as well as the stories of the many groups of people that comprise historic and modern California. The "California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002" allocated $122 million to the CCHE to distribute through competitive grants to government entities, non-profit organizations and Indian tribes .
- State Parks is completing a statewide "California History Plan" (CHP) identifying what is missing from our preserved cultural heritage - the stories we're not yet telling about California's history - and describing how our state's cultural stewards can work together to fill these gaps. The Plan proposes a common agenda for the acquisition, preservation and interpretation of our state's underrepresented cultural properties. The CHP also introduces a new California History Framework - a cross-cultural, non-chronological approach to the past, providing a comprehensive view of our history that captures the full range of human experience in California.
- State Parks is developing a Central Valley Vision Plan that considers several potential heritage corridors in the Delta, ecosystems crossing the Central Valley from Yuba County to Colusa County, oil and gas producing areas in Kern and Kings Counties, farms and agri-tourism attractions connected by Highway 99 and Interstate 5 and ethnic communities.
- The "California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002" supported progress on this issue. The projects below are some examples of how the funding was used:
    - Alviso Adobe Community Park – a city of Pleasanton project to renovate the historic Alviso Adobe and reconstruct two dairy-related buildings to house exhibits and a visitor center. Includes trail improvements, parking and a gathering area, $179,260.

- Museum Carriage Shed Completion, Alpine County – a development project to complete the final construction phase of the historic Carriage Shed in Markleeville, $26,152.

Specific Actions to Address this Cultural Heritage Issue
These actions would probably need to be addressed by means other than assistance from the LWCF:

- Study the potential positive effects on the economy from using historic preservation tools and incentives to promote jobs, stimulate investment in local communities and encourage heritage tourism.
- Establish technical, financial and leadership assistance programs. Provide ready access to relevant assistance information.
- Increase the number of significant private and publicly owned historic resources that are protected and preserved throughout the state.
- Incorporate and promote cultural heritage themes in parks and recreation areas, facilities, programs and services.
- Involve the Department of Education in offering education, training and outreach programs on the value of historic preservation.
- Continue incorporating historic and cultural displays into county fairs and other community events.
- Promote the value of historic preservation through education and community outreach that influences public opinion and planning processes.
- Encourage and implement historic preservation policy and develop a strategy for the management, interpretation and appropriate use of cultural resources.

5. Lack of Sufficient Financing for Parks and Recreation

Summary of this Issue
Funding for parks and recreation areas, facilities, programs and services has historically been insufficient and inconsistent. Shifts in the state and national economies greatly impact the ability of providers to offer quality, consistent and relevant recreation facilities, programs and services. Some park and recreation organizations are successful at securing grant funding, however, not all providers have the resources to do so. Although very large park bond acts have been passed in the last decade, these periodic sources of funding cannot be used for ongoing operations and maintenance costs. Regular and ongoing funding for statewide technical assistance for parks and recreation providers is still needed. Consistent funding is necessary to maintain quality recreation resources for our state's residents and visitors.

This issue speaks to the importance of achieving fiscal sustainability for parks and recreation areas, facilities, programs and services. Without long-term stable funding for staffing, repairs and maintenance, we will not be able to manage our

recreational resources and facilities in a sustainable way that ensures their long-term protection and availability. Without sufficient and ongoing funding that ensures our parks and recreation areas, facilities, programs and services remain relevant and responsive to the public's recreation needs, we will be unable to develop and maintain long-term positive relations with our visitors and the public at large. Without sufficient and consistent funding for our outdoor recreational facilities, programs and services, we will be unable to recapture the interest of today's children in outdoor recreation, losing our ability to build a next generation of support for parks and recreation.

Other key points included in this issue are:

- Inconsistent funding makes it difficult for providers to plan for stable park and recreation facilities, programs and services.
- The continual need to secure new funds or generate additional revenue diverts time and attention from the primary objective of protecting resources and providing recreational opportunities.
- Parks and recreation providers have traditionally demonstrated an ability to get by with less, facilitating or encouraging future funding cuts by decision makers.
- Periodic voter-approved bond acts are inconsistent and insufficient to meet the full range of parks and recreation needs. For example, bond act funds can only be used for acquisition and development, not for critical maintenance or staffing.

<u>Examples of Progress on the Actions for this Issue Since 2002</u>

- Numerous Park and Recreation Technical Services (PARTS) publications have been produced by California State Parks staff since 2002. Several of the following guidebooks help providers identify and apply for grant funding opportunities:
  - "Getting a Grip on Grants: A How to Guide for Park and Recreation Providers" provides practical tips on researching and preparing winning grant proposals.
  - "Directory of Grant Funding Sources for California Park and Recreation Providers" helps providers identify grant programs that might fund their projects.
  - "Sure Ways to Get Your Grants…And Other Words of Advice" includes tips on researching and preparing a successful grant application.

  These publications and others are available at http://www.parks.ca.gov/PARTS.
- The Office of Grants and Local Services provides technical assistance through grant writing workshops due to the increase in requests from local agencies for technical assistance regarding reduced service levels and park closures at parks funded through LWCF assistance and park bond acts.
- Progress on this issue was made following passage of three voter-approved bond measures.

- The ”California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002” provided $2.6 billion in bond funds for projects and grants for neighborhood parks, outdoor recreation, protection of wildlife habitat, open space, rangeland, clean beaches, water quality and watershed protection and restoration, air pollution projects and preservation of cultural and historical resources.
- The “Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002” provided $3.44 billion in bond funds for projects and grants to secure and safeguard the state’s water supply; provide river parkways; restore and protect coastal wetlands, watersheds; and Bay-Delta habitat.
- The “Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006” provides $5.4 billion in bond funds for projects relating water supply, flood control, waterway and natural resource protection, water pollution, state and local park improvements and public access to natural resources.

Specific Actions to Address this Financing Issue

Most of the actions related to this issue are suitable for LWCF planning grant assistance but some need to be addressed by other means than through the LWCF. The actions below could be accomplished through the LWCF include:

1. Identify funding sources:
   - Assess the distribution of funds for rural and urban recreation, identifying potential inequities and unmet needs.
   - Assess the feasibility of a professionally managed statewide endowment for acquisition, capital outlay and extraordinary maintenance.
   - Explore the feasibility of alternative, long-term and sustainable funding sources for parks and recreation.

These actions are not as consistent with the selection criteria for LWCF projects or planning grants:

1. Provide technical assistance:
   - Coordinate statewide technical assistance on seeking, identifying, applying for and managing public and private grants.
   - Develop a standard application for recreation acquisition and development grant programs.
2. Identify local grant and grant-writing resources, including private grant providers and universities.
3. Establish more park foundations for fund raising.
4. Provide hands-on training for park grant seekers, through conference sessions, workshops or online tutorials.

6. Need for Increasing the Status of Parks and Recreation

Summary of this Issue

Public parks and outdoor recreation opportunities are not considered as vitally important as other public services, such as law enforcement or transportation, and so do not compete well for scarce funding during economic downturns. It is only when users are made aware of threatened or pending reductions in use or access that parks and recreation are given a higher fiscal and political priority, such as when State Parks' status was recently elevated due to the threat to close 48 parks. This threat generated a significant response from the public which resulted in the parks remaining open. Achieving fiscally and physically sustainable parks and recreation areas, facilities, programs and services requires developing and maintaining long-term political and public relationships and marketing. These connections will help build stable funding sources and protect parks and recreation from the effects of a fluctuating economy and public apathy.

Improving the status of parks and recreation requires increasing public and political awareness of the role that parks and recreation plays in reducing crime, encouraging healthy lifestyles, involving communities, improving education and developing the economy. There is a lack of widely available, quantifiable and reliable information on the benefits associated with parks and recreation. This information is also not easily accessible to recreation providers, the public, to policy makers, advocacy groups and to public officials for use in marketing and promotional efforts.

Other key points included in this issue are:

- Park and recreation providers must advocate for themselves as effectively as do other public service providers, such as fire and police organizations, and do not compete well against these other public services.
- More attention needs to be focused on parks and recreation in city and county general plans.
- The aspects of the parks and recreation field that are most valued by the public need to be emphasized, marketed and promoted.
- Park and recreation providers need to be actively involved in political processes.
- Legislative action and advocacy efforts that benefit parks and recreation providers must be expanded.

Examples of Progress on the Actions for this Issue Since 2002

Progress made toward addressing this issue was both reported during the public participation process and is on-going. Some examples include:

- Many recreation providers prepare an annual or bi-annual report publicizing their accomplishments.
- The California Water Plan links recreation areas, facilities and uses to land use, water quality and flood management planning efforts. Its Integrated

Regional Management Strategies are also required to consider water dependent recreation within any of their planning efforts.

- State Parks has received LWCF assistance for a Study of the Economic Value of Outdoor Recreation in California. As far back as 1993, the CORP has noted that many public officials do not appreciate the positive financial effect that parks and recreation can have on the economies of their communities. This report will provide readily accessible and quantifiable measures of the financial impact that parks and recreation can have on state and local economies.

Specific Actions to Address this Status Issue

Fewer actions related to this issue are suitable for LWCF assistance. Some are consistent with planning grant selection criteria but most would need to be addressed by other means than through the LWCF. The actions below could be accomplished through the LWCF:

1. Conduct research, surveys and analysis to provide key information:
   - Research, quantify and publicize the relationship between recreation opportunities and reductions in community crime levels.
   - Identify those elements of the park and recreation field most valued by the public and make the findings available and accessible to the public, recreation providers, policy makers, advocacy groups and public officials.

2. Expand recreation planning:
   - Assess how cities and counties address recreation in their general plans and evaluate if legislation is needed to amend the Government Code 65302 section that lists the required general plan elements.
   - Link recreation areas, facilities and uses to land-use, water quality and flood-control planning efforts.

These actions are not as applicable to the selection criteria for the LWCF projects or planning grants:

1. Increase advocacy and legislation that supports park and recreation services.
2. Expand the membership and efforts of the California Roundtable on Recreation, Parks and Tourism to increase its focus on legislative action and advocacy.
3. Increase outreach to non-government organizations, including private businesses, non-profit and professional organizations. Form community partnerships.
4. Stimulate community support of parks and recreation through increased involvement of park and recreation providers in the communities.

7. The Need for Statewide Leadership in Parks and Outdoor Recreation

Summary of this Issue

Leadership and cooperation among participants in the outdoor recreation delivery system is fragmented and uncoordinated. The need for better communication and a centralized clearinghouse for parks and recreation information was emphasized in the prior CORP and brought up again during the most recent public involvement process. Parks and recreation research and data gathering efforts are often fragmented and the statewide parks and recreation research activities are not well coordinated. Clear and consistent statewide leadership, a universally accepted statewide vision and a consistent message supportive of parks and recreation is needed to build connections and consolidate support and advocacy efforts among parks and recreation providers statewide.

This issue involves leadership to connect park and recreation providers statewide to leverage knowledge, resources and understanding. This will help lead park and recreation providers in working effectively together to provide consistent and coordinated statewide facilities, programs and services to meet the needs of an increasingly diverse pool of current and potential park and recreation participants.

Other key points included in this issue are:

- There are insufficient incentives for local park and recreation providers to cooperate on regional or statewide park and recreation issues.
- Statewide master planning goals need to be better coordinated with those of local parks and recreation providers.
- There is a lack of creative partnerships to help expand the capabilities of existing providers and meet future park and recreation needs.
- A culture of innovation is needed to bring in outside influences and engender new ideas.

Examples of Progress on the Actions for this Issue Since 2002

- “California’s Recreation Policy” provides a direction for addressing the recreation needs of Californians and encompasses the entire range of recreation and park providers.
- State Parks provides assistance for park and recreation providers through its website and at workshops, on a wide range of subjects, including surveys, guidebooks, articles and studies on current trends and their implications for providers.
- State Parks has long offered a series of hands-on trail building workshops for park and recreation providers statewide. Participants attend three week-long outdoor workshops learning and practicing trail design, construction, maintenance and repair techniques while contributing real improvements to existing hiking, biking or equestrian trails.
- State Parks’ “Innovative Practices: Case Studies” provide a compendium of innovative solutions and ideas submitted by park and recreation professionals.

Specific Actions to Address this Leadership Issue
Several of the actions assigned to this issue when it appeared in the prior CORP are still relevant and necessary. Those listed below are potentially eligible for LWCF assistance:

1. Research, data gathering and information distribution:
   - Create a web clearinghouse available to parks and recreation providers and others, with links to park and recreation research, case studies, examples of park and recreation programs and projects and other information about improving outdoor recreation services.
   - Complete and distribute the State Parks' handbook of best practices in trail design and management.

The actions listed below do not closely fit the LWCF project selection criteria and would probably need to be addressed using other means:

1. Establish a statewide leadership academy to identify and mentor future leaders in the parks and recreation field. Enlist support and participation from local, state, federal and non-profit park and recreation providers, universities with accredited recreation programs and the affected business sector.

2. Conduct a workshop for park providers through the California Park and Recreation Society's Vision Insight Planning (VIP) to share information statewide, achieve a better understanding of the VIP goals and to consider adopting relevant VIP project components.

3. Conduct an ongoing summit on Statewide Leadership in Parks and Outdoor Recreation, such as the regional summit that Los Angeles has been conducting regularly.

8. The Need for Workforce Development and Succession Planning

Summary of this Issue
Parks and recreation departments and agencies are losing many of their professionals to retirement and the resulting vacancies are often left unfilled. There has been a lack of succession planning in advance of the expected Baby Boomer retirements. Although numerous candidates apply for entry-level parks and recreation positions, there is a gap in mid-level parks and recreation management and a declining applicant pool for these positions. College graduates entering the profession often lack the necessary practical experience or relevant coursework.

Parks and recreation tends to be a major that school students discover after they start college, rather than one they become interested in and select before entering college. Parks and recreation providers should develop outreach

relationships with junior high and high schools to build earlier student interest in the parks and recreation field. There is also a lack of outreach and recruiting on college and university campuses. Partnerships between existing college programs and park and recreation providers are needed to provide students with work-related skills more closely aligned with current park and recreation industry needs. The networking opportunities available through these partnerships will also help ensure that students are ready to work in the field after graduation.

A key to embracing the diversity of park and recreation users in California is building a workforce reflective of this diversity. A diverse workforce can better understand the needs of the public, create a more welcoming feeling for the diversity of parks and recreation users and can provide meaningful recreational opportunities for young people from all backgrounds.

Other key points included in this issue are:

- Within some public parks and recreation agencies, the hiring process is lengthy, arduous and inadvertently screens out otherwise qualified candidates.
- Parks and recreation internships are many times too short and/or do not have enough meaningful work to provide entry-level candidates with the experience necessary to understand the departmental purpose, focus and organizational structure and what it takes to manage, complete and maintain projects. Internships could include working with boards and city councils or helping develop and manage recreational programs.
- There are no doctoral programs for parks and recreation majors anywhere in California. The closest PhD programs in parks/sports/recreation/leisure/fitness are offered in Utah.
- Greater coordination is needed between parks and recreation agencies and universities to ensure graduating students have the appropriate core workforce competencies.
- Summer work programs and park program participation need to be more actively developed and promoted.
- Parks and recreation provider organizations need to provide more career development plans.

<u>Examples of Progress on the Actions for this Issue Since 2002</u>

- San Diego State University (SDSU) has a partnership between the Recreation, Parks and Tourism Management Department and the SDSU Aztec Adventures Outdoor Program. Classes are offered in wilderness appreciation and philosophy and the Aztec Adventures partnership provides outdoor classroom programs. The partnership and the indoor/outdoor programs increase the numbers of students interested in parks and recreation.
- One city developed a Youth Master Plan that includes internships with the local colleges.

- Another parks and recreation provider organization recruits young volunteers and employees by offering special employee classifications to participants of their youth programs. Some of these youth attended council meetings on their own, started volunteering at age 13 and some have gone on to graduate in parks and recreation.
- One California Police Activities League recruits State University students through the AmeriCorps programs.

Specific Actions to Address this Workforce Issue

All of the actions suggested for addressing this issue are unlikely to fit the LWCF project selection criteria:

1. Increase workforce diversity:
   - Provide diversity training to recreation providers to improve their ability to relate to a wide diversity of users.
   - Streamline and diversify the hiring and recruitment process.
   - Revise job specifications and minimum qualifications; hire candidates graduating with degrees outside the field of parks and recreation, bringing in other disciplines to broaden the profession.

2. Improve recruitment efforts:
   - Provide more recreation internships for college, junior high and high school students.
   - Make internships, work-study or hands-on experience required for a degree in the parks and recreation field. This could include involvement with city commissions or park planning projects.
   - Recruit interest in the field through volunteer programs.
   - Increase recreation opportunities on campus and in junior high and high schools and offer “credit” options.
   - Leverage campus opportunities to link recreation with curriculum.
   - Establish a parks and recreation PhD program in the California State University and University of California systems.

Past Planning Grant Progress and Future Products

The California Outdoor Recreation Plan (CORP) is made up of various elements, forming a continuous series of studies, analysis and related timely planning documents that both address the state's most important outdoor recreation issues and help plan for California's use of its Land and Water Conservation Fund (LWCF) apportionment. This chapter summarizes recent CORP planning grant activities and also includes brief descriptions of the future surveys, studies, and other documents that are either under way or may be proposed to help develop the next CORP. These planning grant proposals either solve a problem identified in the prior CORP or develop data and decision-making tools that will be essential for completing the next CORP. However, successful completion of these future CORP elements is contingent upon adequate funding, staffing and administrative support.

These recent CORP elements are consistent with the 2002 CORP's Action 1A under Issue 1: The Status of Parks and Recreation. This action item challenges stakeholders to "Commission research to document the economic, social, heritage, cultural, recreational, health, public safety, and physiological benefits of parks and recreation programs and services specific to California." The projects described here include surveys, data collection and analysis, planning studies and public participation efforts, all essential parts of the CORP Program.

The future planning grant products proposed later in this chapter will help address ongoing development and maintenance of the CORP as a decision-making and management tool.

Past Elements of the California Outdoor Recreation Planning Program

A diverse number of CORP Program projects and planning efforts have been funded and completed since the prior CORP was approved. Brief descriptions for most of the projects are included below - the California Recreation Policy is discussed in a later chapter. Internet links to more information follow each project.

<u>Trails and Greenways Planning (Ongoing)</u>
The California State Parks Statewide Trails Program provides public information and technical assistance for trail-related issues affecting all California trails and greenways. Statewide Trails staff also produce trail-related policies, provide support for trails-related grant funding programs, and provide organizational and technical assistance to local trails efforts, including coordinating the annual California Trails and Greenways Conference. Staff completed the California Recreational Trails Plan in 2002, which identifies 12 trail-related goals and lists general action guidelines designed to reach those goals and designates 27 state

recreational trail corridors. More information about the Department's Statewide Trails Program and Planning is available at: http://www.parks.ca.gov/Trails

Local Needs Assessment (2004)
This project was initiated at the request of the Legislature to help assess the current and future need to acquire parklands and develop new recreation facilities. It assesses the needs and deficiencies in park and recreation lands, facilities, programs and services, provides a performance review of the grant programs administered by State Parks, makes findings, conclusions, and identifies areas recommended for further study to the Legislature and the Administration.
The Assessment is available online at:
http://www.parks.ca.gov/pages/795/files/local_needs_report.pdf

Central Valley Vision (Ongoing since 2003)
The Local Needs Assessment project confirmed that the Central Valley is under-represented in parks and recreation lands compared to other regions. The Central Valley is experiencing the fastest growth rates in the state, which are projected to grow 24% between 2000 and 2010, and with the population growing from 5.7 million to nearly 12.0 million by 2040. This projected growth makes it essential to plan for the future park and recreation needs of the Central Valley. State Parks' Central Valley Vision project identified and studying high value natural resource lands, key recreation opportunities and solicited public feedback from Central Valley residents to determine the highest priority lands before they become lost to development.

In 2005 and 2006, California State Parks conducted public outreach meetings to help develop the long range Central Valley Vision. The goal was to survey recreational needs, opportunities and services throughout the Sacramento and San Joaquin Valleys. By collecting information on gaps in public demand, expectation and availability of State Park services, amenities and facilities, State Parks will be better able to plan acquisition and development activities over the next 20 years. More information on the Central Valley Vision project is available online at: http://www.parks.ca.gov/default.asp?page_id=23483

The California Roundtable on Recreation, Parks and Tourism (Ongoing)
The independent, non-profit California Roundtable on Recreation, Parks and Tourism fosters public and private efforts to provide quality sustainable outdoor recreation in California. Its diverse membership includes representatives from the outdoor recreation industries, user groups, environmental organizations, academia, and recreation providers, all united to improve marketing and communication, and increase funding and public support. State Parks is a founding member of the Roundtable. State Parks provides support services and technical assistance to the California Roundtable to help it exchange and gather information and identify the significant issues that face California's park and recreation providers.

Children's Outdoor Bill of Rights

The California Children's Outdoor Bill of Rights (COBOR) mission is to encourage California's children to participate in outdoor recreational activities and discover their heritage. Numerous studies have shown that children who participate in outdoor activities are healthier, do better in school, have a better self-image and social skills, and lead more fulfilled lives. The objective of the COBOR is that every child in California, by the completion of their 14th year, has the opportunity to experience each of the following activities:

1. Discover California's Past
2. Splash in the water
3. Play in a safe place
4. Camp under the stars
5. Explore nature
6. Learn to swim
7. Play on a team
8. Follow a trail
9. Catch a fish
10. Celebrate their heritage

More information about the Roundtable and the COBOR can be found online at: http://calroundtable.org/index.html

Planning Coordination and Technical Assistance (Ongoing)

This effort shares information, gathers data, and builds alliances with other recreation providers, non-profits and private interests to develop a coalition of like interests. The Planning Division has provided technical assistance for park and recreation providers on a wide variety of subjects, ranging from surveys, guidebooks, articles, workshops, and studies on current trends and their implications. Some of the technical assistance publications produced since the last CORP are listed below; all are available on the Planning Division Parks and Recreation Technical Services webpage: http://www.parks.ca.gov/PARTS

- Tried and True Public Relations and Promotional Tools (2007)
- The Gift of Time: Effective Volunteer Program Management for Local Park and Recreation Agencies (2006)
- Getting a Grip on Grants: A How-to Guide for Park and Recreation Providers (2004)
- Directory of Grant Funding Sources for California Park and Recreation Providers (2004)
- Park and Recreation Professional's Glossary (2004)
- Innovative Practices: Case Studies Suggested by California Park and Recreation Providers Vol.I (2004)
- Paying for Parks: An Overview of Fiscal Resources for Local Park and Recreation Agencies (2003)

- Education Leaders' Opinions of Parks and Recreation: A Survey of California School Superintendents (2003)
- California Leaders' Opinions of Parks and Recreation: A Survey of County Boards of Supervisors, County Executives, Legislators and Mayors (2002)
- Business Leaders' Opinions of Parks and Recreation: A Survey of California Chambers of Commerce (2002)

Health and Social Benefits of Recreation (2005)
This publication documents the positive impacts that parks and recreation can have on the physical, mental and social health of individuals and their communities. It includes studies documenting how physical activity helps to control obesity, boost the immune system, diminish the risk of disease and increases life expectancy. Additional studies outline the social benefits of recreation, such as strengthening communities, promoting social bonds and supporting youth by improving their education and deterring them from negative behaviors. The information presented is intended to help local and state park and recreation providers in gathering support for their programs. Educators, law enforcement personnel, and health providers are also encouraged to see park and recreation providers as active partners in support of their mission. This publication is available online at:
http://www.parks.ca.gov/pages/795/files/health_benefits_081505.pdf

Park and Recreation Trends (2005)
This report examines the trends affecting parks, recreation areas, programs and services, including changes in the size and structure of California's population, changing recreation participation patterns and shifts in recreation styles and preferences. These trends can significantly affect on the adequacy of existing parks and recreation services. By understanding these trends, recreation providers can assess needs and analyze market demands and niches to more accurately identify facilities, programs and services to meet the needs of California's diverse population. Understanding the likely direction of these trends will enable providers to adjust to the type and kinds of parks and outdoor recreation settings that are needed, the facilities and programs that will likely be supported, and the appropriate levels of services to be provided. The Trends document is available online at:
http://www.parks.ca.gov/pages/795/files/recreation_trends_081505.pdf

Wellness and Prevention Task Team (2004 - 2005)
The Planning Division participated on the Wellness and Prevention Task Team, through the California Department of Health Services, to represent outdoor recreation activity as a component in recommendations for implementing the 2003 Strategic Plan for an Aging California Population – Getting California Ready for the Baby Boomers. Once the 2003 Plan was completed, the California Commission on Aging (CCoA) agreed to monitor and update the Strategic Plan. The CCoA convened eleven Stakeholder Task Teams who were charged with identifying and focusing efforts on several top priority recommendations,

developing action plans to support or achieve implementation of these priorities and identifying necessary amendments or additions to the original Plan. The Planning Division served on the Wellness/Prevention Team and contributed to the final written report - Wellness and Prevention Task Team Report to the California Commission on Aging. The report is available online at: http://www.ccoa.ca.gov/pdf/Wellness_and_Prevention.pdf

Public Opinions and Attitudes on Outdoor Recreation in California (2002)
This statistically valid sample survey of Californian's public opinions on outdoor recreation is conducted every five years, beginning in 1987. The survey results provide valuable trend and point-in-time data on a variety of public attitudes, opinions, and values regarding outdoor recreation opportunities in California and public participation in different types of outdoor recreation activities. The most recent survey included a random sample of over 2,500 California adults and was administered in both English and Spanish. The survey reports from 2002 and earlier are available online at:
http://www.parks.ca.gov/default.asp?page_id=23880

Future Planning Grant Products Already in Process

Study of the Economic Value of Outdoor Recreation in California
This study will address a priority issue identified in the 2002 CORP. This study will include a literature review and analysis of socioeconomic data collected from the recently completed survey of Public Opinions and Attitudes on Outdoor Recreation in California, from the ongoing California State Park Visitor Use survey, and from other agencies, such as the United States Forest Service and the Bureau of Land Management. An economic model will be used to analyze the data and calculate the preliminary estimated economic contributions for outdoor recreation in California.

Although outdoor recreation generates economic activity that directly or indirectly affects the economy in all fifty-eight counties of the state, parks and recreation programs are often among the first to receive cuts from government budgets. A better understanding of the impacts that parks and recreation have on the economy would help promote and develop sustainable park and recreation resources, contributing to the long-term support and funding for outdoor recreation resources, facilities and services.

When completed, this project will provide data on the potential economic impacts that public outdoor recreation projects could have on state and local economies and will contribute to a better understanding of these impacts, both of which will help state and local governments identify and prioritize public outdoor recreation project proposals to address their outdoor recreation needs.

Alternative Camping Survey
This survey will evaluate State Parks' alternative camping program, including an alternative camping project funded through an earlier LWCF grant. The study will help determine whether the alternative camping program is addressing the needs identified in the prior CORP and is responsive to California's changing demographics.

Changes in California's demography, coupled with growing tourism and new recreational activities, have created unprecedented demands on park and recreation service providers. Outdoor recreation is growing in popularity, but trends show that traditional camping is less desirable particularly to Baby Boomers, retirees, and new immigrants who have little knowledge of traditional forms of camping. The explosion of Baby Boomers reaching senior citizen status also increases the need to have facilities that are accessible to people with disabilities, especially mobility impairments. State Parks has considered what type of facilities could be developed to meet these changes while generating additional revenues. In response, the Department has implemented a pilot program incorporating new and existing alternative camping facilities. Forms of camping have become very popular in state parks across the country, such as tent cabins, yurts, floating camps and other facilities, since they provide customers with a way to enjoy camping with minimal effort, equipment or experience with more traditional camping facilities.

The survey results will support and maintain future CORP efforts through their use as a decision-making tool to guide future federal, state and local alternative camping project. The results could also be used to evaluate future LWCF applications for alternative camping projects.

Statewide Trails Research and Planning
This project will identify opportunities for local recreation providers to augment their existing trail systems using trail information gathered through research and assessments of the regional trails and trail systems in California.

The prior CORP identified the need for this information as part of an update of the 2002 California Recreational Trails Plan. Three major goals of the Trails Plan are supported by this research and planning grant project:

- Evaluate the status of previously secured easements for the California Riding and Hiking Trail and evaluate the feasibility for continuance of the trail's expansion.
- Promote and encourage the incorporation of trails and greenways development and linkages into all local and statewide land use planning processes.
- Prepare regional and statewide inventories of existing, planned and potential trails.

This planning project has two objectives:

- Identify opportunities and needs for local agencies to provide connections within their own trail system or to connect to systems within their region. Rights-of-way opportunities along the historic California Riding & Hiking Trail (CRHT) in Southern California (Riverside County) and Northern California (San Mateo County) will be identified that could meet the trail needs in these communities. The data on these ownerships will identify potential opportunities for local and regional recreation management agencies to improve trail connectivity by incorporating these rights-of-way into their local and regional trail systems. The plan prepared for the CRHT in these counties will serve as a model for use in other parts of California.
- Provide geographic and attribute data for the existing 27 California Trail Corridors throughout the state and report on the missing links in these corridors. The data will allow local agencies to identify opportunities for expanding their trail systems or linking to other regional systems and statewide Trail Corridors and help them provide increased trail access for nearby communities, cities or regions. The collected trails data, including maps, current management information, and website links, will be shared with local agencies and posted online to improve public and agency access to regional trail information.

CORP Evaluation and Strategic Plan

The Grants and Local Services Division and the Planning Division will evaluate the California Outdoor Recreation Planning Program and develop a long-range Strategic Plan to direct future CORP Program development.

California's CORP preparation process has changed little over the past decades. Improvements in planning processes and technologies support a comprehensive review of the state's CORP Program. Planning improvements made possible by the dramatic changes in information and public involvement technologies, such as GIS (Geographic Information Systems) and web-based social networking systems have not yet been incorporated in CORP processes. If the CORP program is to remain relevant to the state's ever-changing demands and its complex organization, its periodic review is essential.

The CORP evaluation will assess the Plan's effectiveness in shaping outdoor recreation provider decisions, track the implementation of CORP actions, and provide a compilation of best planning and implementation practices for developing the Strategic Plan. The long-range Strategic Plan will include a CORP road map and procedure guide. The CORP road map will identify improvements in processes and products to enhance the CORP's relevance to outdoor recreation providers, offer useful recommendations and information, and document outcomes of CORP-related actions. The procedure guide will describe best practices, recommend sequences for carrying out CORP activities and suggest timelines and processes for future CORP preparation.

Additional Future Planning Grant Possibilities

Although no planning grant applications have been submitted for these project proposals, and more specific recommendations for future CORP activities will be developed during the CORP evaluation and strategic plan process, the following conceptual CORP elements are briefly described here as possible future planning grant projects.

Recreation Benchmarks
California State Parks proposes to develop a set of benchmarks for local park and recreation areas and facilities in the state. Benchmark measurement could include the average travel time to a park or recreation areas, or the acreage of neighborhood and community parks per 1,000 residents.

California Recreational Trails Plan Update
The Statewide Trails plan was completed by Statewide Trails Program staff in 2002 and identified 12 trails-related goals and the general action guidelines to reach those goals. An updated plan would use the 2002 plan as a guide, incorporate additional information and recommendations about trails in the state.

Children in Nature Campaign
A series of public presentations ('Speakers Bureaus') around the state are being planned by California State Parks to both educate park users and stakeholders about the 'nature deficit disorder', the Children's Outdoor Bill of Rights and the goals and objectives of the Children in Nature Campaign. During each presentation, campaign staff will be collecting data on the existing 'children in nature' programs, to evaluate the supply of youth programs, publicize the currently available programs, expand the program information of the Campaign and make it available to recreation providers, and to encourage recreation providers statewide to adopt, develop or expands these types of programs.

Cool Parks Initiative
State Parks is addressing climate change with a three-pronged approach that involves adapting to climate changes, mitigating activities that might be contributing to climate change and educating others about climate change. The Department is playing a statewide leadership role in planning for climate change by developing a collection of tools, resources, strategies and actions focusing on climate change 'adaptation' that would inform and direct State Parks (and statewide) planning, operations and visitor services. The resources being developed are intended to help land management decision-makers in local, regional and state governments prepare for climate change by recommending a detailed process for climate change preparedness and planning.

Technical Assistance on New Recreation Facilities

State Parks is developing a series of Recreation Opportunity Bulletins describing new forms of outdoor recreation. Future bulletins will provide a reference for State Park staff and other recreation providers statewide to use for expanding the visitor's outdoor recreation experience.

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Appendices

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Appendix A: Outdoor Recreation Providers: Roles and Key Programs

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Many different federal, state, and local governmental agencies and commercial, private, and nonprofit entities provide recreation opportunities in California. This chapter identifies many of the primary providers and discusses their current roles and some of the key programs that benefit parks and recreation. This is not intended to include all providers. Since the federal government administers nearly half of the state's landmass, special attention is given to the outdoor recreation opportunities available through federal lands and programs.

The primary focus of this chapter is to introduce the many providers of recreation opportunities and some of the key programs that benefit parks, recreation and open space in California. The providers include federal, state, and local governmental agencies, special districts, non-profit organizations, land trusts and the private sector. Collectively these recreation providers offer a broad array of settings, opportunities and experiences to meet the diverse needs of Californians and visitors to the state. From mountain peaks to underwater reserves; from lush redwood forests to arid desert floors; from Disneyland to a neighborhood tot-lot; from highly active to passive forms of recreation; from free to very expensive pursuits; from activities involving no equipment to those requiring the latest technology, California offers recreation opportunities to meet virtually every need.

California's recreation providers, through the lands and facilities they administer and the services and programs they provide, contribute significantly to the quality of life and well being of Californians.

Park and recreation opportunities offered by California providers are important for maintaining the physical and emotional health and wellness of individuals. Parks and recreation areas convey a sense of place that brings people back time and again. California's economy benefits tremendously from recreation related sales of clothing, equipment, fees and services and the revenues generated from the tourism and hospitality industries. Recreation activity provides a strong support for community values and serves as a mechanism and social bridge for integrating people of all ethnicities, ages, incomes and abilities.

The providers educate, challenge, inspire and entertain our children, they offer safe and secure places for families and seniors, they protect and conserve our natural and cultural resources and they help strengthen and stimulate California's economy.

I. Federal Land Managers

Nearly half of California's total landmass - more than 47 million acres - is federal land or Indian land held in federal trust. These lands were specifically set aside by Congress or Presidential Executive Order, never having left the public domain, or were acquired for a specific purpose such as protecting wildlife habitat and wetlands, constructing reservoirs or creating parks and public recreation areas. The federal land management agencies, as directed by Congress, have statutory responsibilities for the management of federal lands and the development of recreational facilities and programs. Typically, the benefits and opportunities on federal lands are of national significance or are those that would generally not be feasible for state or local governments.

The outdoor recreation role of federal land mangers includes direct services through the management of federally owned properties such as national parks, recreation areas, monuments, forests, wildlife refuges, preserves, wilderness areas, historic sites, reservoir areas and military installations.

Federal land managers provide a significant diversity of outdoor recreation opportunities. The spectrum of federal outdoor recreation opportunities can range from riding off-highway vehicles to enjoying a pristine wilderness, from a short visit to a small historic monument to a multi-week exploration of thousands of acres of forest and desert. Federal recreation activities are both diverse and abundant.

Federal programs also provide vital support to state, local and nonprofit agencies and citizens, helping them meet a variety of land use goals. A variety of federal financial and technical assistance programs enhance local recreation opportunities, protect wildlife habitat, cultural resources and are used to plan and develop community and regional facilities. Programs administered by federal agencies, such as the Land and Water Conservation Fund, are vital to federal land mangers and tribal governments as well as to state, local and nonprofit agencies and citizens. Such programs assist with coordinated planning, improving public services, extending local capability, helping with land acquisition, promoting partnerships and developing facilities and land resources. Recreation experiences for Californians are greatly enhanced by the diverse opportunities provided by federal land managers.

A. Department of the Interior

Congress created the Department of the Interior in 1849. The Department's recreation responsibilities include administration of the nation's scenic and historic areas, the multiple uses of public lands, recreational use of federal reservoirs, the conservation and management of fish and wildlife resources, the coordination of federal and state recreation programs and services and the programs benefiting Native

Americans. Four key agencies or bureaus within the Department provide the public outdoor recreation resources and programs in California.

1. National Park Service
www.nps.gov

Mission

"The National Park Service preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world."

Created by Congress in 1916, the National Park Service (NPS) was directed "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The National Park System includes superlative natural, historic and recreation areas, consisting of parks, monuments and reservations such as National Recreation Areas, National Historic Sites and National Seashores, as designated by Congress or Executive Order. The NPS provides a broad array of recreational opportunities compatible with its responsibility to conserve and protect resource values for the enjoyment of future generations. Camping, hiking, nature observation, scenic drives, natural and cultural resource interpretation, boating, horseback riding, rock climbing and swimming are among the many recreational activities within the National Park System.

The NPS administers 24 units and one historic trail in California, covering over 8.2 million acres. These units are widely distributed throughout the state and represent a cross section of the diverse landscapes that define the character of California. The NPS units in California include towering redwoods and giant sequoias, volcanic landscapes, pristine windswept beaches, untrammeled wilderness, vast deserts, offshore islands, awe-inspiring beauty and history. In 2006, California's NPS units hosted almost 39 million visitors.

The NPS also serves as a national focal point for outdoor recreation. In this role, the NPS provides guidance to states to plan, coordinate and develop outdoor recreation policy, conduct surveys and studies of recreational supply and demand, and develop strategies and plans to meet outdoor recreation needs.

The NPS, through the National Center for Recreation and Conservation, administers programs assisting state and local agencies and communities to

restore rivers, establish trails, save open space, rebuild parks and preserve other special places.

The NPS also maintains the National Register of Historic Places and administers the National Historic Landmark and the National Natural Landmark programs.

a. Federal Programs Administered by the National Park Service

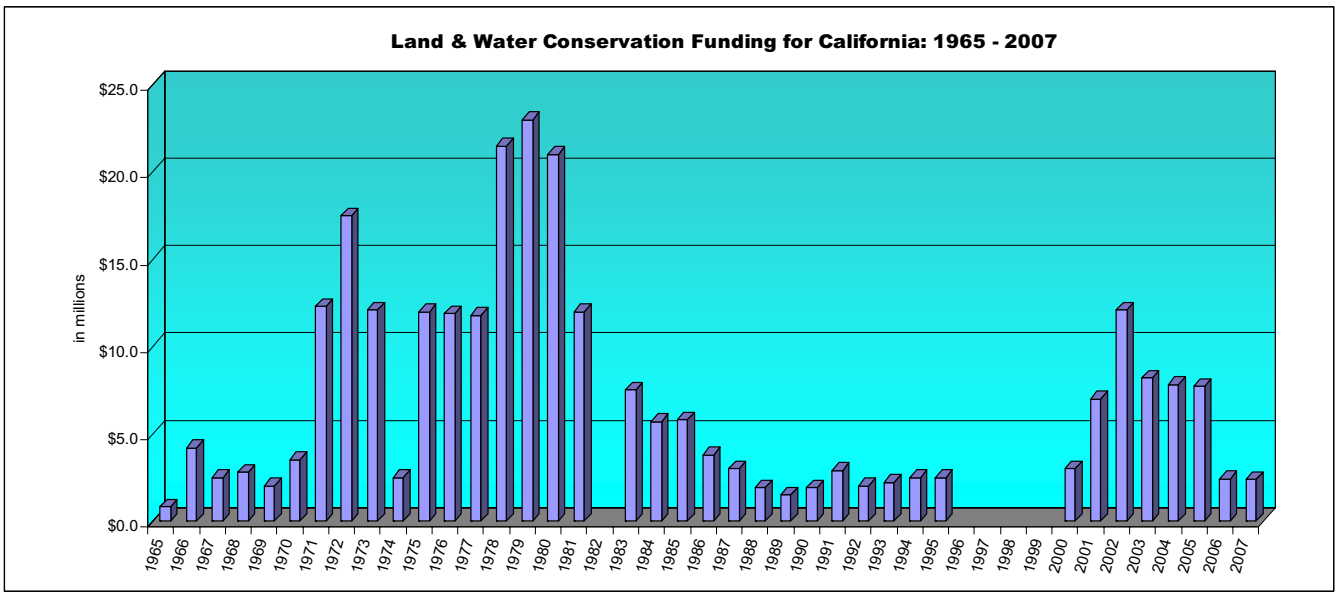
i. Land and Water Conservation Fund
www.nps.gov/lwcf

Established in 1965, the Land and Water Conservation Fund (LWCF) is the best-known source of federal funding for state and local outdoor recreation projects. The LWCF has provided $3,790,805,266.78 for new federal acquisitions and grants to state and local governments over its 40-year history.

Since its establishment, LWCF has assisted with the acquisition of over 210,733 acres in California. In 1979, California received its largest amount of $27.2 million but in 1982 and from 1996 through 1999 the state received no allocations. The table below shows California's historical LWCF allocations from 1965 through 2007. California's 2007 allocation was $2.38 million.

LWCF funding is subject to annual Congressional appropriations, which have been inconsistent over the years.

The LWCF is the primary source of federal funds, authorized by Congress, to acquire new federal forests, parks, wildlife refuges and other recreation areas.



The LWCF also provides matching grants to state and local governments for acquiring park and recreation lands, developing and rehabilitating recreation facilities and for studying recreation potentials, needs, opportunities and policies.

ii. Federal Lands to Parks
http://www.nps.gov/ncrc/programs/flp/index.htm

The National Park Service administers the Federal Land to Parks (FLP) program, helping communities create new parks and recreation areas by transferring surplus federal land to state and local governments. When a federal military base becomes surplus, NPS reviews the notices of availability and then notifies the relevant state, regional and/or local park agencies. A state or local government agency looking for parks and recreation property then notifies the Federal Lands to Parks Program regional office of its interest in the surplus property. Surplus federal lands can satisfy a number of community needs while remaining available for public beneficial use, subject to accepted stewardship principles and practices.

According to the FLP website, as of February 2004 6556.86 acres of property in California has been conveyed from the U.S. Government to state or local government for parks.

iii. Save America's Treasures Program
http://www.nps.gov/history/hps/treasures/

The Federal Save America's Treasures program is one of the largest and most successful grant programs for the protection of our nation's endangered and irreplaceable and endangered cultural heritage. Grants are available for preservation and/or conservation work on nationally significant intellectual and cultural artifacts and historic structures and sites. Intellectual and cultural artifacts include artifacts, collections, documents, sculpture, and works of art. Historic structures and sites include historic districts, sites, buildings, structures, and objects.

Grants are awarded to Federal, state, local, and tribal government entities, and non-profit organizations through a competitive matching-grant program, administered by the National Park Service in partnership with the National Endowment for the Arts, the National Endowment for the Humanities, the Institute of Museum and Library Services and the President's Committee on the Arts and the Humanities.

In 2006, $450,048 in grants was awarded to two California projects.

iv. Rivers, Trails, and Conservation Assistance (RTCA) Program
www.nps.gov/ncrc/programs/rtca/

The RTCA program provides advice and technical assistance to state and local governments, nonprofit groups and Indian tribes on a wide variety of open space, rivers, trails and related projects. The program, through voluntary partnerships instead of direct funding, helps local groups plan greenways, conserve rivers and waterways and develop new trails.

v. Cultural Resources - Grants, Tax Credit and Other Assistance
www.cr.nps.gov

The National Park Service administers a number of successful programs promoting historic preservation. These programs can revitalize communities through technical assistance, matching funds and local, state and federal partnerships to preserve and conserve cultural resources.

vi. Urban Park and Recreation Recovery
http://www.nps.gov/ncrc/programs/uprr/index.htm

When funding was available, the Urban Park and Recreation Recovery (UPARR) program provided matching grants and technical assistance to economically distressed urban communities. The program provided direct federal assistance to urban localities for rehabilitating critically needed recreation facilities. Eligible cities and urban counties were able to receive rehabilitation, renovation, and planning grants.

UPARR has not been funded since 2002 when $28.9 million were granted. Previously assisted sites and facilities, more than 1,500 in number in over 300 localities, remain protected in public recreation use, however, under the provisions of Section 1010 of the UPARR Act the same as §6(f) protection under LWCF).

In accordance with Section 1010 of the UPARR Act, no property improved or developed with UPARR assistance shall, without the approval of the National Park Service, be converted to other than public recreation uses. A conversion will only be approved if it is found to be in accord with the current local park and recreation Recovery Action Program and/or equivalent recreation plans and only upon such conditions as deemed necessary to assure the provision of adequate recreation properties and opportunities of reasonably equivalent location and usefulness. Section 1010 is designed to ensure that areas or facilities receiving UPARR grant assistance are continually maintained in recreation use and available to the general public.

2. Bureau of Land Management
www.ca.blm.gov

Mission

"To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations."

True to the multiple-use mandate of the agency, the Bureau of Land Management (BLM) manages a wide variety of public land uses including outdoor recreation, wilderness, grazing, forest products, mineral extraction, energy production and fish and wildlife management. BLM management practices are intended to sustain the health, diversity, and productivity of the land and water resources without sacrificing their significant natural or cultural values.

Outdoor recreation is an equal partner in the Bureau of Land Management's multiple-use mandate and managing land and water resources for recreation is a high priority. Nationally, the BLM's commitment to manage and enhance outdoor recreation opportunities was reinforced in May 2003 with the release of The BLM's Priorities for Recreation and Visitor Services Workplan followed by the Unified Strategy to Implement the Workplan. These plans established outdoor recreation related policies, goals, and specific actions, including state strategic plans for managing, maintaining and developing recreation opportunities. The BLM is currently developing A Strategic Recreation and Visitor Services Plan for California, using Benefits Based Management to look at California's diverse land and water resources and outdoor recreation opportunities, issues affecting their management and the need to enhance and promote outdoor recreation throughout the state.

According to the BLM, they administer multiple-use programs on more than 15.2 million acres, covering nearly 15% of California. BLM lands are particularly concentrated in the southeastern California desert, northeastern and north coast portions of the state. There is some BLM public land in all but three of the 58 California counties.

There are 15 BLM field offices responsible for managing California's public lands. These lands provide a broad spectrum of outdoor recreation opportunities. The resource-dependent outdoor recreation opportunities on BLM lands offer a high degree of freedom for unstructured and dispersed activities that are still sustainable within the constraints of sound resource management principles and practices.

BLM's outdoor recreation resources are divided into Recreation Management Areas and further classified into Special Recreation Management Areas (SRMA) and Extensive Recreation Management Areas (ERMA) to facilitate planning and management among the field offices.

The SRMAs usually require some kind of special management consideration, have been Congressionally or administratively designated, require a substantial management commitment and/or have had recreation identified as a principle management objective during the land use planning process.

Most of the BLM lands in California are designated ERMAs, catering to a wide range of personal recreation preferences with minimal regulation. ERMAs typically have minimal recreation services but offer diverse and unstructured resource-dependent outdoor recreation opportunities.

There are 45 SRMAs and 16 ERMAs in California. The SMRAs include National Scenic Areas, Wilderness and Wilderness Study Areas, Wild and Scenic Rivers, National Conservation Areas, National Natural Landmarks and sections of the National Trails System. Recreation opportunities include off-highway vehicle use, whitewater rafting, boating, fishing and camping as well as a broad mix of other recreation opportunities and experiences.

a. Federal Programs Administered by the Bureau of Land Management

i. Payments in Lieu of Taxes Act
http://www.doi.gov/pilt/

Payments in Lieu of Taxes (PILT) are congressionally approved payments to counties offsetting tax revenue losses from the tax-exempt federal lands within their jurisdiction. The payments apply to lands in the National Forest System, the National Park System, BLM administered lands and lands reserved or withdrawn from the public domain for federal water projects, the National Wildlife Refuge System, and a few other categories. California counties received nearly $21 million in PILT payments in 2007 distributed by BLM. The payments are in addition to other federal land receipt-sharing sources, including revenues from mineral leasing, livestock grazing and timber sales. The PILT payments help fund vital community services, including fire and police protection, recreation, as well as hospital and school construction.

ii. Recreation and Public Purposes Act
www.blm.gov/nhp/what/lands/realty/rppa.htm

This Act authorizes the sale or lease of public lands for recreational or public purposes to State and local governments and qualified nonprofit organizations. Recreational purposes include campgrounds, trails and parks, while public purposes include schools, firehouses, law enforcement facilities, hospitals and landfills. The Act specifies conditions, qualifications, acreage limitations and other provisions. Land within national forests, national parks and monuments,

national wildlife refuges, Indian lands, and federally acquired lands are excluded from this Act.

3. Fish and Wildlife Service
www.fws.gov/

Mission

"Working with others, to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

The Fish and Wildlife Service (FWS) is principally responsible for conserving, protecting and enhancing fish, wildlife and plants and their habitats. The FWS manages the 96 million-acre National Wildlife Refuge System, with more than 548 National Wildlife Refuges, thousands of small wetlands and other special management areas. It also operates 70 fish hatcheries, 64 fishery resource offices and 78 ecological services field stations. The agency enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat, provides federal aid to states, and helps foreign governments with their conservation efforts.

In California, the FWS manages 43 National Wildlife Refuges and Wildlife Management Areas, two National Fish Hatcheries and a Sacramento River salmon-viewing plaza. Approximately half of the refuges are open for recreation activities, including wildlife observation, study and photography, hunting, fishing, equestrian use, hiking, biking, environmental education and automobile touring. The remaining areas are either closed or have restricted access for public safety reasons or for the protection of special status species.

The U.S. Fish and Wildlife Service, Wildlife and Sport Fish Restoration Program administers federal aid programs that award millions of dollars in state grants. These programs may also benefit local governments and, in some cases, private landowners through state agency partnerships. Program elements vary depending on specifics within the enabling legislation.

a. Wildlife and Sport Fish Restoration Program Awards and Grants administered by the Fish and Wildlife Service
http://wsfrprograms.fws.gov/

i. Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act)
http://www.fws.gov/southeast/federalaid/pittmanrobertson.html

Approved by Congress in 1937, this Act funds the selection, restoration, rehabilitation and improvement of wildlife habitat, wildlife management research, hunter training and the development, operation and maintenance of public target ranges. Funds come from a federal excise tax on sporting arms, ammunition, archery equipment, and handguns. Funds are collected annually from manufacturers and apportioned to each state. Only state agencies are eligible to receive these grant funds. The grant amount is based on a formula considering the total area of the state and the number of licensed hunters.

ii. Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act & Wallop-Breaux Amendment)
www.fws.gov/laws/lawsdigest/FASPORT.html

Established in 1951, the Sport Fish Restoration Act provides financial assistance for state programs to manage, conserve, and restore fishery resources. This program is funded by federal excise taxes on fishing equipment manufacturing, including rods, reels, lines, hooks and lures. The funds are apportioned to state agencies based on size of the state and number of licensed anglers.

iii. Cooperative Endangered Species Conservation Grant Program
www.fws.gov/endangered/grants/section6/index.html

The U.S. Fish and Wildlife Service offers a variety of grant programs under the Endangered Species Act to help states, territories, and landowners plan and implement habitat conservation projects for special status species.

iv. National Coastal Wetlands Conservation Grant Program
http://ecos.fws.gov/coastal_grants/viewContent.do?viewPage=home

This is a competitive grant program established by the Coastal Wetlands Planning, Protection, and Restoration Act of 1990. The FWS provides matching grants through this program to acquire, restore, manage or enhance coastal wetlands. The program encourages partnerships, support for watershed planning and leveraged funding for on-going projects to maximize use of the limited funds.

v. Clean Vessel Act
http://wsfrprograms.fws.gov/Subpages/GrantPrograms/CVA/CVA.htm

This nationally competitive grant program distributes funds for the installation of pump-out stations at marinas and other public recreation sites.

vi. Boating Infrastructure Grants
http://wsfrprograms.fws.gov/Subpages/GrantPrograms/BIG/BIG.htm

This grant program was first authorized in 1999 and provides funds annually to improve facilities for recreational boats longer than 26 feet. The grant program has two tiers of funding.

vii. State Wildlife Grants
http://wsfrprograms.fws.gov/Subpages/GrantPrograms/BIG/BIG.html

Since 2002, Congress has annually appropriated funds to state fish and wildlife agencies for planning and conservation efforts with an emphasis on conservation of non-game species. These funds are apportioned to the states based on their land area and total population.

viii. Tribal Grants
www.fws.gov/nativeamerican/grants.html

In 2003, two new programs awarded grants, the Tribal Landowner Incentive Program and the Tribal Wildlife Grant Program. Congress awarded monies to help 48 federally-recognized tribes conserve and recover endangered, threatened and at-risk species and other wildlife on tribal lands in 22 states, including California.

4. Bureau of Reclamation
www.usbr.gov/

Mission

"To manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public."

The Bureau of Reclamation (BOR) was established in 1902 to develop water resources in 17 western states to facilitate agricultural development and settlement. The agency has moved more recently towards a multipurpose approach in the management of its land and water resources. In addition to agricultural, municipal and industrial water supplies, BOR today addresses endangered species, instream flows, fisheries management, wetlands preservation, fish and wildlife habitat conservation and enhancement, recovery of

salmon populations, cultural resources preservation, water quality, recreation and other environmental-related concerns.

In California, millions of people visit the Mid-Pacific Region's reservoirs each year to recreate. Most facilities are administered by other federal, state, county and city managing partners. The Bureau of Reclamation still directly manages some facilities such as Lake Berryessa and New Melones Lake.

B. Department of Agriculture

1. U.S. Forest Service
www.fs.fed.us/

Mission

"To sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations."

The Forest Service provides outdoor recreation opportunities through three entities:

- National Forest System
- State and Private Forestry
- Research and Development

The National Forest System in California includes 18 national forests covering over 20.6 million acres - one-fifth of the state's total landmass. The Forest Service employs multiple-use and sustained yield principles and practices to manage these lands while accommodating a variety of uses, including outdoor recreation, timber, grazing, watershed management, fish and wildlife habitat and wilderness. The multiple uses fit within an ecosystem framework approach, a fairly new resource management concept.

The Forest Service provides about half of the wildland recreation opportunities in California. In 2007, there were 31 million recreation visits to the state's national forests, representing nearly 15 percent of all recreational visits to all national forests in the country. The national forests contain an estimated 30 percent of the family campgrounds, 4.3 million acres of the designated wilderness areas, 50 percent of the state's water supply, and 24 of the 31 major downhill ski areas in California. The California national forests also contain more than 2,400 lakes and reservoirs, 13,000 miles of fishable rivers and streams, 1,200 miles of designated Wild and Scenic Rivers, and 18,959 miles of maintained hiking, horseback riding and off-road vehicle trails. There are over 6,131 forest service summer cabins permitted as "recreation residences," some dating back to 1906.

The State and Private Forestry programs provide technical and financial conservation assistance to state and private non-industrial landowners. The program leverages federal resources to produce a variety of forest-based goods

and services, including recreation, fish and wildlife, biological diversity, and timber. The programs include wildland fire protection, Smokey Bear, forest health protection, cooperative forestry, and natural resource preservation.

The Research and Development programs focus on areas requiring urgent policy and management action, including studies on watershed health and restoration, sustainable forest management, economic and social values, and forest health. In California, the Pacific Southwest Research Station, Wildland Recreation and Urban Cultures, engages in a variety of recreation research topics, including recreation customer models, market analysis, visitor communication, volunteer management, mountain biking issues, cultural diversity and California outdoor recreation management.

C. Department of Defense

1. U.S. Military

www.defenselink.mil/

The Department of Defense (DOD) administers approximately 4 million acres in California, used almost exclusively for military purposes.

The DOD is required to manage its natural resources and cultural sites, and, wherever possible, provide for multiple uses and public access compatible with each facility's military mission. The DOD has a resource management plan for each facility, which includes a section on managing natural resource-based outdoor recreation.

The Department's military mission and current level of national defense readiness influences access policies for military personnel, their families, civilian employees, military retirees, escorted guests, and the general public wanting to use the recreation areas. Some DOD facilities allow public access for hunting, fishing, horseback riding, visiting historic sites and access to beaches. Access may be continuous or granted only on special occasions, although many military facilities prohibit any public access.

With the end of the Cold War, Congress passed the Base Realignment and Closure Act (BRAC) in 1988. The Act appointed four rounds of independent BRAC commissions to recommend surplus and obsolete military bases for realignment or closure. California was the hardest hit in the nation with 29 major bases and several small installations identified for closure or downsizing. The closures reduced the state's annual economy by an estimated 9 billion dollars and caused the direct and indirect loss of 200,000 jobs. The base closures did free up over 77,000 acres of land for industrial, commercial, recreational, educational and residential uses. These closures have allowed federal, state and

local agencies to submit reuse plans for parks, recreation, open space, wildlife habitat and economic development.

2. U. S. Army Corps of Engineers
www.usace.army.mil/

Mission

"Provide peacetime emergency and environmental services while strengthening military support capabilities."

The civil works activities of the U.S. Army Corps of Engineers (Corps) include flood control, water supply, navigation, recreation, regulatory oversight, water quality, fish and wildlife conservation, and disaster response throughout California. These lands are administered directly through lease arrangements with other public agencies or through concessionaires. Corps projects are primarily water oriented, making them popular recreation resources.

a. Federal Programs Administered by the U.S. Army Corps of Engineers

i. Clean Water Act: Section 404
www.epa.gov/OWOW/wetlands/regs/sec404.html

The 1977 Clean Water Act amendment to the 1972 Federal Water Pollution Control Act is intended to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 404 of the Clean Water Act regulates the placement of dredge and fill material into United States waters and wetlands. The U.S. Army Corps of Engineers has primary responsibility for the permit program and issues permits in compliance with environmental requirements.

D. Special Systems on Federal Lands

There are three special management systems on California federal lands: the National Wilderness Preservation System, the National Wild and Scenic Rivers System, and the National Trails System. Congress created these systems to protect special features on federal lands and the systems are administered by several agencies, including the U.S. Forest Service, Bureau of Land Management, National Park Service and the Fish and Wildlife Service. Congress reserved the right to define the extent of the systems but under certain circumstances, state-designated rivers and streams or recreational trails can be added to the systems without congressional action.

1. The National Wilderness Preservation System
http://www.wilderness.net/

The National Wilderness Preservation System was created on September 3, 1964. The Wilderness Act defines federal wilderness as land untouched by human activity, primarily affected by the forces of nature where solitude and primitive recreation are the dominant values. The Act directs wilderness to be "devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use." Commercial activities, motorized access, and permanent roads, structures or facilities are generally prohibited. Areas within the National Wilderness Preservation System pertain to only lands that are federally owned. While agencies can nominate wilderness areas, only Congress can designate them.

The National Wilderness Preservation System includes 702 wilderness areas, 138 of which are in California. Nationally these areas contain 107,436,608 acres with 14,335,878 acres located in California. The largest California unit within the system is the Death Valley Wilderness at 3,253,028 total acres and the smallest California unit within the system is the Rocks and Islands Wilderness with 5 acres.

2. The National Wild and Scenic Rivers System
www.rivers.gov/

The Wild and Scenic Rivers Act celebrated its 40th Anniversary in 2008. The Act, championed by Senator Frank Church, and signed into law by President Lyndon Johnson on October 2, 1968, protects the free-flowing waters of many of the United State's most spectacular rivers.

The National Wild and Scenic Rivers System Act established three river classifications that prohibited any water resource projects that would hinder or divert river flow. Congress required management agencies to protect and enhance the river's values contributing to the Wild and Scenic River designation, but allowed most other land uses unless they "substantially interfere with public use and enjoyment of these values."

As of 2006, the National Wild and Scenic Rivers System protects more than 11,000 miles of 165 rivers in 38 states and the Commonwealth of Puerto Rico; this is a little more than one quarter of one percent of the nation's rivers. Of these protected resources, 1,893.8 miles of 15 rivers are within California.

3. The National Trails System
www.nps.gov/nts/index.html

The National Trails System Act (1968) established four classes of National Trails. National Trails include Scenic, Historic and Recreation Trails–and connecting or side trails providing access between the other trails.

Eight National Scenic (NST) and eighteen National Historic Trails (NHT) running 64,445 miles (not including the as yet determined length of the recently authorized Star-Spangled Banner NHT), have been designated by law. Another two connecting trails have been designated (certified) administratively. Sections of the Pacific Crest NST, California NHT, Pony Express NHT, Old Spanish NHT and the Juan Bautista de Anza NHT are found in California.

Over 1,000 National Recreation Trails have been recognized by the Secretaries of Agriculture and the Interior.

E. Other Federal Agencies Supporting Outdoor Recreation

1. Department of Transportation, Federal Highway Administration
http://www.fhwa.dot.gov/

The Federal Highway Administration manages the Highway Trust Fund to finance the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.

With guaranteed funding for highways, highway safety, and public transportation totaling $244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our Nation's history. The two landmark bills that brought surface transportation into the 21st century—the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21)—shaped the highway program to meet the Nation's changing transportation needs. SAFETEA-LU builds on this firm foundation, supplying the funds and refining the programmatic framework for investments needed to maintain and grow our vital transportation infrastructure.

Projects are sponsored by state agencies, federal agencies, and regional, local or private/non-profit agencies acting with a state agency partner.
A total of $370 million is provided through 2009 to continue this program to develop and maintain trails for recreational purposes that include pedestrian,

equestrian, bicycling and non-motorized snow activities as well as off-road motorized vehicle activities. New eligibilities are provided, including construction and maintenance equipment, real estate costs, educational program costs, State administration costs, and assessment of trail conditions.

F. Other Federal Programs

1. Federal Lands Recreation Enhancement Act (FLREA)

http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/recreation_fees__/rea_info_page.html

With the signing of the FY 2005 Appropriations Act, the Federal Lands Recreation Enhancement Act (FLREA) replaced the Recreational Fee Demonstration (Fee-Demo) authority. The new authority limits fees at sites that have a specified minimum level of development and meet specific criteria. Additional safeguards include provisions that require the use of Recreation Resource Advisory Committees and specific requirements to provide the public with information about fees and how fee revenues will be used. The Act provides agencies with recreation fee authority for 10 years, which will allow the agencies to improve the efficiency of the program, provide better facilities and services to the visitors, employ greater use of technology, and enter into more fee management agreements with counties and other entities to provide additional services to visitors.

The majority of fee revenues are retained at the site of collection and used to enhance visitor services, including repair, maintenance, and facility enhancement. Typical uses of fee revenues include maintaining campgrounds, habitat restoration directly related to wildlife-dependent recreation, fixing boat launches, offering interpretive displays and tours, and providing toilets, developed parking, trash receptacles, water, and other amenities that many visitors expect.

2. Federal Regulatory Actions

Federal regulatory actions can have a significant impact on outdoor recreation activities, including the types of uses allowed, the season of use, restrictions on the use of certain equipment and environmental quality-related restrictions. Regulations can have a profound affect on segments of the recreation equipment industry. New regulations for improving safety standards, reducing pollution, protecting the health and welfare of citizens and the environment are constantly being proposed. These regulations can restrict, curtail or eliminate certain activities or equipment. They can also require costly redesigns or early phase-out of expensive equipment before research and development costs can be fully recovered. Redesigns are not only financially and technologically burdensome to manufacturers but the added costs are passed on to retailers and consumers.

New regulations typically respond to consumer complaints, pressure from environmental advocacy groups, scientific advancements, and scientific evidence of resource degradation or to the manufacturing advances of new technologies or new products.

II. State Land Managers

A. California Resources Agency
www.resources.ca.gov/

The Resources Agency is responsible for conserving, enhancing, and managing the state's rich and diverse natural resources, including the land, water, wildlife, parks, minerals, and historic sites. California's natural resources supply the state's water, air, minerals, lumber, power and food. They also provide outstanding outdoor recreational opportunities, including nature study, research, and tourism. The Resources Agency oversees policies, activities, and a budget of $6.4 billion and 16,000 employees in 25 departments, commissions, boards and conservancies. Several directly provide outdoor recreation opportunities– most notably the Department of Parks and Recreation. Several others that do not provide direct services instead provide regulatory oversight, financial assistance, or resource protection supporting outdoor recreation opportunities and maintaining open space.

1. Department of Parks and Recreation
www.parks.ca.gov

Mission

"To provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation."

The California Department of Parks and Recreation (DPR) manages the State Park System, the Off-Highway Motor Vehicle Recreation Program, the Historic Preservation Program and the Office of Grants and Local Services. DPR provides millions of dollars in state and federal funds through its many programs to local and state agencies and other organizations for parks, recreation, and resource-related projects.

a. California State Park System
www.parks.ca.gov

The 1901 bill authorizing the use of state funds to acquire redwood property led to preservation of the first 2,500 acres in Big Basin in 1902 creating the first California state park. This set the tone for preserving California's most valuable

resource lands for future generations and the birth of the State Park System. Units of the State Park System include:

- Underwater recreation areas and reserves
- Natural and cultural preserves
- Beaches, recreation areas, wilderness areas, and reservoirs
- Historic and archaeological sites, National Register and National Historic Landmark properties
- Lighthouses, ghost towns and conference centers
- Off-highway vehicle parks

As of FY 2007/08, the California State Park System hosted over 79.5 million visitors and was responsible for 278 park units covering 1,560,623.2 acres of land, 315.43 miles of coastline; over 973 miles of lake and river frontage; more than 14,500 campsites; and over 4,600 miles of hiking, biking, and equestrian trails.

The System includes some of the State's finest coastal wetlands, estuaries, beaches, and dune systems representing almost one-third of California's scenic coastline.

The System's cultural resources include:

- Over 1 million museum objects
- More than 3 million archival documents
- Two million archaeological specimens
- 3,375 historic buildings and structures
- Over 100 properties on the National Register of Historic Places
- 123 California Historical Landmarks,
- 26 National Historic Landmarks
- 47 Historic Parks and Museums
- 14 Cultural Preserves
- Over 13,500 Cultural Resources inventoried
- 10,271 archaeological sites

b. Office of Historic Preservation
www.ohp.parks.ca.gov

The mission of the Office of Historic Preservation and the State Historical Resources Commission is to preserve and enhance California's irreplaceable historic heritage in the public interest so that California's vital legacy of cultural, educational, recreational, aesthetic, economic, social, and environmental benefits will be maintained and enriched for present and future generations. The Office of Historic Preservation administers California's statewide historic preservation program. The Commission reviews historic and archaeological site applications for listing on the National Register of Historic Places, the California Register of

Historic Resources, and the lists of California Historical Landmarks and Points of Historical Interest.

The Office of Historic Preservation administers a variety of grants to certified local governments, accredited colleges and universities, federally recognized California Native American tribes and any non-profit organization existing under section 501(c)(3) of the U.S. Internal Revenue Service Code that promotes historic preservation as its principle charitable purpose.

c. Office of Grants and Local Services
www.parks.ca.gov/grants

The Office of Grants and Local Services (OGALS) develops and administers a variety of grant programs providing funds to state agencies, counties, cities, park and recreation districts, special districts, and non-profit organizations for parks, recreation and resource-related projects. Over the last 35 years the Office of Grants and Local Services has administered $1.8 billion in local assistance grants, funding over 14,000 projects.

Historically, in 2000 voters approved a $2.1 billion Bond Act (Prop. 12) including $800 million for local grants. In 2002, a $2.6 billion Bond Act (Prop. 40) was passed including $832.5 million for local assistance grants.

Currently, the only new funds available being administered by OGALS are the annual programs (Habitat for Conservation Fund, Recreational Trails Program and the Land and Water Conservation Fund).

On November 7, 2006, voters passed the “Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006” (Safe Drinking Water Bond) by 53.9 percent. The 5.4 billion dollar Safe Drinking Water Bond cannot be implemented until a law is enacted specifying what grant programs the funds should support. In the 2007 legislative session, the Legislature did not send any bills to the Governor that would implement the Safe Drinking Water Bond.

Annual grant programs administered by the California Department of Parks and Recreation include the Habitat Conservation Fund, Land and Water Conservation Fund and the Recreational Trails Program.

d. Off-Highway Motor Vehicle Recreation Division
www.ohv.parks.ca.gov

Since the Off-Highway Vehicle (OHV) program began in 1971, the Off-Highway Motor Vehicle Recreation (OHMVR) Division of the California Department of Parks and Recreation has maintained and managed designated off-highway recreation areas. The OHV program directly or indirectly manages millions of acres across the state, with 90% of the off-highway vehicle recreation opportunities located on federal lands. All told, an estimated 100,000 miles of roads and trails are currently open to the off-road enthusiast, including the popular Sno Park areas. The largest source of OHV program funding comes from motor fuel taxes on those individuals who may also be driving off-road for recreation.

The State directly administers six State Vehicular Recreation Areas (SVRAs) covering 87,892 acres. In FY2007/08, almost 5 million people visited SVRAs.

The state provides grants and cooperative agreements through an OHV grant program for conservation, law enforcement, land acquisition, development, and operation of local and federal OHV areas. There are 11 locally operated OHV parks, 60 U.S. Forest Service sites, and 26 Bureau of Land Management facilities. The OHV grant program has awarded $194 million since 1986.

The Off-Highway Motor Vehicle Recreation Division released a report in 2002, “Taking the High Road:” The Future of California’s Off-Highway Recreation Program. This report details recent OHV program reform efforts to benefit the public and the environment. Among the topics were:

- Encouraging and expanding participation in setting policies and procedures
- Reforming the OHV grant program
- Commissioning an updated and comprehensive fuel tax study
- Instituting strategic planning
- Strengthening pubic safety, education and outreach

2. Department of Fish and Game
www.dfg.ca.gov
Mission

“To manage California’s diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.”

The Department of Fish and Game (DFG) currently owns or administers 716 properties statewide, totaling 1,082,641 acres (606,306 owned and 476,335 administered). These 716 properties include 110 wildlife areas, 123 ecological reserves, 11 marine reserves, 233 undesignated lands, 180 public access areas, 21 fish hatcheries, and 38 miscellaneous lands.

The various land and water resources are classified as wildlife areas, ecological reserves, public access, fish hatcheries or are undesignated. The state acquired these lands to provide public outdoor recreational use opportunities and to protect and enhance habitat for a wide array of plant and wildlife species, including many threatened or endangered species. Outdoor recreation opportunities include hunting and fishing and places for hiking, camping, boating, wildlife viewing and nature study.

DFG also enforces the state's Fish and Game Code, wetlands regulation, permitting and mitigation, streambed alteration permitting, statewide oversight for conservation planning, as well as overseeing partnerships and related programs and administration of the California Endangered Species Act, including plant and animal species listing.

The DFG receives funding through several federal grant-in-aid programs that benefit fish and wildlife through habitat acquisition and restoration, research, environmental protection and public access. The DFG also provides outdoor recreational opportunities including hunting, fishing, boating, education, safety programs and wildlife viewing. Federal aid comes from a variety of sources including the well-known Dingell-Johnson, Wallop-Breaux, and Pittman-Robertson Acts, as well as several others. Federal aid programs are primarily administered through the U.S. Fish and Wildlife Service. Other state agencies, local governments, nonprofit organizations and, in some cases, individual landowners, can benefit from these funds through partnerships with the DFG.

a. Wildlife Conservation Board
http://www.wcb.ca.gov/

Mission

"The mission of the Wildlife Conservation Board is to select, authorize, and allocate funds for the purchase of land and waters suitable for the preservation, protection, and restoration of wildlife habitat."

The Wildlife Conservation Board (WCB) was created by 1947 legislation to administer a capital outlay program for wildlife conservation and related public recreation. Although falling within the Department of Fish and Game, the WCB is a separate and independent board with the authority and funding to carry out acquisition and development programs for wildlife conservation.

WCB financial assistance is available to cities, counties and public districts or corporations for development projects and facility construction. Facilities may include fishing piers and floats, boat ramps, jetty access walkways, lake or reservoir improvements, boardwalks, nature trails and interpretive areas. Projects

are generally completed in coordination with local agencies, which then operate and maintain them for public use.

The primary responsibilities of the Board are to select, authorize and allocate funds for land and water resource acquisitions suitable for recreation purposes and the preservation, protection and restoration of wildlife habitat. The Board can also authorize recreational facility construction on property in which they have a proprietary interest.

3. Department of Water Resources
http://www.water.ca.gov/

Mission

"The mission of the Department of Water Resources is to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments."

The Department of Water Resources (DWR) develops and manages the state's water resources to supply quality water for municipal, industrial, agricultural, and recreational uses. The DWR is also responsible for maintaining adequate water to sustain fish populations and for the protection and enhancement of habitat and wildlife.

DWR also plans, designs, constructs, operates and maintains the State Water Resources Development System. The DWR is additionally responsible for protecting and restoring the Sacramento-San Joaquin Delta, regulating dams, controlling floods, educating the public and serving local water needs.

Water is one of the strongest and most popular attractants for a variety of outdoor recreation activities and experiences. Water-based outdoor recreation such as swimming, beach activities, boating, fishing and water skiing are very important on the state's rivers and reservoirs. Water features enhance picnicking, camping, hiking and driving for pleasure. Managed water resources also provide wildlife habitat, promote or enhance nature study, photography as well as fish and wildlife production. Managed water resources also help maintain environmental quality.

4. Department of Forestry and Fire Protection
www.fire.ca.gov

Mission

"The Department of Forestry and Fire Prevention protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens."

The California Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of over 31 million acres of privately owned wildlands. CAL FIRE responds to an average of more that 5,600 wildland fires each year. In 2007, CAL FIRE responded to 3,610 fires that burned 434,667 acres. CAL FIRE also responds to an average of more than 350,000 non-wildfire emergencies each year. For many outdoor recreation users, CAL FIRE is often the first responder during medical emergencies, auto accidents, search and rescues, and civil disturbances. Fire prevention and fire safety programs remain a high statewide CAL FIRE priority.

CAL FIRE also has a role in managing and protecting California's natural resources through their Resource Management Program. CAL FIRE foresters review between 500 and 1,000 Timber Harvest Plans and conduct over 7,500 site inspections annually to ensure protection of watersheds, wildlife, tree renewal and cultural resources and to ensure compliance with California's forest practices regulations.

CAL FIRE operates eight Demonstration State Forests covering 71,000 acres. The demonstration forests contain 50 million board feet of growing trees and an average of 30 million board feet is harvested there annually, enough for 3,000 single-family homes. The demonstration forests also support research, demonstration projects, public recreation, fish and wildlife habitat, and watershed protection.

5. Department of Boating and Waterways
www.dbw.ca.gov

Mission

"To provide safe and convenient public access to California's waterways and leadership in promoting the public's right to safe, enjoyable and environmentally sound recreational boating."

The Department of Boating and Waterways (DBW) is the state's recreational boating agency. For the past 50 years, it has been a leader in developing safe and convenient access to California's waterways in state parks, inland lakes, reservoirs, rivers and along the scenic coastline. There are about 2.7 million boats in California, which include 1 million motorized boats and 1.7 million non-motorized boats. DBW services include loans for the construction of marinas, funding for the construction of boating instruction and safety centers, and grants for motorized and non-motorized boat launching facilities, removal of abandoned watercraft, vessel sewage pumpouts, floating restrooms and boating law enforcement support. Other services include boating safety and clean green boating education, aquatic weed control and law enforcement training.

Since 1957, the Department of Boating and Waterways has provided over $800 million in program funds supporting recreational boating. Recreational boating contributes over $20 billion annually to the State's economy.

6. Department of Conservation
www.consrv.ca.gov

Mission

"The Department of Conservation was created in 1961 to administer activities and programs for the purpose of conserving California's soil resources."

The Department of Conservation (DOC) administers a variety of programs to ensure the wise use and conservation of the state's land, energy and mineral resources.

The DOC works with landowners, local governments, and researchers to conserve farmland and open space through conservation easements, tax incentives, and mapping and monitoring farmland. As California's population grows, DOC land conservation programs promote smart growth to protect farmlands and related open space, important backdrops for enhancing outdoor recreation experiences. The California Land Conservation Act of 1965 (Williamson Act) for example, encourages local governments to contract with private landowners, restricting land use to agriculture or open space in return for lower tax assessments. DOC programs help preserve and enhance the rural agricultural lifestyle, character and landscape. Rural landscapes are important to the sightseeing and traveling public and help maintain the quality of life in California.

7. California Conservation Corps (CCC)
www.ccc.ca.gov

Mission

"Protect, conserve, restore, and enhance environmental and human-based resources of the California coast and ocean for environmentally sustainable and prudent use by current and future generations."

The California Conservation Corps (CCC) is the oldest, largest and longest-running youth conservation corps in the world.

Federal, state, county, and city agencies as well as school districts, nonprofit and private organizations can partner with the CCC. The CCC works on reimbursable projects such as trail construction, erosion control, irrigation system installation, tree planting and park maintenance and restoration.

8. State Conservancies
http://www.resources.ca.gov/conservancies.html

The nine conservancies below are independent agencies under the California Resources Agency umbrella. Each has a different mission in specific geographic areas around the state. While their missions vary, their primary objectives include protecting the natural environment, increasing public access and recreation opportunities and preserving and enhancing the broad diversity of wildlife habitat.

a. Coastal Conservancy
www.coastalconservancy.ca.gov

The California Coastal Conservancy is an independent state agency that uses non-regulatory means to purchase, protect, restore, and enhance coastal resources and wetlands, and provide public access to the shore. The Coastal Conservancy works in partnership with local governments, other public agencies, nonprofit organizations, and private landowners to resolve land use conflicts and develop restoration plans. To date, the Conservancy has undertaken more than 1,200 projects along the California coastline and around San Francisco Bay and has provided more than $1.5 billion to complete these projects.

Conservancy projects can include trail construction, public access facilities, wetland restoration and enhancement, public pier restoration, and preservation of agricultural lands.

b. Santa Monica Mountains Conservancy
http://smmc.ca.gov/

The Santa Monica Mountains in Los Angeles and Ventura counties is one of the great urban wilderness areas in the country. The Conservancy's mission is to strategically buy, preserve, protect, restore, and enhance treasured pieces of Southern California, forming an interlinking system of urban, rural, and river parks, open space, trails and wildlife habitats easily accessible to the general public.

c. California Tahoe Conservancy
www.tahoecons.ca.gov

The California Tahoe Conservancy's mission is to preserve, protect, restore, enhance and sustain the unique and significant natural resources and recreational opportunities on the California side of the Lake Tahoe Basin. It was established to develop and implement programs of land acquisitions and site

improvements to improve water quality, preserve the scenic quality and recreation opportunities in the region, provide public access, preserve wildlife habitat, and manage and restore lands to protect the natural environment. The Conservancy is not a regulatory agency.

d. Baldwin Hills Conservancy
www.bhc.ca.gov

The Baldwin Hills Conservancy is the primary state agency responsible for acquiring and developing open space in the Baldwin Hills to expand the Kenneth Hahn State Recreation Area, located in the northwestern area of the Los Angeles Basin.

The Baldwin Hills Conservancy develops and coordinates an integrated program of resource stewardship to optimize recreational and natural resource values consistent with community needs and the region's long-term recreation and habitat conservation goals. The Conservancy's goal is a two square mile world-class natural park and recreation area for the Los Angeles Basin.

e. Coachella Valley Mountains Conservancy
www.cvmc.ca.gov

The Coachella Valley Mountains Conservancy was established by the California Legislature in 1990 to protect the Coachella Valley mountains from Palm Springs to the Salton Sea. The Conservancy grew out of a community-based conservation group creating a partnership between local, state, and federal agencies, and the public as the most effective way to protect the splendid natural and cultural resources of the area. The Conservancy's mission and territory were broadened in 2000 to include natural community conservation land acquisitions following guidelines in the DFG's Natural Community Conservation Plan.

f. San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy
www.rmc.ca.gov

Legislation created the Conservancy in 1999 and a year later, it created a Parkways and Open Space Plan to preserve urban open space and habitat for the enjoyment and appreciation of present and future generations. The Conservancy sponsors projects providing low-impact recreation, education, wildlife and habitat restoration, and watershed improvements that prioritize river-related recreation, re-vegetation, aesthetic improvements, and wildlife habitat.

The San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy planning area includes 58 cities in eastern Los Angeles County and 10 cities in western Orange County. The Conservancy works collaboratively with the 68

cities and two counties, other local, state and federal agencies as well as non-governmental organizations and citizens. The Conservancy has adopted a parkway and open space plan for the San Gabriel River watershed, the lower Los Angeles River watershed, and the San Gabriel Mountains.

g. San Joaquin River Conservancy
http://sjrc.ca.gov/

The San Joaquin River Conservancy develops, operates and maintains the San Joaquin River Parkway, situated along both sides of the San Joaquin River from Friant Dam to Highway 99 in Madera and Fresno Counties. The Conservancy preserves and enhances the River's extraordinary biological diversity, protects its valued cultural and natural resources and provides educational and recreational opportunities to the local communities.

h. San Diego River Conservancy
http://sdrc.ca.gov/

Governor Gray Davis signed legislation creating the San Diego River Conservancy in September of 2002. The Conservancy fulfills its mission of the restoration and conservation of the San Diego River Area through acquiring, managing and conserving land and by protecting or providing recreational opportunities, open space, wildlife species and habitat, wetlands, water quality, natural flood conveyance, historical / cultural resources, and educational opportunities. One of the Conservancy's goals is to build a River-long park and hiking trail stretching fifty-two miles from the River's headwaters near Julian to the Pacific Ocean.

i. Sierra Nevada Conservancy
http://sierranevada.ca.gov/

The Sierra Nevada Conservancy (SNC) initiates, encourages and supports efforts that improve the environmental, economic and social well-being of the Sierra Nevada Region, its communities and the citizens of California. The SNC Region is comprised of all or part of 22 counties and over 25 million acres. The Region is California's principal watershed; supplying 65% of the developed water supply.

The Region is divided into six Sub-Regions. SNC was created to work collaboratively and in coordination with local governments and interested parties to carry out the seven program goals. The Governing Board is made up of 13 voting and 3 non-voting members as outlined in Public Resources Code Section 33321.

9. California Coastal Commission
www.coastal.ca.gov

The California Coastal Commission was made permanent by the Legislature though the 1976 California Coastal Act as an independent, quasi-judicial state agency. The Coastal Commission regulates coastal land use and issues development permits.

The Coastal Act contains policy on shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works.

California's coastal management program involves a partnership between state and local governments. The Coastal Act requires that each local government in the coastal zone prepare a Local Coastal Program (LCP), meeting the Act's provisions and policies. Coastal zone development is restricted unless a costal zone development permit is issued by the Commission or by a local government with an approved LCP. In past years, the Coastal Commission provided substantial grants for coastal communities to complete or update their LCP. However, no funding for local planning grants has been included in the Commission's budget since FY 2000/01.

Whale Tail Competitive Grants, Environmental Enhancement and Mitigation Grants, Regional Wetlands Grants, the Coastal Resources Grant Program and the Coastal Assistance Impact Program are additional sources of coastal community assistance through the Coastal Commission.

The Coastal Commission manages a public access program for the length of California's coastline and maintains an inventory of all the offers-to-dedicate (OTD) public access easements. Once all the OTDs are identified, local governments and the Commission work to fund the construction and opening of these coastal easements.

The California Coastal Trail will span the 1,200-mile length of the state's shoreline when completed, providing access opportunities for a variety of users. The trail has been designated a National Millennium Legacy Trail and the Commission and the State Coastal Conservancy are working towards completing it.

10. California Wilderness Preservation System
http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=15498928687+1+0+0&WAISaction=retrieve

The California legislature established the California Wilderness Preservation System (CWPS) in 1974. Three basic criteria govern admission to the system: 1) the land must be state owned; 2) the area must remain in, or have been returned to, or have substantially reestablished its principal, natural character, and influence; and 3) the area must be of sufficient size to make its preservation practicable. The 1974 legislation created two wilderness areas: the Santa Rosa Mountains Wilderness Area of 87,000 acres and the 12,465-acre Mount San Jacinto Wilderness Area abutting the federally designated San Jacinto Wilderness. Much of the land in the state system is in Anza-Borrego Desert State Park (297,400 acres); other areas are along the coastline and in mountain ranges along the coast. California State Parks includes the following designated State Wilderness (SW) areas in addition to those mentioned above: Boney Mountain SW (6,190 acres), Bull Creek SW (10,450 acres), Cuyamaca Mountain SW (13,210 acres), Henry W. Coe SW (23,300 acres), Murrelet SW (6,600 acres), Redwood Heritage SW (5,500 acres), West Waddell Creek SW (5,810 acres) and most recently Sinkyone SW (7,100 acres). In California, the State Legislature can designate wilderness, or proposals can be brought before the California Park and Recreation Commission.

11. California Wild and Scenic River System
http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=155451738+0+0+0&WAISaction=retrieve

The State of California designates that certain rivers that possess extraordinary scenic, recreational, fishery, or wildlife values and states that they shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state.
The Public Resources Code (PRC) defines “wild rivers” as being “those rivers or segments of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.” [PRC 5093.53(a)]

There are 16 rivers within the California Wild and Scenic River System.

III. Local Government Providers

Counties, cities and special districts manage significantly less acreage when compared to the area managed by federal and state providers. Despite their smaller land base, local park and recreation agencies provide more outdoor recreation opportunities. There are many more local parks and recreation areas and they are more convenient for frequent use. Much of California’s outdoor recreation occurs at these local community sites, from neighborhood tot-lots,

playgrounds and swimming pools to green belts for walking and bicycling, regional sports complexes, turf fields and natural areas. The California State Parks' Office of Grants and Local Services reports there are 836 agencies in the state that administer park and recreation services. A 1987 DPR survey identified 7,738 parks and recreation areas being administered by local governments.

Most city or county governments provide park and recreation services through specific park and recreation departments. In some areas, special park and recreation districts have been created to offer recreation services otherwise unavailable in the area.

State law empowers local governments to establish, maintain, and operate park and recreation systems. Most local governments can issue bonds to finance capital improvements, while funding for operations and maintenance comes from local taxes, grants, donations, land leases, user fees, and concessionaire fees.

Counties generally operate larger parks and recreation areas located on the edges of population centers and serving several communities although they also operate smaller neighborhood parks in unincorporated areas as well. County park and recreation systems account for nearly half of all local government parklands. County agencies generally place more emphasis on open space and a lower priority on recreation programming. County park rangers or county sheriffs provide law enforcement services.

City parks are typically smaller than county parks, though some older parks are quite large. City parks include developed facilities designed to meet immediate community needs. Most visitors can walk, ride a bicycle, or drive a short distance to a city park. Community proximity makes recreation programming a high priority and city police usually provide law enforcement.

City park and recreation facilities typically include community teen and senior centers, play fields, green belts, fields for turf sports, swimming pools, picnic and barbecue areas, activity centers, skateboard parks, playground equipment, surfaced sport courts, tot-lots, and exercise facilities. Many of these parks are lighted, allowing use during evening hours. These facilities are used by children after school and by adults on evenings, after work or on weekends for league sports like baseball, softball or soccer. Many local schools allow joint use of their lands and buildings for neighborhood and community recreation.

There are approximately 50 principal law statutes used to create special districts in California. The size and function of a special district depends on its location and service provided. There are approximately 4,000 special districts in California providing over 50 types of services, including parks and recreation. Special districts have the same governing powers as other local governments, allowing them to execute contracts, employ workers, and acquire real property.

These districts have defined geographical areas, resident populations, a governing body, and revenue-raising powers.

Governance and authority of special districts vary depending on district type. Enterprise Districts provide services received and paid for by a specific beneficiary. Non-Enterprise Districts provide services without charging fees, with property taxes covering the costs. Independent Districts are governed by a separate elected board of directors. Dependent Districts are governed by existing legislative bodies, either the County Board of Supervisors or a City Council. Each district must adhere to rules, regulations and restrictions according to state laws. Dependent districts have no taxing authority and cannot set service levels. Some special sanitation, water or open space districts may offer recreation services to supplement their primary services.

IV. Non-Profit Providers

Non-profit providers are extremely important to federal, state and local park and recreation providers. Non-profit foundations can raise funds and educate the public, media and elected officials on the enhanced quality of life associated with quality park and recreation areas. Funds provided by members, corporations and foundations can improve and expand park and recreation programs, services, and facilities. Non-profits also serve a vital role in educational programs, volunteerism and park and recreation stewardship.

A. California State Parks Foundation

http://www.calparks.org

The California State Park Foundation has raised over $127 million for State Parks program support since it was founded in 1969. The Foundation has financially supported various park projects by adding land, constructing visitor centers and interpretive displays, building trails, restoring wildlife habitat and supporting family camping programs for youth.

FamCamp is a family camping program administered by the Foundation and operated through member support. The FamCamp program encourages participation from low-income families, families with developmentally disabled children, and youth of various backgrounds. Over the last two years, FamCamp has provided 1,600 youth and their families with their first camping experience.

B. Save America's Treasures

http://www.saveamericastreasures.org/

Save America's Treasures is a public-private partnership between the National Park Service and the National Trust for Historic Preservation.

Save America's Treasures is a national effort to protect "America's threatened cultural treasures, including historic structures, collections, works of art, maps and journals that document and illuminate the history and culture of the United States." Established by Executive Order in February 1998, Save America's Treasures was originally founded as the centerpiece of the White House National Millennium Commemoration and as a public-private partnership that included the White House, the National Park Service and the National Trust for Historic Preservation. Dedicated to the preservation and celebration of America's priceless historic legacy, Save Americas Treasures works to recognize and rescue the enduring symbols of American tradition that define us as a nation.

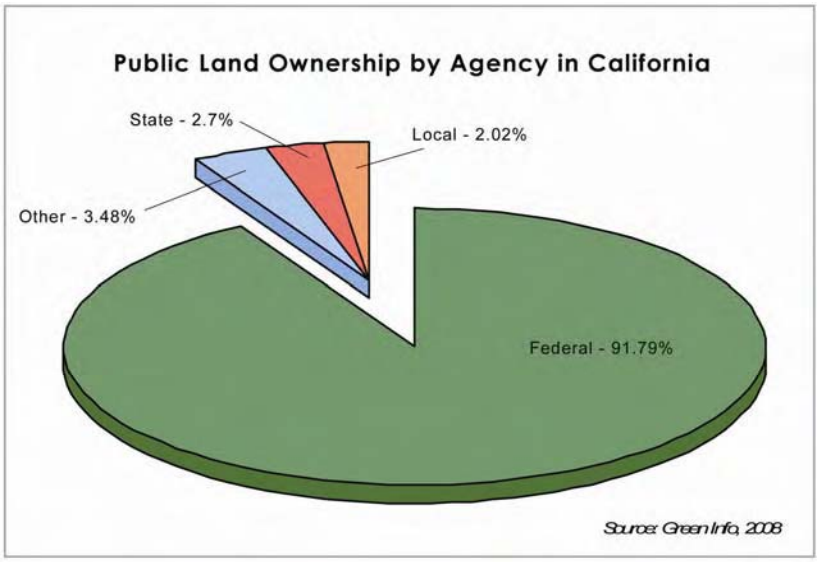
As of January 2007 26 projects were awarded funding in California including the Angel Island Immigration Station and the Dr. John Marsh Stone House.

Non-profit land trusts at local, regional, state and national levels have been increasing in the last decade. These organizations purchase land, hold options to purchase or acquire conservation easements. They can move fairly quickly to acquire land from willing sellers and often partner with public agencies who move more slowly. The non-profit land trusts typically purchase and hold the property until public agencies can complete environmental review and secure funding.

Non-profit organizations come in many forms and address a variety of issues but have the unifying theme of being non-profit businesses providing social benefits.

V. Private Providers

Private sector providers play an important role by handling the many forms of profitable outdoor recreation. Private providers offer recreational pursuits on privately owned and controlled lands. Private businesses often operate in concert with public agencies on publicly owned



lands.

Concessionaires are an example of successful private providers operating on public lands. Private concessionaires can provide stores, marinas, restaurants, equipment rentals, and lodging. Innovative public agencies are arranging with private businesses to develop, maintain and operate various public facilities on public lands. The public-private partnerships use the inherent strengths and advantages of both sectors towards mutually beneficial goals. The keys to an effective relationship are the contractual terms and conditions and effective public agency oversight.

The private sector has certain advantages over public providers. The private sector can have better access to capital, particularly the large amounts needed for new venture investments. Private recreation providers generally command a higher price than public providers. Private providers capitalize on rapidly changing public demand and can quickly market new and popular recreation activities, which would be difficult and maybe inappropriate for a public agency. Private providers also have more flexibility in the labor market. They can hire employees in a variety of skill groups to quickly meet changing or special situations, and can quickly reduce or change their staffs when requirements change, a level of flexibility virtually impossible for public agencies.

From amusement parks to family owned petting zoos, from exclusive golf courses to neighborhood health clubs, the private sector provides many types of outdoor recreation on privately owned and controlled lands. Conversely, Big League Dreams' sports parks are a good example of a privately operated franchise on public parklands.

California's theme parks are a good example of private outdoor recreation facilities on private land. Theme parks are some of the most popular outdoor recreation destinations in the State. Although Disneyland's attendance has been declining since the 15 million visitor peak in 1996, in recent years attendance has increased, and in 2006 visitation reached 14.4 million people.

Regardless of an individual's outdoor recreation interest, there are private providers offering a service. From hang gliding to scuba diving, from horse back riding to llama hiking, from whitewater rafting to yacht sailing, all are possible in California.

Appendix B: California Outdoor Recreation Plan Public Outreach

Issues and Actions Outreach

The update process for the 2007 California Outdoor Recreation Plan (CORP) involved a diverse CORP Advisory Committee of federal, state, local, non-profit and private park and recreation providers and stakeholders. Public comment and participation in the update of the Issues and Actions included a survey at the annual conference of the California Park and Recreation Society, a presentation to the California Roundtable on Recreation, Parks and Tourism, and four public workshops held in San Diego, Riverside, Stockton and Oakland, facilitated by staff from the California State University's Center for Collaborative Policy.

CORP Advisory Committee
State Parks staff convened the first two meetings of the Advisory Committee in March and April 2007. The Committee reviewed the Issues from 2002, determining which were still current and relevant and deciding which Issues needed to be added to this CORP update. The Committee then reviewed the 2002 Actions addressing each issue, deciding whether the Actions are still relevant and actionable and provided feedback on any progress made since 2002. Several Actions were added that addressed the two new Issues recommended by the Committee. A final Committee meeting in April 2008 involved a review of the public comments received and some action planning to address Actions that could be tackled by the recreation representatives in the meeting.

California Park and Recreation Society Conference
State Park staff developed a survey asking for public feedback on whether each of the 2002 Issues and Actions are still relevant to California's park and recreation service providers. The conference attracted 2,000-2,500 conference attendees; survey forms were distributed in three relevant conference sessions and at the California State Parks conference information booth and 27 survey responses were received.

California Roundtable on Recreation, Parks and Tourism
The California Roundtable on Recreation, Parks and Tourism was founded in 1998 to encourage cooperation between public and private entities involved and interested in outdoor recreation, public lands and tourism in California. The Roundtable membership includes recreation, parks and tourism leaders from local, state and federal government, private enterprise, user groups, environmental groups, educational institutions and the public. State Parks staff made a presentation to the Roundtable at their June 2007 meeting. Staff provided background on the California Outdoor Recreation Plan, the LWCF requirement, the various elements of the California Outdoor Recreation Planning Program and the update and planning process. The Roundtable was given

examples of State Parks' progress on several of the 2002 Actions and asked for feedback on additional progress on other CORP Actions.

Public Outreach Workshops
Four public outreach workshops soliciting feedback on the revised Issues and Actions were held in various parts of the state with assistance from the Center for Collaborative Policy at California State University, Sacramento. The workshop dates and locations were publicized in various ways. Announcements were posted on the California State Parks webpage; an email workshop invitation and an invitation to comment on the Issues and Actions was sent to all 4,000 members of the California Park and Recreation Society; a State Parks press release was issued prior to the workshops; the Advisory Committee was asked to publicize the workshops through their constituent networks and, following low attendance at the first two workshops, an email was sent to all the Southern California State Parks district superintendents with an invitation to the public workshops, invitation to comment, and a request to further publicize the workshops. A total of 19 people attended the workshops and provided comments on the Issues and Actions.

Additional Public Outreach for Other CORP Elements

Surveys of Public Opinions and Attitudes on Outdoor Recreation in California
- 2002 Survey - 2,512 adult Californians responded to the telephone survey, 610 completed the adult mail-back survey, 144 youth filled out their mail-back survey
- 2007 Survey - Eight youth focus groups were held to refine the youth survey
- 2007 Survey - The 2007 survey generated 2,780 telephone respondents, 1,222 adult mail-back respondents and 397 youth mail-back respondents

Central Valley Vision
The Department sought public input through town-hall style meetings held from Redding to Bakersfield, asking residents for recommendations on what kinds of special places they wanted to preserve, protect, and interpret as future parks, recreation areas, historic and cultural sites.

Local Needs Assessment
State Parks sought input from community agencies and from public and nonprofit park and recreation providers statewide; surveyed local public and nonprofit recreation service providers, conducted regional focus group meetings; established an advisory committee of the state's recreational leadership, including representatives from legislative staff, local service providers and community-based organizations.

State Water Plan
State Parks staff participated in a resource management strategy public workshop, focusing on water-dependent recreation.

Recreation Policy
State Parks staff established a Policy Oversight Committee made up of public, private and non-profit groups. Policy drafts were shared at meetings and venues; written comments were solicited; the policy was posted on the State Parks website; the Policy was included as a topic on the California Park and Recreation Commission's April 2005 meeting agenda; comments were received from over 100 organizations and individuals.

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Appendix C: California Outdoor Recreation Plan Advisory Committee

The California Outdoor Recreation Plan Advisory Committee was appointed to assist the Department of Parks and Recreation with the identification of the issues affecting parks and recreation in California and in the development of meaningful actions that would address them. The issues and actions section serves as the core element of the California Outdoor Recreation Plan.

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Appendix D: Open Project Selection Process

Introduction

Since the passage of the Federal Land and Water Conservation Fund Act of 1965, the State's annual Land and Water Conservation Fund (LWCF) apportionments have been allocated among state agencies and shared with local units of government. Distribution of funds has been on the basis of the formula contained in Section 5099.12 of the Public Resources Code. Selection of LWCF assisted projects is made in accordance with the criteria developed based on the priorities and needs identified in the California Outdoor Recreation Plan. The criteria are adopted subsequent to public hearings and approval by the California Office of Administrative Law.

Guidelines for determining priority statewide outdoor recreation needs through the Open Project Selection Process (OPSP) are derived from the current California Outdoor Recreation Plan (CORP) and Public Opinions and Attitudes Survey on Outdoor Recreation. The first of these planning documents identifies a variety of issues and priorities through various research and information gathering methods and offers actions and solutions. In the second document, outdoor recreation needs are identified through a statewide, statistically valid random sample survey of Californians. Both documents use public participation processes to gather important data sets to gain a better understanding of actual outdoor recreation needs. The CORP lays the foundation by addressing issues and identifying actions that may be implemented using LWCF assistance. The process of developing the CORP is detailed in Appendix D: California Outdoor Recreation Plan Public Outreach of the current CORP document. Individual project applications for Land and Water Conservation Fund grants are evaluated based on how effectively the proposed projects will address these issues, priorities and outdoor recreation needs identified in the CORP.

The criteria and the scoring system used to select projects are clearly detailed in the procedural guide for the LWCF program, available online at http://www.parks.ca.gov/grants. The scoring criteria in the LWCF Procedure Guide are part of the OPSP. The LWCF Procedure Guide is submitted to the Office of Administrative Law (OAL). OAL ensures that regulations in the procedure guide are clear, necessary, legally valid, and available to the public. OAL reviews the Procedure Guide to ensure compliance with the standards set forth in California's Administrative Procedure Act.

The current OPSP consists of the following six components required by the National Park Service (NPS). These components are identified and explained in the following sections:

- Priority Rating Systems
- Project Selection Process

- Recurring Funding Cycle and Public Notification
- Program Technical Assistance for State and Local Projects
- Advisory Boards
- Public Participation

Because of state agency allocations required by California legislation, the priority rating system and project selection process is handled differently for local and state projects.

Priority Rating Systems

Local Projects
A priority rating system is established thorough analysis of the SCORP and supporting documents. Additionally, discussions with NPS, the California State Parks Planning Office, and other key stakeholders are held to ensure that the selection from among competing projects is fair and equitable, that projects are funded on their relative merits, and that the projects selected are those that most closely meet priority needs for parkland acquisition and outdoor recreation development as identified in the CORP.

The priority rating system is published in the procedural guide for the LWCF program. The rating system, which relies on a series of criteria, was developed by the Office of Grants and Local Services with extensive input from key stakeholders. The entire procedure guide including the criteria goes through an extensive public input process including focus groups and public hearings. Public input and comment is encouraged through the internet, in writing and in person. Finally, the criteria are adopted by the State Liaison Officer (SLO), who is the Director of the State Department of Parks and Recreation, or their designee.

The priorities and project criteria in the rating system reflect the extent to which project proposals conform to eligibility criteria outlined in the NPS Grants Manual, the need for the project, the recreation issues identified by the CORP Advisory Committee and a survey of local park and recreation officials, and findings of the public opinion survey which determines latent demand.

State Projects
Each eligible state agency selects projects to receive its share of LWCF money, responding to the same criteria and as local agencies. The criteria are designed to be responsive to the major issues identified in the current CORP. In this way, the State is able to implement a consistent policy for expenditure of these funds. At the same time, fund managers can be assured that there is a clear-cut connection between the criteria used to select LWCF projects and the issues identified in CORP.

Project Selection Process

Local Projects
This process, used by the State Department of Parks and Recreation to rank local project applications, establishes a priority for proposals to be funded under the LWCF program.

The selection process for local projects begins with receipt of an application, which is acknowledged by a letter from the Office of Grants and Local Services. The application is assigned to a project officer, who determines basic eligibility by checking the proposal against the screening criteria. If ineligible, the applicant is notified by a letter, and the project is not considered.

Applications are reviewed, and the applicant is informed of any incomplete items in the application. If necessary, an on-site inspection is arranged. Following the on-site inspection, the application is evaluated by the project officer, who assigns a numerical score using the priorities and criteria in the Priority Rating System.

All eligible projects are scored by individual project officers, reviewed by small teams and as a large team. Projects are listed in priority order and presented to the LWCF Program Supervisor, Manager, and the Chief of the Office of Grants and Local Services. These managers check to assure that the criteria and rating factors have been applied fairly, consistently, and objectively.

The final step in project selection is a detailed briefing to the SLO or designee, who makes the final recommendation of projects to NPS. The SLO or designee sends a letter to both the successful and unsuccessful applicants, informing them of the outcome.

Projects recommended by the State are forwarded to the Western Regional Office of NPS for its approval and subsequent obligation of funds. NPS notifies members of Congress when projects are approved for LWCF assistance.

If the project is selected for funding, there are additional requirements, including a grant contract and compliance with federal and state laws. These requirements are outlined in the LWCF procedure guide.

State Projects
State agency projects are selected by participating agencies and submitted to the SLO for their share of allocated funds. The Office of Grants and Local Services reviews each project to assure that it conforms to the eligibility criteria and priorities in CORP.

Each of four agencies receives a legislatively determined portion of the state share of the LWCF funds. These agencies have distinct mandates and programs set forth by the State Legislature. As a result, these agencies have a

responsibility to select projects that meet their mandates. Such projects must meet priority needs for parkland acquisition and outdoor recreation development as identified in the CORP. The mandates of each of the four state agencies are as follows:

1. The Department of Parks and Recreation is the largest state agency recipient of LWCF money. A small amount, typically five percent, is allocated for statewide planning, with the bulk being spent on the State Park System. The criteria used to select projects for the State Park System are designed to facilitate acquisition projects for new park units near urban centers, critical additions to existing parks, or in-holdings in established parks. These criteria also encourage rehabilitation of deteriorating and outmoded facilities and development of campsites, picnic sites, and other popular facilities in areas where demand is demonstrably high.

2. The Wildlife Conservation Board (WCB) focuses its criteria on acquiring wildlife habitat--lands suitable for recreation and developing public access. Specifically, WCB stresses projects where local operations and maintenance funds are available or involve rehabilitation of existing structures, development near urban areas, and design for users with disabilities.

3. The Department of Boating and Waterways (DBW) uses economics as a dominant factor in consideration of its LWCF projects. A high benefit-to-cost ratio is a prominent criterion---buttressed by low-maintenance design and an expectation of high use. DBW focuses on developing facilities that are vandal proof, offer new or retrofitted access for individuals with disabilities, and provide better security for all users.

4. The Department of Water Resources uses its LWCF money for recreation components of the State Water Project. Generally, these facilities are extremely popular water-orientated attractions, and some are units of the State Park System. In general, LWCF money is used to provide better access and to protect existing areas and facilities.

Eligible projects are recommended and forwarded by the SLO or designee to NPS for approval.

Recurring Funding Cycle And Public Notification Process

California's local LWCF Grants Program is administered on an annual cycle subject to federal fund availability. It begins with notification on the Office of Grants and Local Services website and letters that are sent to all eligible applicants announcing the application deadline. The Secretary of the Interior issues the apportionment letter notifying the State of the amount of LWCF assistance available to California.

Local Projects
Letters are sent to eligible applicants announcing the deadline for receipt of LWCF project applications in anticipation of the State receiving the annual apportionment for NPS. The schedule for the local program is:

October - A public notice is sent to over 800 local jurisdictions in California, informing them that applications for the current fiscal year will be accepted until the deadline – the following March.

March - Deadline for applications for that fiscal year.

March/July - Applications are reviewed, analyzed, inspected, evaluated, and ranked by staff.

July - After briefing by staff, the SLO or designee selects a list of successful projects for the available funds. All applicants are notified of these decisions.

August/Sept. - Selected projects are forwarded to the Western Regional Office of NPS for approval and fund obligation.

This schedule gives local applicants at least six months, October to March, to prepare a complete application. This extended period is necessary to allow enough time to go through the public review process of the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA) and to comply with the National Historical Preservation Act.

Also, the schedule allows the State to submit its selected projects to NPS in time for federal approval and obligation of funds prior to the end of the federal fiscal year, September 30.

State Projects
The SLO or designee notifies eligible state agencies of their share of the annual allocation of the LWCF monies as soon as the apportionment letter to the governor is received. Applications are then accepted by the Department for review and transmittal to NPS.

State and Local Projects
Each year since the start of the LWCF Program in 1965, California has notified potential applicants of the program, and has encouraged applications to be submitted for available funds.

More than 800 letters are mailed annually to all potentially eligible state agencies, cities, counties, and park and recreation districts that have the authority and responsibility for acquiring and developing park and recreation areas and facilities. These letters announce the application deadline, and any changes in

the grant program. The Office of Grants and Local Services also sends out periodic reminders of the program and continually has information on the program posted on the Department website.

Program Technical Assistance For State And Local Projects

The following program assistance is available to all potential applicants as needed, both before and after submission of applications:

- Project officers from the Office of Grants and Local Services will answer questions, provide instructions, and offer guidance for obtaining LWCF assistance.

- Technical Assistance Workshops are offered throughout the state as needed to assist grant seekers in filing applications and interpreting program requirements.

- The Department publishes a procedural guide for the LWCF Program that provide potential applicants with all the procedures and forms required to successfully submit, administer, and complete LWCF assisted project proposals.

- Since 1965, California has developed over 40 state-funded park and recreation grant programs of its own. The grants from these programs are disseminated to virtually every city, county, and recreation district in the State and to many non profit organizations. Project officers are in frequent contact with every eligible applicant in California, and frequently identify the program as a potential matching source for state and local projects throughout California.

- The Department's comprehensive mailing list of all eligible applicants is used to distribute brochures, procedural guides, application information, notices of criteria hearings, and other items of interest. Lists are also maintained of special interest groups, professional and community organizations, and others who have expressed an interest in the Department's grant programs. These individuals and groups are contacted and invited to participate in the review of any changes in the LWCF Program. The staff of the Office of Grants and Local Services is active in the annual California Park and Recreation Conference as well as other prominent Federal and State association forums.

Advisory Boards

While use of advisory boards to assist the State on LWCF proposal selection is not required, it is encouraged by NPS. During preparation of the current CORP update, a 23-member advisory committee was composed of representatives from city, county, state, and federal government agencies; the California Park and

Recreation Society, educators, private consultants, and recreation user groups played an important role.

Public Participation

The process for developing the 2007 California Outdoor Recreation Plan started with establishment of an Advisory Committee. Along the way input was received through a number of public workshops and presentations. Feedback on the Issues and Actions was solicited from the California Park and Recreation Society Conference and the California Roundtable on Recreation, Parks, and Tourism. A more detailed description of the public participation process for the CORP elements is included within the Appendix B: California Outdoor Recreation Plan Public Outreach.

Local Projects

Federal guidelines require that the State's OPSP be subject to public review and comment prior to implementation. This is to assure that preparation and revision of the project selection processes and priority rating systems are equitable and based on citizen involvement and public participation. In California, public involvement in preparation of the CORP and formulation of criteria used in evaluating grant projects is achieved through several methods. California law requires the State Department of Parks and Recreation to hold public hearings when adopting or revising project selection criteria. The Department conducted focus group meetings throughout the state, while developing the draft procedural guide. Focus group meetings were attended by potential applicants and interested parties. After the focus groups meetings, the draft guidelines were revised and posted on the Department's website and notice was given by mail of the 30 day public comment period and of public hearings in the north and south state. These hearings are open to the public, and are generally attended by officials of cities, counties, and districts who represent the public.

Public involvement in selection of local projects is also attained at the local level. As a minimum, the State requires each application for funds to be accompanied by a resolution from the governing body sponsoring the project. The resolutions are adopted at public meetings where the opportunity for involvement is offered. A project application will receive higher priority for a greater degree of substantiated public participation in development and approval of the proposal.

Additionally, local projects must conform to distribution and filing of public notices required under the California Environmental Quality Act (CEQA). Filing of these notices triggers a public review period, which must occur before the application can be processed.

State Projects

The Department of Parks and Recreation submits projects for the State Park System. The projects must comply with the general plan for the park unit. These

plans are developed with extensive public involvement, including hearings, survey questionnaires, and public workshops. In addition, each general plan must be approved by the State Park and Recreation Commission, which holds public meetings that must conform to the State's "Open Meeting Act." All notices of commission meetings are announced in advance through news media, and are sent to those on a mailing list that includes anyone interested in commission activities. Commission meetings agendas and minutes are also distributed to those on the list.

Any Department acquisitions exceeding $5,000,000 require a public hearing. The Department must report the findings of the hearings to the State Legislature, and must receive approval from the Public Works Board.

Projects of the Department of Water Resources and Department of Boating and Waterways must be approved by the State Legislature and the Public Works Board, which review and approve projects at open meetings. In addition, Water Resources projects are reviewed and discussed at State Water Commission meetings, which are also open to the public. Boating and Waterways projects developed in units of the State Park System are subject to review by the State Park and Recreation Commission.

The legislature gives the Wildlife Conservation Board (WCB) more autonomy than other Departments in the Resources Agency. WCB does not need to seek legislative or Public Works Board approval for its projects. The Board consists of three members -- the Chairman of the State Fish and Game Commission (a private citizen) and two State Departmental directors (Fish and Game and Finance) – who decide on approval of projects. In addition, three members of each house of the State Legislature meet with the Wildlife Conservation Board to ensure legislative awareness and input.

Finally, as with local projects, all state projects must conform to the public notice distribution and filing requirements of the CEQA and National Environmental Protection Act (NEPA).

Performance Measures

The Department uses the LWCF Procedural Guide with its eligibility and ranking criteria to assure that projects selected meet the requirements of the Land and Water Conservation program and the goals of the CORP. The Department also assures through frequent contact with applicant agencies that the projects are completed on a timely basis and remain open to the public upon completion.

The following persons were instrumental in preparing this report:

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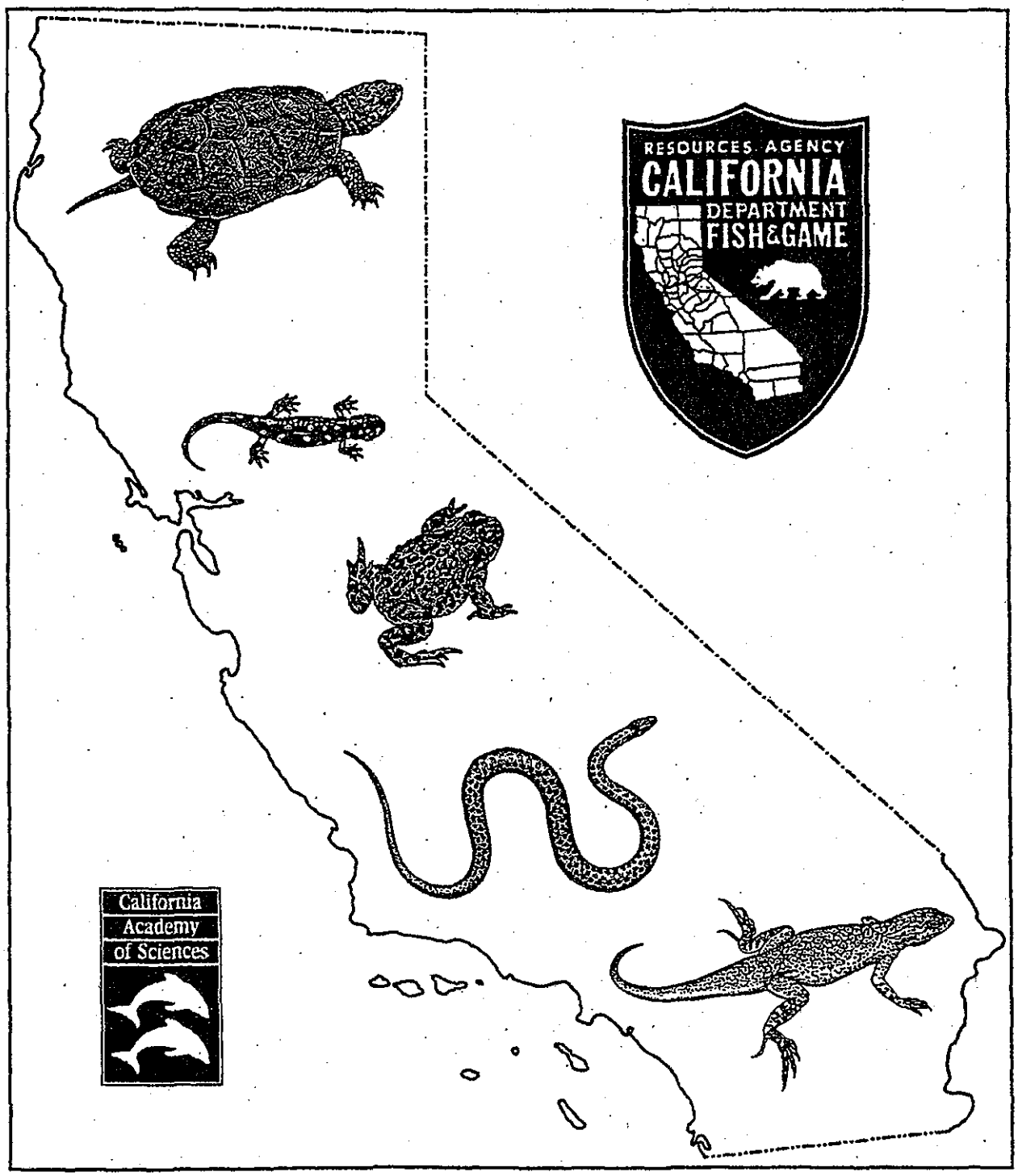
A.7 - Attachment G:
Mark R. Jennings and Marc P. Hayes,
1994 Department of Fish and Game Publication
"Amphibian and Reptile Species of Special Concern in California"

ATTACHMENT G

AMPHIBIAN AND REPTILE SPECIES OF SPECIAL CONCERN IN CALIFORNIA



CALIFORNIA DEPARTMENT OF FISH AND GAME

AMPHIBIAN AND REPTILE SPECIES OF SPECIAL CONCERN IN CALIFORNIA

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The California Department of Fish and Game commissioned this study as part of the Inland Fisheries Division Endangered Species Project. Specific recommendations from this study and in this report are made as options by the authors for the Department to consider. These recommendations do not necessarily represent the findings, opinions, or policies of the Department.

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AMPHIBIAN AND REPTILE SPECIES OF SPECIAL CONCERN IN CALIFORNIA

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Abstract: Data on 80 amphibian and reptile taxa native to the State of California were reviewed. All taxa potentially candidates for State or Federal "Threatened" or "Endangered" species listing were examined. Review of available data revealed that 48 of these 80 taxa warranted listing at some level. Data for review were assembled from individuals having field experience with each taxon, available literature, museum records, unpublished field notes, field surveys, and archival records. Review was directed at determining if available data could establish whether threats existed, identifying the nature of those threats, suggesting directions that individuals or agencies involved in management of these taxa could take to minimize those threats, and providing a recommendation of the appropriate status for each taxon or portions of each taxon based on these collective data. Status was identified as one of four categories the State of California currently recognizes: Endangered, Threatened, Special Concern, and no official status. Status was prioritized on the basis of the presence, complexity, and imminence of existing or potential threats to each taxon as well as their distributions, both geographic and within California.

Of the 48 taxa that warranted having their status reconsidered (11 salamanders, 14 anurans, 2 turtles, 12 lizards, and 9 snakes), Endangered status is justified for 14, Threatened status is justified for 16, and Special Concern status is justified for 25. Seven taxa (5 anurans, 1 turtle, and 1 snake) are recommended for listing in at least two status categories because threats to these taxa vary significantly across their range within California. Anurans and turtles are the most imperilled groups. Populations over significant portions of the geographic ranges of 10 of the 14 anurans considered (71%) deserve Endangered status, 5 of 14 (36%) deserve Threatened status, and 5 of 14 (36%) deserve Special Concern status; populations of both turtle species considered deserve either Endangered or Threatened status. Remaining major groups, ranked from most to least imperilled, are: salamanders (1 Endangered, 3 Threatened, 7 Special Concern), lizards (5 Threatened, 7 Special Concern), and snakes (1 Endangered, 2 Threatened, 6 Special Concern).

Species occurring in aquatic habitats are at greatest risk. Of the taxa that use aquatic habitats, Endangered status is justified for most populations of 13 of the 20 taxa considered (65%), Threatened status is justified for most populations of 9 taxa (45%), and Special

Concern status is justified for most populations of 6 taxa (30%). In contrast, of taxa that use terrestrial habitats, Endangered status is justified for 2 of 28 taxa considered (7%), Threatened status is justified for most populations of 7 taxa (25%), and Special Concern status is justified for most populations of 19 taxa (68%). Aquatic habitats are threatened by alteration of their physical or biotic structure as a function of several types of human use of water and adjacent land. Excessive numbers of livestock that are area-confined; stream channelization; construction of hydroelectric, recreational, or water storage reservoirs of significant size; removal of ground and surface water near or beyond recharge or volume capacities; and the introduction of a suite of exotic species with which the native aquatic fauna frequently cannot coexist are the uses that most severely affect aquatic habitats and their contained species. The most imperilled aquatic habitats in California that harbor one or more of the taxa recommended for listing are springs, seeps, and bogs; rain (or vernal) pools; marshes; and small headwater streams. In California, taxa occurring in terrestrial habitats are generally less imperilled because most terrestrial habitats in the state have a much greater total area than most aquatic habitats. Yet, aside from outright destruction and development, several widespread activities and land uses continue to alter the structure and vegetation of most terrestrial habitats in a manner unfavorable to the survival of their contained taxa. Among such uses, most significant are the impact of the variety of vehicles used off-highway or off-road; livestock that are area-confined; and urbanization. The most imperilled terrestrial habitats in California that harbor one or more of the taxa recommended for listing are dunes, grasslands dominated by perennial grasses, and the saltbush scrub vegetative association in the San Joaquin Valley.

The need to list 48 amphibian and reptile taxa led to several pivotal recommendations. Current levels of funding and support for sensitive or potentially sensitive amphibians and reptiles and issues related to these species are, at minimum, two orders of magnitude smaller than that needed to support an agenda with some chance of improving the survival of these species. The historical inertia of an archaic view of, and funding system for, non-game species is a primary underpinning of the extreme funding shortfall. Many specific recommendations can be made to help alleviate the precarious conditions of imperilled taxa, but such recommendations will be ineffectual without broad-based public support. Education of the public at all levels that amphibians and reptiles are just as indispensable a part of California ecosystems as are species traditionally viewed as economically important are necessary to reverse the funding shortfall. In particular, recognition that amphibians and reptiles, as well as other non-game organisms, have value commensurate with the mineral and the renewable natural resource wealth of ecosystems, a view currently held by few, should be common knowledge and the object of unwavering public support. Such support is essential to effectively implement recommendations, the most important of which include: increased attention to aquatic ecosystems, and in particular, to maximizing their quality and quantity; increased attention to minimizing or eliminating the impacts of off-road use of vehicles of all types; increased attention to minimizing, eliminating, or mitigating the impacts of all forms of livestock; increased attention to prohibiting the translocation or introduction of exotic species; and increased attention to the preservation of entire hydrographic units. Finally, it needs emphasis that all these problems are directly or indirectly rooted in the absolute human population size and its continued growth in California. As a consequence, any solutions to minimize impacts on amphibians and reptiles that do not consider the present human population and its changing size will be no more than temporary solutions.

Preface

The intent of this document was to consider amphibians and reptiles in California that were not provided legal protection other than, for some, the limited protection afforded species with Special Concern status, but that might require reconsideration of their status for various reasons. Just the nature of assembling data for such a synthesis is complex. Vast differences in the current state of knowledge among taxa and the fact that most data needed to interpret the status of each were broadly scattered across varied sources contributed to this complexity. Very early during the process of data assimilation, it became apparent that too few data were available for some amphibians and reptiles to provide comprehensive reviews of their status. We have, nevertheless, reviewed available data on those taxa, if for no other reason than that the gaps in current knowledge need emphasis. The combination of limited data on many species; the continuing rapid, human-induced changes in many California environments; and the continual appearance of new data indicated that the most useful form that this document could take is one that could be readily modified. In particular, it should facilitate incorporating new data, an essential element of future reviews. We have attempted to structure the document with this idea in mind. We hope that it will induce students of the California herpetofauna to fill the essential data gaps so that those exercising stewardship over habitats in which these amphibians and reptiles occur can refine their management plans, and that consultants, legislators, planners, and others will be better advised or give sound advice where it relates to the biology and ecology of these organisms.

MRJ
MPH
30 November 1993

AMPHIBIAN AND REPTILE SPECIES OF SPECIAL CONCERN IN CALIFORNIA

Introduction

The human population in California (since 1957 the most populous state in the nation) experienced especially rapid growth during the 1960s and 1970s, and continues to grow beyond the 30 million mark (U.S. Department of Commerce 1990). Continued growth increasingly impacts the abundant natural resources found in California (California Department of Forestry and Fire Protection 1988), among them, the 130-odd species of native amphibians and reptiles (Jennings 1987a). The most compelling symptom that human population growth has significantly impacted native amphibians and reptiles in California is that the U.S. Fish and Wildlife Service (USFWS), in combination with the California Fish and Game Commission (the Commission), now list 8 amphibians and 14 reptiles as either "Endangered" or "Threatened", and at least 20 additional taxa are proposed for listing (Jennings 1987a, U.S. Fish and Wildlife Service 1991). State listing of those taxa fall under the purview of the California Endangered Species Act (CESA) of 1984 [Section 2050 et. seq., California Fish and Game Code]. An outgrowth of the California Endangered Species Act passed in 1970 (Mallette and Nicola 1980), CESA requires the California Department of Fish and Game (CDFG) to: 1) review the status of CDFG-listed taxa (which includes those on USFWS lists and any taxa CDFG officially recommended for listing) every five years, and 2) prepare annually a report summarizing the status of all State-listed Endangered, Threatened, and Candidate taxa (California Department of Fish and Game 1990). CESA-required reviews are one important way that recommendations can lead to directed action concerning each taxon. They are intended to determine if conditions that led to a taxon's listing are still present, and to ensure that listing reflects the most current status of each taxon accurately (California Department of Fish and Game 1990). With the lag time needed to begin implementing CESA, CDFG produced its first annual report based on the aforementioned requirement in 1986 (California Department of Fish and Game 1987) and four additional reports have been produced since that time (California Department of Fish and Game 1988, 1989, 1990, 1991). However, these reports only partly fulfilled the CESA review requirement because each summarizes only CESA-recognized Threatened, Endangered, and Candidate taxa (California Department of Fish and Game 1990; see also Section 2079 of the California Fish and Game Code). Nevertheless, each annual report advocated the broader intent of CESA review by cautioning that other unlisted taxa which might deserve official "Candidate" status were not included (see Sections 2062, 2067, and 2068 of the California Fish and Game Code). Further, CDFG has been hampered in recent years in its ability to effectively address, much less review, many taxa not officially designated by the Commission because the CDFG designation, Species of Special Concern, has no legal definition, and therefore is not expressedly included in the review requirement. Moreover, severe funding limitations have restricted the number of taxa that CDFG could address, and the highest priority taxa, the critically Threatened or Endangered species, absorbed the funding base. This is especially true of the nongame project within the Inland Fisheries Division, the branch of CDFG responsible for amphibians and reptiles, the funding levels of which have consistently represented less than 1.0% of the total CDFG budget (Appendix I).

Despite these problems, CDFG has made significant strides in attempting to address unlisted or "third-category taxa" since 1971, when the Department implemented the elements that led to its current non-game program (Mallette and Nicola 1980). In the early 1970s, CDFG gave third-category taxa two labels, "Status-Undetermined" or "Depleted"

(e.g., see Bury 1972a), in an attempt to refine their statuses. The 1970, California Species Preservation Act had defined CDFG's mandate to address third-category taxa. However, this Act, which directed CDFG to inventory all threatened fish and wildlife taxa, develop criteria for officially designated Rare and Endangered species, and provide a biennial report on the status of these animals (Mallette and Nicola 1980), was repealed when CESA was adopted in 1984. The adoption of CESA enabled the Commission to add or remove species from the lists of Endangered and Threatened taxa, but neither provided a vehicle for the addition of species nor for the review of Candidate species; CESA simply states that species could be added or removed from either list if the Commission finds that action is warranted upon receipt of sufficient scientific information (CESA, Article 2, Section 2070). Sufficient scientific information is never addressed in CESA in the context of either adding species to the lists of Threatened or Endangered species, or evaluating Candidate or potential Candidate species. CESA addresses scientific information only in the context of projects that may impact Endangered or Threatened species, requiring CDFG to base its written finding of the review of such projects on the best scientific information (CESA, Article 4, Section 2090). The steps that led to filling the current void CESA created began in 1978, before CESA's inception, when CDFG first used the label "Species of Special Concern" for third-category taxa (see Remsen 1978). The intent of the Special Concern category was that since such species lacked legal protection other than bag restrictions, giving them consideration wherever possible might help avert costly recovery efforts that would otherwise be required to save such species. CDFG provided the vehicle to address third-category species that had been treated under the California Species Preservation Act by initiating a series of reports that reviewed the members of vertebrate groups that could be included under the Special Concern heading before CESA actually repealed that Act in 1984. Three such reports have been published (birds: Remsen 1978; mammals: Williams 1986; and fishes: Moyle et al. 1989). In light of the lack of a CESA-designated vehicle for review, these higher taxon-oriented reports have gained greater importance because they summarize the status of all third-category species (i.e., those not yet officially listed as Candidate, Threatened, or Endangered, and including those acknowledged as Species of Special Concern) through the provision of the best scientific information for their review. The latter is the substance of these higher taxon-oriented reviews. This document, which addresses amphibians and reptiles, represents the fourth such review.

We have attempted to review amphibians and reptiles of Special Concern in California within CESA's mandate to add species to the lists of Endangered and Threatened species upon the receipt of sufficient scientific information by providing a well-defined structure for the recommendations we propose, and future, more refined, reviews. As a result, we have examined 80 taxa, including both those previously acknowledged as Special Concern (Jennings 1983, 1987a), and any other unlisted taxa that were suggested by at least one independent source (State or Federal resource agencies, museum personnel, university faculty, wildlife biologists, or other individuals) for consideration as Special Concern. State or Federally Endangered and Threatened taxa that might deserve a downgrade in status to Special Concern were not addressed since those taxa remain within the purview of the five-year reviews conducted by the State, but we did consider the possibility that some taxa currently recognized as Special Concern might require a downgrade in status.

Methods

Determination of which taxa should be included for review was the first step in this study. The CDFG (Inland Fisheries Division) had originally conducted an informal survey of herpetologists and other interested individuals in the early to mid-1970s to assemble data on taxa that might need protection. Stewart (1971), Bury (1972a), and Bury and Stewart (1973) reported some of the conclusions of that survey, but much data have remained

unreported. We reviewed those data and all available, reports, surveys, and CDFG files (including the Natural Diversity Data Base) for relevant information regarding the amphibian and reptile species we had under consideration (see Appendix II for species list).

A working list of 80 taxa for potential consideration was assembled from the most current state lists (Jennings 1983, 1987a) and data from the aforementioned files and surveys (Appendix II). The list and a questionnaire (Appendix III) was then sent to 127 individuals familiar with various aspects of the California herpetofauna (Appendix IV). Another 90 individuals were contacted (by letter or in person) to inquire on specifics about selected taxa (Appendix IV). Many respondents expressed a need to elaborate on the information they provided, so we conducted personal interviews whenever possible. Collectively, these different sources of data were used to generate the list of candidate taxa that warranted having their statuses reconsidered.

We also conducted field reconnaissance in specific regions of California to help assess the presence or absence of candidate taxa. During reconnaissance, standard techniques were used to aid detection of different groups, including light-assisted nocturnal examination of breeding or refuge habitats for amphibians (Stebbins 1985), baited traps for turtles (Iverson 1979, Feuer 1980), and night driving for some lizards and snakes (Klauber 1939). Additionally, electroshocking (Reynolds 1983) was used to help detect certain amphibians. Efforts were made to collect voucher specimens and tissue samples of amphibians and reptiles, particularly from regions where collections were poorly represented. Whenever possible, we searched for field evidence of threats to candidate taxa. Regions covered during field reconnaissance included: 1) the foothills of the central and southern Sierra Nevada Mountains (1-5 October 1988; 20-22 July 1990), 2) the upper Mojave River drainage (18-20 March 1989; 6 July 1990), 3) the coastal plain and coastal ranges of southern California (21-24 March 1989; 14-20 May 1990; 14-16 August 1989; 29 September-1 October 1989; 17-18 November 1989; 24 December 1989; 24 June-6 July 1990), 4) the Coast Range slope of the San Joaquin Valley and the central coast (13-14 and 21 May 1989), 5) the Colorado River Basin (9-14 August 1989; 3-4 July 1990), 6) northeastern California from the vicinity of Mt. Shasta eastward to the Warner Mountains and southward to Lassen Volcanic National Park and the northern half of Plumas County (7-14 September 1990), and 7) the Trinity Mountains and north coastal region of California from Mendocino to Del Norte Counties (30 October-4 November 1990; 18-27 April 1991). We also conducted 15 shorter surveys (2-3 days) in a number of areas on the north and central coast and the Sierra Nevada Mountains between August 1988 and September 1991. Additionally, a few data were gathered during a 26 August 1991 visit to Tule Lake National Wildlife Refuge in Siskiyou County, while this report was in draft form. Data gathered during field reconnaissance were systematically recorded in field notebooks, and specimens taken as vouchers were deposited in the herpetology collections of the California Academy of Sciences.

Historical assessments of past distributions of candidate taxa were made from a combination of museum specimens and the field notes of present and former naturalists (in addition to the surveys and interviews described above) as well as over 25 years of our own personal field experience in California. Museum collections examined for field notes and relevant specimens were: AMNH, ANSP, CAS, CAS-SU, CPSU, CSUC, CSUS, HSU, LACM, MCZ, MVZ, SBMNH, SDSNH, SSU, UCD, UCSB, UMMZ, and USNM (see Table 1 for explanation of institutional codes). Legal proceedings prevented us from reviewing records at San Jose State University. Additional records were sent to us from ASU, CPSLO, CRCM, CU, KU, and UIM; specimen loans were requested from these institutions for verification of important locality records.

Table 1. Museum collections examined or queried for specimens and information. Museum symbolic codes follow Leviton et al. (1985); asterisked (*)codes are not in Leviton et al. (1985).

Code	Museum, Location
AMNH	American Museum of Natural History, New York, New York.
ANSP	Academy of Natural Sciences, Philadelphia, Pennsylvania.
ASU	Arizona State University, Tempe, Arizona.
CAS	California Academy of Sciences, San Francisco, California.
CAS-SU	California Academy of Sciences-Stanford University Collection, San Francisco, California.
CPSLO*	California State Polytechnic University, San Luis Obispo, California.
CRCM	Charles R. Conner Museum, Washington State University, Pullman, Washington.
CSPU	California State Polytechnic University, Pomona, California.
CSUC*	Chico State University, Chico, California.
CSUS*	California State University Stanislaus, Turlock, California.
CU	Cornell University, Ithaca, New York.
FRC*	Feather River College, Quincy, California.
HSU	Humboldt State University, Arcata, California.
KU	University of Kansas, Lawrence, Kansas.
LACM	Natural History Museum of Los Angeles County, Los Angeles, California.
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts.
MVZ	Museum of Vertebrate Zoology, University of California, Berkeley, California.
SBMNH	Santa Barbara Museum of Natural History, Santa Barbara, California.
SDSNH	San Diego Natural History Museum, San Diego, California.
SSU	Sacramento State University, Sacramento, California.
UCD*	University of California, Davis, California.
UCSB*	University of California, Santa Barbara, California.
UIM	University of Idaho, Moscow, Idaho
UMMZ	Museum of Zoology, University of Michigan, Ann Arbor, Michigan.
USNM	National Museum of Natural History, Washington, D.C.

Data from the aforementioned sources were organized into accounts for each species that included seven sections:

1) Description - This section provides a description of the taxon sufficient to characterize its physical appearance; it is not intended to be comprehensive. Included are data on body size (provided as a standard length measurement of the range in adult body sizes, taken as snout-vent length (SVL) for lizards, salamanders, and some snakes; total length (TL) for some snakes; snout-urostyle length (SUL) for frogs; and carapace length (CL) for turtles), the characteristic colors and patterns found on most body surfaces (including eye color), and to varying degrees, the characteristic shapes of the body or selected body parts (sometimes simply indicated by the higher-order group [usually the genus] to which a taxon belongs).

2) Taxonomic remarks - This section indicates the current systematic status of the taxon, noting any recent or pending changes in status. Because the use of genetic data has become indispensable for characterizing geographic variation and detecting cryptic species,

this section also indicates what genetic data are available for the taxon and, where possible, their potential systematic significance.

3) Distribution - This section describes the known geographic and elevational range of the taxon. A map identifies the historic and current range of the taxon in California, as far as is known. The elevational range of the taxon in California is provided only in those cases where it differs from that within the entire geographic range of the taxon.

Data for distribution maps are based on a total of 27,051 museum specimens, the identification of which were verified by one or both of us; and 2,085 sight records, the allocations of which were supported by one or more of the following types of evidence: a) living animals or preserved specimens, b) photographs, c) published evidence (such as peer-reviewed scientific papers), d) field notes, and e) personal interviews of the individual(s) who made the original observation(s). In a few cases, we had independent justification for not discarding records despite a lack of supporting evidence, such records are denoted on distribution maps with question marks. Circles versus square symbols differentiate verified museum records and verified sightings on the distribution maps. Solid versus open symbols differentiate locations where taxa are believed to be extant versus those likely to be extinct. The determination of extant versus extinct localities are either based on personal observations or interviews with individuals familiar with the area (and the taxa in question). In most cases, taxa are presumed to be extirpated from a given site if the habitat has been greatly modified by agriculture, roads, water projects, or urbanization, or repeated visits to historic sites revealed no organisms over a 10-year period. Data used to generate these distribution maps will be filed with the Natural Diversity Data Base (NDDB), California Department of Fish and Game, 1416 Ninth Street, Sacramento, CA 95814.

Wherever possible, an indication of the degree to which the geographic range of a taxon had been reduced was provided. For some taxa, it was possible to calculate the reduction in geographic range based on the known loss of selected populations, the known-loss of suitable habitat, or both. In a few cases, a map wheel could be used to measure the amount (in km or km^2) of stream or terrestrial habitat for the taxon on large-scale (1:7,920-1:26,400) AAA and United States National Forest maps based on our distribution maps. The percentage of reduction in geographic range was calculated by summing the amount of habitat with extirpated populations and dividing it by the amount of habitat with extant and extirpated populations.

4) Life history - This section provides a synoptic summary of the life history of the taxon based on the primary literature. Aspects of behavior, reproduction, and the physiological ecology of each taxon that help evaluate the relative vulnerability of a taxon are emphasized. Except where so stated, data are restricted to populations from California.

5) Habitat - This section characterizes the physical and, to the degree possible, the biotic habitat requirements of each taxon. Where known, emphasis is placed on characterizing nesting and oviposition sites; aestivation, hibernation, and refuge sites; and any partitioning of habitat that may occur among the different life stages of a taxon. The habitat utilization patterns of a taxon that will help evaluate its relative vulnerability are emphasized.

6) Status - This section indicates the state-level status recommended for a taxon (or portion of a taxon) and its justification. The collective data allowed assignment of taxa (or portions of a taxon) to one of three categories:

a) Taxa for which **Endangered** status is justified.
b) Taxa for which **Threatened** status is justified.
c) Taxa for which **Special Concern** status is justified.

Determination of whether Endangered or Threatened status was justified was based on the state-level definitions in the California Fish and Game Code (see Appendix V). For determining Special Concern status, we followed the criteria indicated in Williams (1986) and Moyle et al. (1989). The primary factor leading to our recommending the state-level listing of a taxon was the presence, complexity, and imminence of existing and potential threats to the survival of that taxon. We made every attempt to evaluate threats to each taxon within a holistic framework, one as encompassing as possible with regard to the biology and ecology of each taxon. Particular attention was given to how ecologically specialized a taxon might be. Consideration of ecological specialization meant that, in general, taxa occurring in geographically restricted (rare) habitats, taxa occurring in a single habitat type, or taxa occupying a higher trophic position in food webs were considered at greater risk than taxa occurring in geographically widespread (common) habitats, taxa occurring in more than one habitat type, and taxa occupying a lower trophic position in food webs. However, taxa with life cycles tied to more than one habitat type were considered at greater risk than those whose entire life cycle could be completed within a single habitat type. Because threats to some taxa were judged to vary significantly across their geographic ranges, more than one and as many as three status listings have been recommended for some taxa[1]. In addition to the presence, complexity, and imminence of threats to each taxon, we gave consideration, whenever possible, to three aspects of each taxon's abundance and distribution, its endemicity, the size of its geographic range, and its abundance across its geographic range. Endemicity refers to whether the organism's known geographic range occurs entirely within California, and thus, in the absence of human-assisted translocation, is found nowhere else in the world. Beyond the fact that endemic taxa were accorded greater importance simply because of the fact that this report focuses on the political subdivision of California, such taxa were given greater attention because the recommendations we made addressed the entire known geographic range of these taxa. For similar reasons, near endemics, taxa with known geographic ranges occurring almost entirely within California, were accorded greater importance than taxa with known geographic ranges that are more widespread outside of California. Endemic or not, taxa with smaller known geographic ranges were accorded greater importance than those with larger known geographic ranges because the former were considered to be at greater risk from regional-scale catastrophic events. The local abundance of individual taxa was also considered. In particular, taxa known to consist of numerically smaller local populations (demes) or complexes of subpopulations (metapopulations) were considered at greater risk than those known to consist of numerically larger or continuous ones.

In establishing the recommended listing of a taxon, a concerted effort was made to use criteria that might be universally applicable. Nevertheless, some criteria (e.g., the linkage of a taxon's life cycle to various habitat types) may not be universally applicable without caveats. Yet, all criteria used here could be applied unambiguously to the set of taxa reviewed; using them to evaluate other taxa in the same manner should be done cautiously.

Taxa that were reviewed, but that were judged to require no special status during the time that data for this report were being gathered are listed in Table 2.

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[1]We are cognizant that the California Fish and Game Code does not address multiple status listings for a taxon. Nevertheless, multiple listings are not specifically excluded by the Code, and a Federal precedent exists for their use.

Table 2. Taxa judged not to warrant any state-level status at this time. The habitat column refers to whether a taxon has one or more life stage in an aquatic habitat (A) or whether its life stages use exclusively terrestrial habitats (T). Lack of current data for taxa marked with an asterisk "*" indicates a particular need for some kind of monitoring.

Taxon	Habitat Category
California giant salamander, *Dicamptodon ensatus*[1]	A
Oregon giant salamander, *Dicamptodon tenebrosus*[1]	A
Red-bellied newt, *Taricha rivularis**	A
Channel Islands slender salamander, *Batrachoseps pacificus pacificus*	T
Fair-view slender salamander, *Batrachoseps* sp.[2]	T
Guadalupe slender salamander, *Batrachoseps* sp.[2]	T
Hell Hollow slender salamander, *Batrachoseps* sp.[2]	T
Kern Plateau slender salamander, *Batrachoseps* sp.[2]	T
San Gabriel slender salamander, *Batrachoseps* sp.[2]	T
Dunn's salamander, *Plethodon dunni*	T
Great Basin spadefoot, *Scaphiopus intermontanus**	A
Great Plains toad, *Bufo cognatus*	A
Arizona toad, *Bufo microscaphus microscaphus*	A
Red-spotted toad, *Bufo punctatus*	A
California treefrog, *Pseudacris cadaverina**	A
Peninsular leaf-toed gecko, *Phyllodactylus xanti nocticolus*	T
Baja collared lizard, *Crotaphytus insularis vestigium**	T
Long-nosed rock lizard, *Petrosaurus mearnsi mearnsi**	T
Pigmy short-horned lizard, *Phrynosoma douglassii douglassii**	T
Western chuckwalla, *Sauromalus obesus obesus*	T
Yellow-backed spiny lizard, *Sceloporus magister uniformis*	T
Granite spiny lizard, *Sceloporus orcutti*	T
Granite night lizard, *Xantusia henshawi henshawi*	T
Southwestern blind snake, *Leptotyphlops humilis humilis*	T
Desert rosy boa, *Lichanura trivirgata gracia**	T
Coastal rosy boa, *Lichanura trivirgata roseofusca**	T
Sharp-tailed snake, *Contia tenuis*	T
Sierra mountain kingsnake, *Lampropeltis zonata multicincta*	T
Coast mountain kingsnake, *Lampropeltis zonata multifasciata*	T
St. Helena mountain kingsnake, *Lampropeltis zonata zonata*	T
Sonoran lyre snake, *Trimorphodon biscutatus lambda*	T
California lyre snake, *Trimorphodon biscutatus vandenburghi*	T
Western diamondback rattlesnake, *Crotalus atrox**	T

[1]Systematics follow Good (1989).
[2]Description of this taxon is pending (D. Wake, pers. comm.).

7) Management recommendations - This section provides the recommendations that need to be implemented to have some possibility of reversing the threats that are currently impacting a taxon. Gaps in current data needed to refine present management alternatives are also presented in this section.

Scientific and vernacular names and current taxonomy follows Jennings (1987a) unless otherwise indicated. Controversies or departures from current taxonomy are noted in the taxonomic remarks sections of each species account. For the three taxa reviewed that await

description (two salamanders and one snake), a description section was omitted to protect the priority of publication of the describers. Only enough data on these three taxa were included so that they can be properly addressed once their descriptions appear.

Results

Of the 80 taxa reviewed, 33[2] were judged not to warrant listing at this time (Table 2). While a number of these taxa have declined or disappeared from some areas, these taxa are abundant and widespread enough at this writing that even current levels of environmental alteration do not significantly threaten their survival. Though we do not review these taxa, we identify several among them that bear watching because they are likely to encounter problems in the future (Table 2).

The remaining 48 taxa were found to warrant a reconsideration in status. One additional species, the desert tortoise *(Xerobates agassizii),* was originally considered with the remaining taxa discussed here, but was listed as Endangered by the Commission and Threatened by the USFWS (U.S. Fish and Wildlife Service 1990) in the course of assembling our review, so we will not address it here. Those desiring information parallel to that presented here for the desert tortoise should refer to Dodd (1981, 1986), Luckenbach (1982), Berry (1984), and U.S. Fish and Wildlife Service (1990). Accounts of the 48 taxa that warrant a reconsideration in status follow.

[2]The actual number is 33 instead of 32 due to *Dicamptodon ensatus* being split into two taxa in California by Good (1989) after our questionnaire was compiled and mailed.

SALAMANDERS

CALIFORNIA TIGER SALAMANDER
Ambystoma californiense Gray 1853

Description: A large (75-125 mm SVL) terrestrial salamander with several white or pale yellow spots or bars on a jet-black field (Stebbins 1985, Barry and Shaffer 1994; pers. observ.). Undersurfaces are highly variable in pattern, ranging from nearly uniform white or pale yellow to variegated white or pale yellow and black (pers. observ.). The relatively small, but protruding eyes have black irises (pers. observ.).

Taxonomic Remarks: Although the California tiger salamander had been regarded for many years as one of several subspecies within the *Ambystoma tigrinum* complex (e.g., Dunn 1940, Gehlbach 1967, Frost 1985, Stebbins 1985), the most recent genetic work indicates that populations of the California tiger salamander seem to be consistently differentiated from the most proximate western populations within the complex (Jones 1989), which supports the older systematic allocation of this form as a full species (e.g., Storer 1925, Bishop 1943). Genetic variation within *A. californiense* consists of several well-differentiated geographically segregated clusters (Shaffer et al. 1993). Additionally, several novel tiger salamander populations both outside and inside the known historical range of *A. californiense* have been discovered (e.g., Mullen and Stebbins 1978; Shaffer and Stanley 1992; J. Brode, R. Hansen, B. Shaffer, and T. Taylor, pers. comm.). None of these *Ambystoma* populations are closely related to *A. californiense* (B. Shaffer, pers. comm.), and many of them may represent accidental introductions associated with the fishbait trade (Espinosa et al. 1970, Glaser 1970, Bury and Luckenbach 1976, Stebbins 1985).

Distribution: This species ranges from the vicinity of Petaluma, Sonoma County and Dunnigan, Colusa-Yolo County line (Storer 1925) with an isolated outpost north of the Sutter Buttes at Gray Lodge, Butte County (Hayes and Cliff 1982) in the Central Valley, south to vernal pools in northwest Tulare County, and in the Coast Range south to ponds and vernal pools between Buellton and Lompoc in the Santa Ynez drainage, Santa Barbara County (Figure 1). The known elevational range of this species extends from 3 m to 1054 m (Shaffer and Fisher 1991). Potential habitat along the west side of the Sacramento Valley may exist north of Yolo County to the vicinity of Coming (e.g., see specimen CSUC 1460), but surveys in this area have failed to reveal extant populations (Shaffer et al. 1993).

Life History: This species engages in nocturnal breeding migrations over distances of 1000 m or more that are likely highly stereotyped (e.g., see Myers 1930a, Twitty 1941). Movement occurs from subterranean refuge sites (small mammal burrows) to breeding sites (relatively long-lasting rain pools) following relatively warm late winter and spring rains (November-February; Voigt 1989, Shaffer and Fisher 1991, Barry and Shaffer 1994). Some evidence exists to indicate that males precede females during the breeding migration (Shaffer et al. 1993). Eggs are deposited singly or in small groups of 2-4, submerged in the relatively shallow water of rain pools (Storer 1925). A minimum of ca. 10 weeks is required to complete development through metamorphosis (P. Anderson 1968, Feaver 1971). Larvae generally weigh about 10 g at metamorphosis, although they may remain in water and grow to much larger sizes; sexually mature larvae, as occur in other ambystomatid salamanders, are unknown, but during 1993, the first observations of oversummering larvae were made (Shaffer et al. 1993). It needs emphasis that the latter pattern is unusual, and the temporary pools occupied by the California tiger salamander generally dry up during the hot summer months (Storer 1925). Larvae are often cryptic (S.

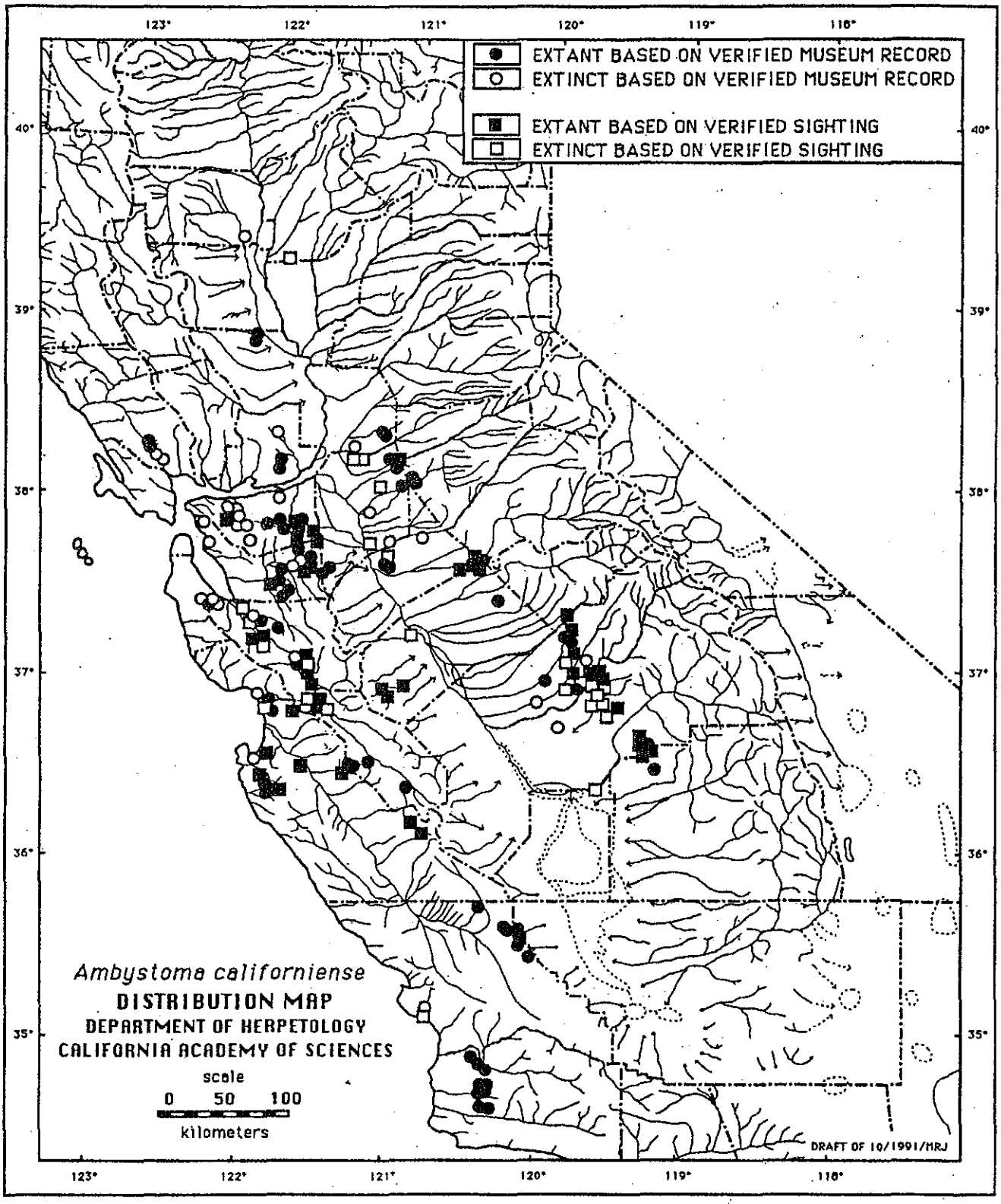

Figure 1. Historic and current distribution of the California tiger salamander (*Ambystoma californiense*) in central and northern California based on 383 locations from 769 museum records and 158 records from other sources.

Sweet, pers. comm.) and they exhibit short bursts of swimming activity when threatened (Shaffer et al. 1991, Austin and Shaffer 1992). However, the water of temporary pools they occupy may be turbid, so larvae are often difficult to detect visually (pers. observ.). Following metamorphosis, juveniles emigrate in mass at night from the drying breeding site after spending a few hours or days near the pond margin (Zeiner et al. 1988; S. Morey, pers. comm.). Juveniles have been found to migrate up to 1.6 km from breeding sites to refuge sites (Austin and Shaffer 1992). Except where refuge sites have been unearthed or disturbed (Storer 1925; Myers, ms.; N. Euless, pers. comm.) or under conditions of aseasonal rainfall (Holland et al. 1990), California tiger salamanders have not been observed outside of the wet-season interval (Morey and Guinn 1992, Barry and Shaffer 1994). During years of low rainfall, California tiger salamanders may not reproduce (K. Baldwin, B. Shaffer, and S. Sweet, pers. comm.). Preliminary data suggest that most individuals require 2 years to become sexually mature, but some individuals may be slower to mature (Shaffer et al. 1993).

Habitat: The California tiger salamander is a lowland species restricted to the grasslands and lowest foothill regions of Central and Northern California, which is where its breeding habitat (long-lasting rain pools) occurs (Shaffer and Stanley 1992). Permanent lowland aquatic sites are claimed to be used for breeding (Stebbins 1985; Zeiner et al. 1988; P. Moyle, pers. comm.), but use of such sites is unlikely unless they lack fish predators (Shaffer and Stanley 1992, Shaffer et al. 1993), so this species should be viewed as capable of breeding almost exclusively in temporary pools until data to the contrary show otherwise. Dry-season refuge sites within a reasonable distance of breeding sites (up to 1.6 km: Austin and Shaffer 1992) are likely a necessary habitat requirement since this species is absent from sites with seemingly suitable breeding habitat where surrounding hardpan soils are lacking in small mammal burrows; if the burrowing ability of California tiger salamanders is similar to that of its eastern congener (see Semlitsch 1983), they are probably poor burrowers. Although the range in types of burrows that California tiger salamanders regularly use needs study, those of the California ground squirrel *(Spermophilus beecheyi)* may be favored in some areas (Shaffer et al. 1993; J. Medeiros and S. Morey, pers. comm.), Botta's pocket gopher *(Thomomys bottae)* burrows are also known to be used (Shaffer et al. 1993, Barry and Shaffer 1994) as are certain man-made structures (e.g., wet basements, underground pipes, and septic tank drains: Zeiner et al. 1988; Myers, ms; S. Sweet, pers. comm.; pers. observ.).

Status: Threatened; this unique California endemic is the most vulnerable of the group of amphibians that breed in rain pools because its long developmental interval appears to restrict its ability to reach metamorphosis in only those rain pools that are the longest lasting, and as a consequence, often the largest in size. Moreover, the apparently stereotyped migrations to breeding sites are probably linked to use of sites over many years (e.g., Twitty 1941) and considerable longevity, which is likely the result of highly variable annual rainfall that does not consistently provide suitable environmental conditions for breeding or metamorphosis. Loss of rain (vernal) pools (Jain 1976, Stone 1990), and specifically, the degradation of complexes of long-lasting pools that are critical breeding [= core] habitat is a significant threat to the California tiger salamander, especially with the continued fragmentation of known breeding sites. Introduction of exotic and transplanted predatory fishes (including mosquitofish *[Gambusia affinis])* to rain pools for mosquito (Culicidae) control, a practice still engaged in by mosquito abatement agencies in California, or other purposes can eliminate an entire cohort of developing embryos or larvae (Zeiner et al. 1988; J. Medeiros and S. Morey, pers. comm.; see also Collins et al. 1988 and Shaffer et al. 1993). Shaffer and Fisher (1991), Shaffer and Stanley (1992), and Shaffer et al. (1993) identified a strong inverse correlation between the occurrence of California tiger salamanders and fishes, emphasizing that California tiger salamanders were very rarely found in any pond with fish. These data strongly suggest that California tiger

salamanders cannot survive in the presence of fish predators, perhaps because fishes are not recognized as predators, a condition in need of experimental investigation. Shaffer et al. (1993) also found the presence of California tiger salamanders inversely correlated with that of bullfrogs *(Rana catesbeiana),* a condition that Shaffer and Fisher (1991) found only in unvegetated ponds, which suggests that California tiger salamanders perhaps gain a protective advantage when some vegetation structure is present. Some California tiger salamander populations also may have been eliminated by the widespread introduction of the Louisiana red swamp crayfish *(Procambarus clarkii).* Historically, loss of populations in the Palo Alto area of San Mateo County was linked to groundwater pumping that lowered the water table and dried up springs, ponds, and wells (Myers, ms.). Loss of refuge habitat adjacent to breeding sites due to land use changes (e.g., grazing land to agriculture conversions, suburban housing development, or even converting grazing land to irrigated pasture) and poisoning of burrowing mammals are also significant threats (Barry and Shaffer 1994; J. Medeiros and H. Basey, pers. comm.). Further, artificial barriers that prevent or seriously impede migration (e.g., heavily travelled berms or roads, or solid road dividers) may have significantly affected California tiger salamander populations in certain areas (S. Morey, pers. comm.; see also Shaffer and Fisher 1991, Shaffer and Stanley 1992, Shaffer et al. 1993, Barry and Shaffer 1994). Decreased larval production or breeding during the years after 1986 suggests that the 1986-1990 drought may have negatively impacted California tiger salamander populations (Jones and Stokes 1988). Based on the data of Shaffer et al. (1993), California tiger salamanders were not found at 58% of the historical locations (see Shaffer et al. (1993) for a definition) and 55% of the ponds they sampled, leading to the conclusion that California tiger salamanders have disappeared from about 55% of their historic range in California.

Management Recommendations: Particular effort should be made to protect the vicinity of large rain pool complexes that are known core breeding sites in order to maintain the integrity of the breeding-refuge site ensembles that California tiger salamanders use (see Shaffer et al. 1993). Shaffer et al. (1993) also found a low level of gene flow between extant California tiger salamander populations, even those in close spatial proximity. As they emphasize, this suggests that each population is a genetically independent entity, and this warrants strong consideration for conservation to be resolved at a local population-level of protection. Because the large rain pools that salamanders use are also the only habitat for a number of plant species and invertebrates that are listed or proposed for listing (Jain 1976; Jain and Moyle 1984; Reiner 1992; T. Griggs, pers. comm.; see also Shaffer et al. 1993), ample justification exists for protection of these unique habitats beyond simply the presence of California tiger salamanders. The range of variation in physical characteristics of rain pools that allow California tiger salamanders to reproduce and metamorphose successfully is not well understood, but is currently under continued study (Shaffer and Stanley 1992, Shaffer et al. 1993). The latter urgently needs study for effective recommendations to be made about habitat management and protection for this species. Also poorly understood is the variation in distance between the breeding and refuge sites. Even minor habitat modifications that traverse the area between the breeding and refuge sites (such as roads, berms, and certain types of pipelines or fences) can impede or even prevent breeding migrations, and should be avoided. If one or more roads must traverse such a route, amphibian tunnels that allow continued migration beneath the road should be part of the road design (Shaffer et al. 1989; Barry and Shaffer 1994; see also Langton 1989). Moreover, solid road dividers should not be used where migratory routes exist so as not to hinder California tiger salamanders that may migrate across the roadbed (Shaffer et al. 1989). Introduction of exotic or transplanted aquatic fauna to rain pools should be avoided; efforts should be made to develop novel integrative programs with agencies like Mosquito Abatement Districts to develop management methods that are non-destructive to native rainpool inhabitants like California tiger salamanders. Soil disturbance to depressions that seasonally become rain pools should be avoided. In particular, special

care should be taken to avoid puncturing or altering any potentially thin hard pan that has developed in the pool substrate over many years (e.g., caliche hard pan). Such disturbances could increase percolation rate and shorten the duration of pool life enough that California tiger salamanders could no longer metamorphose successfully in such pools.

INYO MOUNTAINS SALAMANDER
Batrachoseps campi Marlow, Brode, and Wake 1979

Description: A robust (32.0-60.7 mm SVL), dark brown to black slender salamander with a relatively broad, rounded snout; large eyes (Papenfuss and Macey 1986); and patches of silvery iridophores concentrated on the upper eyelids, head, and the anterior body (Marlow et al. 1979), or forming a continuous network covering the entire dorsal surface (Yanev and Wake 1981). Sixteen to 18 costal grooves are present (Stebbins 1985). The distribution of iridophores often gives these salamanders a greenish or silvery green appearance (Yanev and Wake 1981). The iris color is undescribed.

Taxonomic Remarks: The Inyo Mountains salamander is a distinct species distinguished from all other species of *Batrachoseps* based on its large size, short tail, broad head, and distinctive coloration without a dorsal stripe (Marlow et al. 1979, Yanev and Wake 1981). Yanev (1980) and Yanev and Wake (1981) found *B. campi* genetically very distinctive from all other known species of *Batrachoseps,* but least differentiated from *B. wrighti* of Oregon.

Distribution: This California endemic is known only from 16 localities (Papenfuss and Macey 1986; J. Brode, pers. comm.) extending 32 km along the Inyo Mountains (Inyo County) between Waucoba Mountain and New York Butte, and 10.5-13.5 km east to west across the mountain range (Figure 2). Yanev and Wake (198 1) report the known elevational range of this species as extending from 550-600 m (Hunter Canyon) to 2590-2620 m (Upper Lead Canyon):

Life History: Almost nothing is known of the life history of this species although a report detailing the natural history and local distribution of *B. campi* is anticipated (K. Berry, in prep; see Yanev and Wake 198 1). Only the juvenile through the adult stage have been observed or collected (Marlow et al. 1979). The Inyo Mountains salamander appears to be nocturnal, taking shelter under moist rocks or in damp crevices during the daytime (Macey and Papenfuss 1991a). The species likely has direct development similar to other members of the genus *Batrachoseps* where the reproductive pattern is known. Nesting sites are likely to be moist subterranean localities within the talus slopes or fissures of the habitat where this species has been found. No data are available on the movement ecology or physiology of this species or on the potential differential use of habitat by various life stages.

Habitat: Currently, only the gross habitat requirements of *B. campi* are known. The original two known localities where this species was discovered each have permanent seepage springs with limited vegetation associated with talus rubble (Mat-low et al. 1979). Fissured limestone likely provides shelter for *B. campi* in the canyons where it is known to occur (Papenfuss and Macey 1986). Each of the sites where this species is known to occur has a narrow strip of riparian vegetation. Where habitat is suitable, cliffs, outcrops, or talus are in contact with spring flow and the flow passes through dense riparian vegetation (Papenfuss and Macey 1986, Macey and Papenfuss 1991a). The area estimated to be ideal habitat at each locality where this species is known to occur is very small, ranging from 0.17 ha to 4.34 ha (Giuliani 1977, Papenfuss and Macey 1986). This species may be more

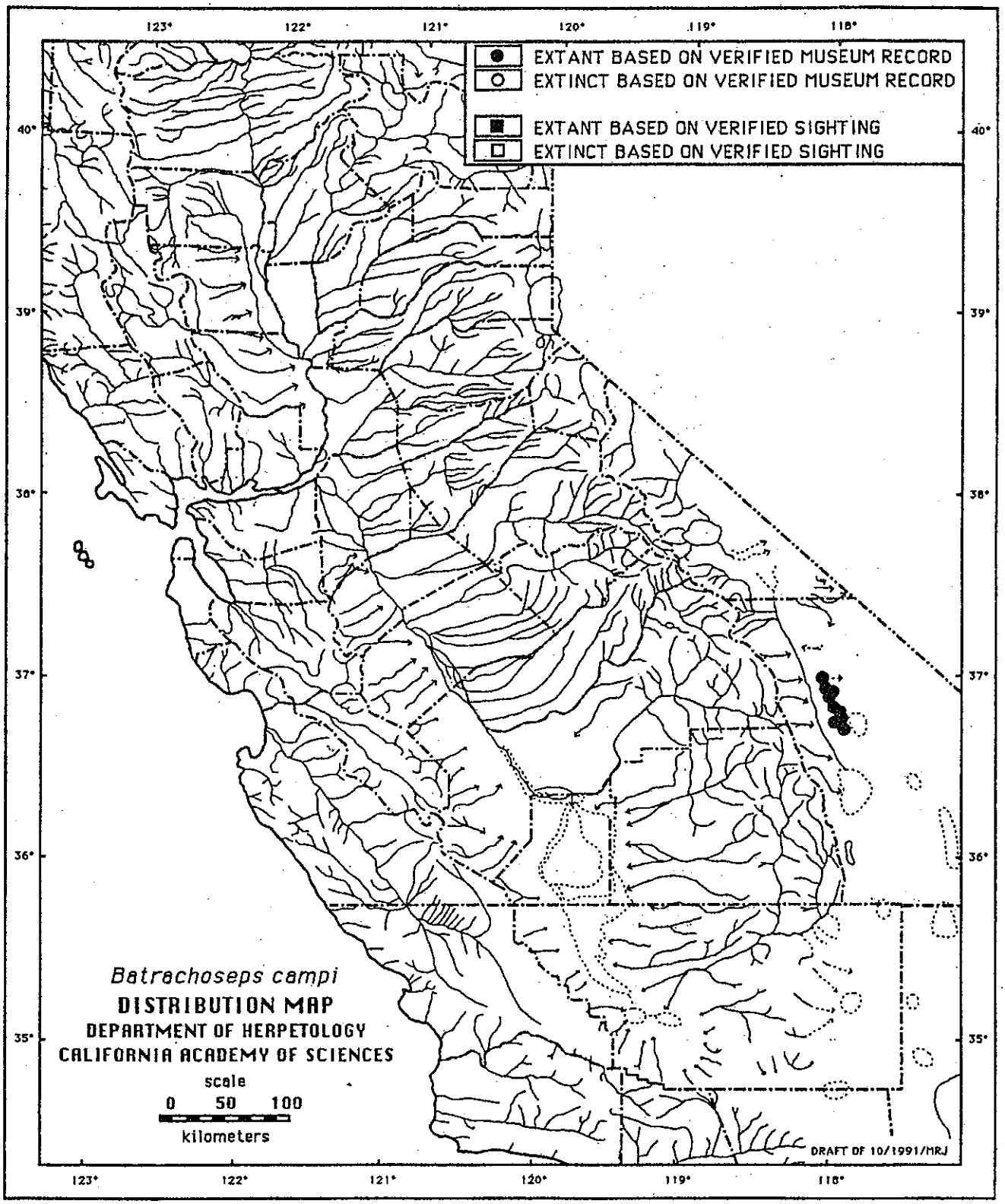

Figure 2. Historic and current distribution of the Inyo Mountains salamander (*Batrachoseps campi*) in central California based on 16 locations from 163 museum records and 29 records from other sources.

difficult to detect near the surface in non-spring situations, so it may be more widespread than current data indicate. Novel sampling techniques will be needed to verify this.

Status: Threatened; the relatively restricted distribution of this California endemic to limited habitat in the Inyo Mountains and the very small area of estimated ideal habitat may make this species especially vulnerable to habitat alteration. Much of its known habitat is associated with springs that can attract significant human *(Homo sapiens),* horse *(Equus caballus),* and burro *(E. asinus)* activity that is likely to imperil its survival. Its restricted geographic range also makes it particular susceptible to extinction from catastrophic climatic or geomorphologic events of regional scale.

Management Recommendations: A thorough understanding of the specific habitat requirements significant to the survival of this species are an absolute prerequisite to refining management efforts for this species. Until specific habitat data become available, efforts should be directed at protecting the habitat ensemble associated with the springs and other riparian areas where *B. campi* has been found, and in particular, efforts should be made to avoid any alterations that might modify the hydrology of these areas. The practice of opening and clearing springs with explosives for enhancement of upland species and other animals (see Marlow et al. 1979) should be prohibited within the known and suspected range of this species. Capping of springs has been identified as the major threat to the survival of *B. campi* (Macey and Papenfuss 1991a). A combination of water diversion from springs, disturbance of the substrate through mining, and damage to potentially sheltering riparian plants by feral burros and domestic cattle *(Bos taurus)* currently pose some degree of threat to every one of the 16 localities where this species is known to occur. Existing populations of *B. campi* would be better protected if the areas associated with the springs in which they occur were closed to vehicles and mining (see Marlow et al. 1979). Concerted efforts should be made to search for this species in other nearby springs when sufficient surface moisture is present to induce near-surface activity in this salamander. Protection of this species would be assisted through initiation of land use restriction measures in the Inyo Mountains, which would anticipate future finds of this species outside of its known range.

RELICTUAL SLENDER SALAMANDER
Batrachoseps relictus Brame and Murray 1968

Description: A moderate-sized (32.1-48.1 mm SVL), dark black slender salamander with a very dark brown dorsal band extending from the forelimbs to the base of the tail and gray-black undersurfaces (Brama and Murray 1968). Sixteen to 20 costal grooves are present (Stebbins 1985). The iris is dark brown or black (R. Hansen, pers. comm.).

Taxonomic Remarks: Brame and Murray (1968) included salamanders from four disjunct regions (the central Coast Ranges, the southern Sierra Nevada Mountains, Santa Cruz Island, and the San Pedro Mártir Mountains of Baja California) within *Batrachoseps relictus,* but Yanev (1980) restricted *relictus* to the Sierran populations. Yanev (1980) treats *relictus* as a subspecies of *B. pacificus,* but the geographic pattern of genetic variation across what is termed *B. relictus* here is poorly understood. Both the work of Yanev (1978) and unpublished data (D. Wake and R. Hansen, pers. comm.) suggest that *B. relictus,* as treated here, may represent several species.

Distribution: This California endemic complex of populations is currently known from the vicinity of Briceburg, Mariposa County south to the Kern River Canyon, Kern County (Figure 3), but the northern limits of the range remain poorly understood. Its known elevation range extends from 182 m to 2438 m (R. Hansen, pers. comm.).

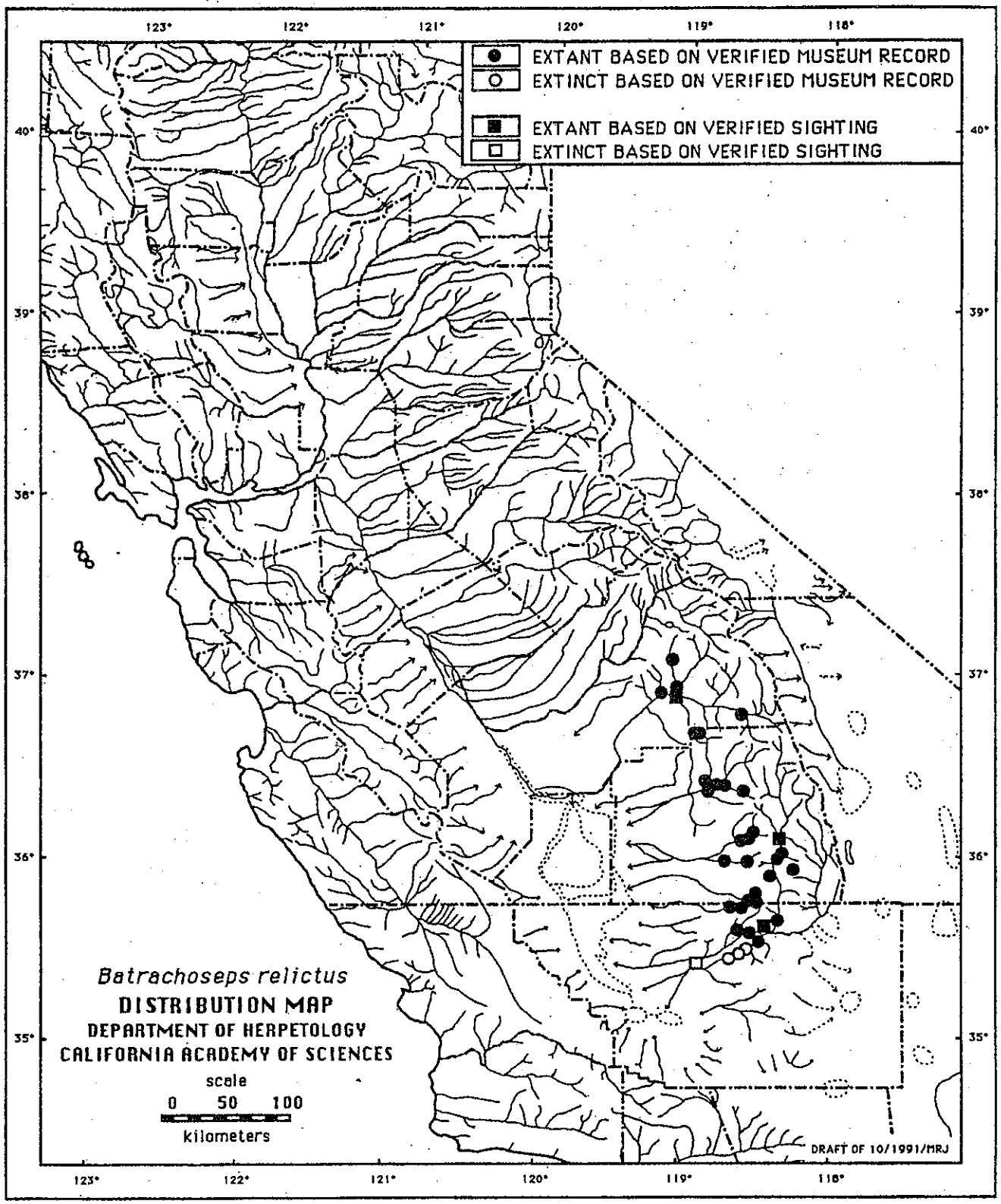

Figure 3. Historic and current distribution of the relictual slender salamander (*Batrachoseps relictus*) in central California based on 73 locations from 154 museum records and 19 records from other sources.

Life History: Virtually nothing is known of the life history of this taxon. As with other members of the genus, direct development is presumed. A probable communal nest of this taxon similar to the one described for the Breckenridge Mountain slender salamander (see subsequent account) has recently been discovered (R. Hansen, pers. comm.).

Habitat: Details of the habitat requirements of this taxon are poorly understood. It has been found under a range of surface objects ranging from rocks to bark and other tree debris. This taxon may be more difficult to detect near the surface in situations where movable surface objects are absent, so it may be more widespread than current data indicate. Novel sampling techniques will be needed to properly evaluate this possibility.

Status: Special Concern; The known range of this unique California endemic is relatively restricted (i.e., the southern Sierra Nevada) and lies within a region that has undergone extensive local development and changes in land use patterns over the last 20 years (Moyle 1973, California Department of Forestry and Fire Protection 1988). Despite extensive searches at suitable time intervals, no salamanders have been found at the type locality of *B. relictus* in Lower Kern River Canyon since 22 April 1970 (D. Wake, pers. comm.). Moreover, no salamanders have been found at eight sites in Kern Canyon where they were relatively common in the 1960s (R. Hansen, pers. comm.).

Management Recommendations: Systematic study of *B. relictus* to identify how many taxa are really present and the geographic range of each is the basic foundation needed prior to all other studies. Once taxa are identifiable, the habitat requirements of each need to be better understood before really effective management recommendations can be made. Much of the most basic data on the biology of this complex of populations are lacking. Phenological studies integrated with identifying the components of habitat structure essential to these salamanders are especially needed. In the absence of significant data, the recommendations made for *B. campi* apply to this species. Sites where *B. relictus* are known to occur should be protected from disturbance, especially alterations that may affect local hydrology. Particular attention should be paid to how more subtle (remote) effects may affect the local water table and soil moisture regimes, and such potential effects should be assessed for a significant radius around sites known to harbor *B. relictus.* What a significant radius is will have to be established through study of populations of *B. relictus* and the range of variation in local hydrologies. More specific recommendations will be possible after data from the suggested studies on *B. relictus* become available.

BRECKENRIDGE MOUNTAIN SLENDER SALAMANDER
Batrachoseps sp.

Taxonomic Remarks: Individuals representing this currently undescribed taxon were likely first found in 1977, although it was not recognized that this population represented a unique taxon until somewhat later on. Unpublished genetic data indicate that this taxon, which is being described by David B. Wake and Robert W. Hansen, is distinctive.

Distribution: This California endemic is known only from a single locality at approximately 1920 m near Squirrel Meadow on Breckenridge Mountain, Kern County (Figure 4).

Life History: Little is known of the life history of this species; only eggs and adults have been observed or collected. Robert W. Hansen (pers. comm.) found a probable communal oviposition site, approximately 150 eggs in a moist location under a large rock. Eggs and gravid females were observed in June. The eggs look similar to those of other *Batrachoseps,* so the species probably undergoes direct development.

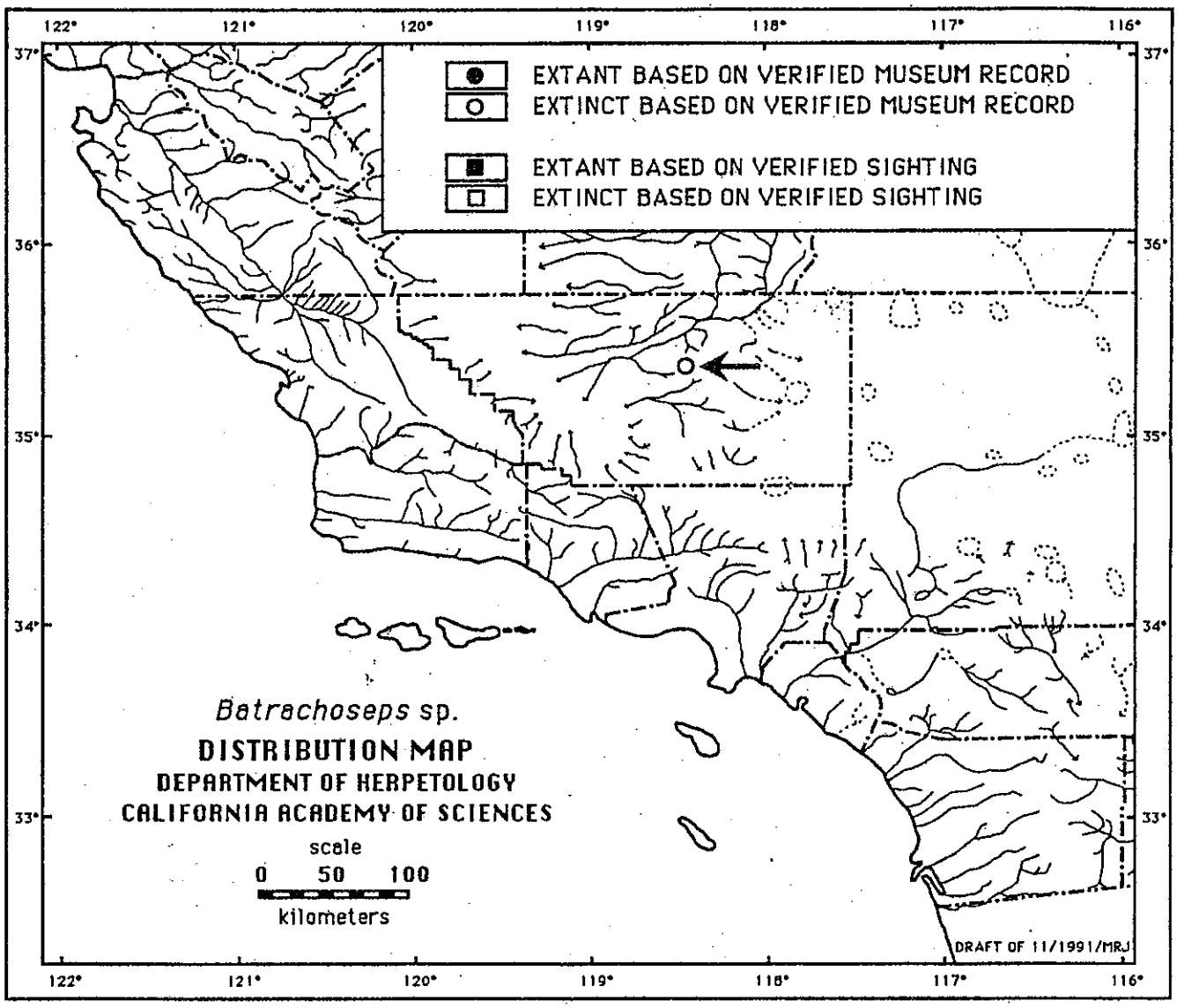

Figure 4. Historic and current distribution of the Breckenridge Mountain slender salamander (*Batrachoseps* sp.) in southern California based on 2 locations from 16 museum records and 52 records from other sources.

Habitat: All life stages of this taxon found thus far are restricted to a seep with a sandy loam substrate on a southeastern-facing slope. Rocks or rotting logs are used as cover during the interval of near-surface activity. This species may be much more difficult to detect near the surface in situations away from springs, so it may be more widespread than current data indicate. Novel sampling techniques will be needed to verify this possibility.

Status: Endangered; the highly restricted known distribution of this California endemic to the locality where it was discovered makes it especially vulnerable. Few observations of this taxon even exist. Larry Satterfield observed 26 individuals of what was presumably this taxon at the only known locality in 1977. On 13 June 1979, Robert W. Hansen observed 22 individuals and the communal nest described above. Between 1979-1983, the dirt road adjacent the locality where this taxon was found was judged too steep for logging trucks to negotiate the grade, so the Sequoia National Forest approved regrading and paving the road so that it was rerouted directly through a substantial portion of the bottom of the seep in which this taxon had been observed, considerably modifying its structure and hydrology. Additionally, the black oaks *(Quercus kelloggii)* that historically bordered this seep were cut (R. Hansen, pers. comm.). Following this alteration, Hansen has found only four adults of this taxon (all observed on 18 September 1983). More recent searches have failed to reveal this taxon.

Management Recommendations: What remains of the only seep on Breckenridge Mountain where this species has been found should be protected from further disturbance, including more remote effects that may influence local hydrology. Assuming a population can be relocated, data on the basic biology of this taxon need to be gathered. Efforts should also be made to search for this taxon in similar habitat nearby, particularly downslope from the only known locality on Breckenridge Mountain, where habitat is relatively inaccessible. In the absence of significant data, the recommendations made for *B. cuapi* and *B. relictus* apply to this species. More specific recommendations will be possible after data from the suggested studies on the Breckenridge Mountain slender salamander become available.

YELLOW-BLOTCHED SALAMANDER
Ensatina eschscholtzii croceater (Cope 1869)

Description: A moderate-sized (48.0-78.0 mm SVL) salamander with reasonably large (averaging 3-4 mm in width and up to 7 mm in length), irregular, pale, lemon-yellow to yellowish cream blotches (yellow in juveniles) on a deep blackish brown to black ground color and a prominent constriction at the base of the tail (Stebbins 1949; R. Hansen, pers. comm.). A single large rectilinear, although often irregularly outlined, blotch that does not extend onto the upper eyelids occurs in each parotid area. Twelve to thirteen costal grooves are present. The iris is dark brown or black with few or no guanophores (Stebbins 1949).

Taxonomic Remarks: This taxon is one of a series of morphologically (Stebbins 1949) and genetically (Wake and Yanev 1986) differentiated forms of *Ensatina.* The only population of yellow-blotched salamander which has been sampled genetically is well differentiated from populations currently allocated to the most proximate other subspecies of *Ensatina* (see Wake and Yanev 1986). Wake and Yanev (1986) have concluded that their genetic data support Stebbins' (1949) interpretation that *Ensatina eschscholtzii croceater* is simply a morph within a cline now recognized *as E. eschscholtzii;* but data on the geographic pattern of genetic variation within *E. e. croceater* are not currently available. Such data are absolutely necessary to exclude the possibility that specific-level recognition for this taxon is justified.

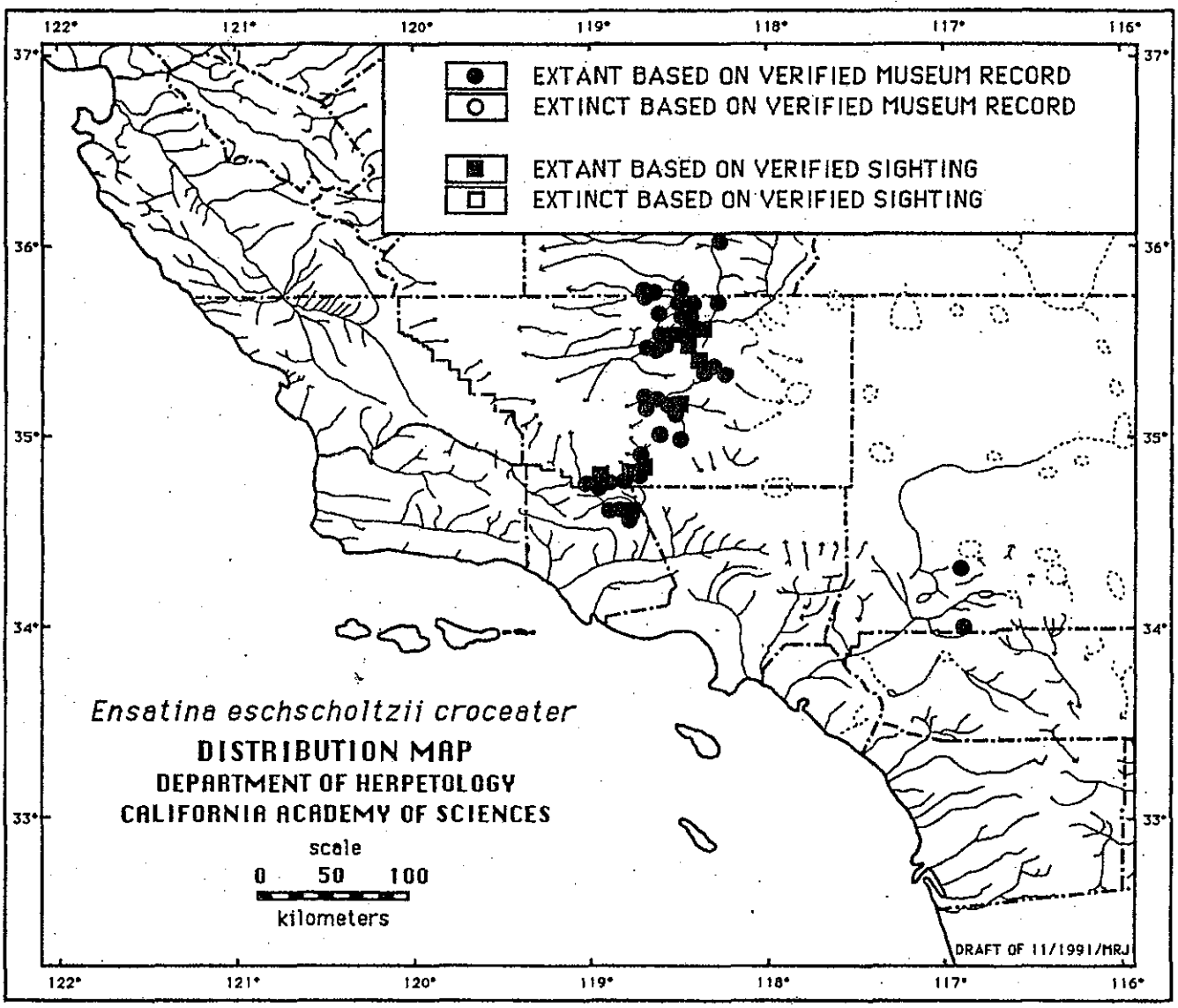

Figure 5. Historic and current distribution of the yellow-blotched salamander (*Ensatina eschscholtzii croceater*) in southern California based on 128 locations from 253 museum records and 35 records from other sources.

Distribution: The known range of this California endemic is restricted to Kern and Ventura counties, California, and extends from the Piute Mountains southwestward to the vicinity of Alamo Mountain (Figure 5). Its known elevation range is from 427 m to 2285 m (Piute Peak, Kern County).

Life History: Little is known of the life history of this nocturnal salamander and until very recently, it remained poorly represented in collections (see Stebbins 1949), probably because the region in which it occurs has been poorly searched relative to others areas in the state (R. Hansen and J. Boundy, pers. comm.; see also Stebbins 1949). If similar to other forms of *Ensatina* studied (see Stebbins 1954a), it likely deposits small clutches of terrestrial eggs that undergo direct development. Gravid females have been observed in April and May (R. Hansen and D. Holland, pers. comm.). This species may be much more difficult to detect near the surface than data would indicate, so it could be more widespread than even current data indicate. Novel sampling techniques will be needed to test whether this possibility is reasonable. No data are available on the movement ecology of this taxon or on the potential differential use of habitat by various life stages, although data on these aspects of the life history of *E. e. croceater* are anticipated to be similar to that described for *E. e. xanthoptica* (see Stebbins 1949). Longevity in the field is unknown, but captive adults have lived at least 3 years (Bowler 1977).

Habitat: Yellow-blotched salamanders occur in a reasonable broad range of vegetational associations from California black oak-, blue oak- *(Quercus douglasii),* and gray pine- *(Pinus subiniana)* dominated open woodlands to Jeffrey pine- *(P. jeffreyi),* ponderosa pine- *(P. ponderosa),* and white fir- *(Abies concolor)* dominated open forest. They are also frequent in canyons amongst litter and debris from canyon live oaks *(Q. chrysolepis),* and they extend onto slopes with California scrub oaks *(Q. dumosa)* and deerbrush *(Ceanothus* sp.). Ecologically, this taxon appears to be rather generalized; Stebbins (1949) suggested that the larger-blotched forms of *Ensatina* like the yellow-blotched salamander had a selective advantage other pattern variants of *Ensatina* over because they could be cryptic on both light and dark substrates instead of being cryptic on one substrate category. Woody debris is a key habitat component for other forms of *Ensatina* (Aubry et al. 1988; see Stebbins 1954a), and observations suggest a parallel pattern for *E. e. croceater (R.* Hansen, D. Holland, and S. Sweet, pers. comm.; see Block et al. 1988).

Status: Special Concern; this taxon is considerably more widespread and abundant than Stebbins (1949) originally realized largely because until recently most of its range had been poorly examined (R. Hansen, pers. comm.). Original concerns regarding exploitation of this salamander by the pet trade (J. Brode, pers. comm.) are less significant as it is now illegal to sell California amphibians and reptiles (Nicola 1981). Nevertheless, indications exist of considerable interest to modify land use practices and development in the Tehachapi Mountains that would threaten a significant portion of the range of the yellow-blotched salamander. The Tehachapi Mountains, Cummings Valley, and Bear Valley areas south of California Highway 58 have undergone significant development over the last 10 years (R. Hansen, pers. comm.). Moreover, the Tejon Ranch Company, probably the largest landowner in this region, has conducted extensive wood cutting operations for oak over the past decade (D. Holland and D. Jennings, pers. comm.), as well as opening up various areas of the ranch for hunting, camping, agriculture, mining, and potential investment (R. Hansen and D. Holland, pers. comm.; pers. observ.). Existing and planned development in these areas has focused largely on oak woodlands, perhaps the most important habitat used by yellow-blotched salamanders.

Management Recommendations: A better understanding of the local and geographic distribution of this taxon are needed. In particular, the habitat features that influence its local distribution are only vaguely understood and need study in the event that directed

management of this taxon becomes necessary. Surveys for this taxon should be a routine component of feasibility assessments addressing potential development in the area of its geographic range.

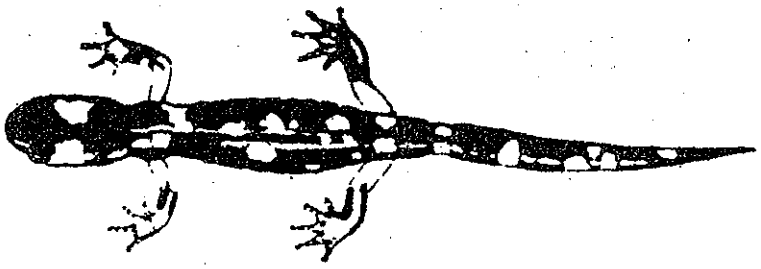

Plate 1. Adult yellow-blotched salamander (*Ensatina eschscholtzii croceater*) [from Stebbins 1954b).

LARGE-BLOTCHED SALAMANDER
Ensatina eschscholtzii klauberi Dunn 1929

Description: A moderate-sized (45.0-82.0 mm SVL) salamander with large (often 5-6 mm or more in greatest linear dimension), usually rectilinear orange blotches on a deep blackish brown to black ground color and a prominent constriction at the base of the tail (Stebbins 1949). Blotches are variable in size and arrangement, sometimes distributed in checkerboard fashion, often connected to form diagonal or transverse bands, or in varying combinations of spots and bands. Twelve to thirteen costal grooves are present. The iris is dark brown or black with few or no guanophores (Stebbins 1949).

Taxonomic Remarks: This taxon is one of a series of morphologically (Stebbins 1949) and genetically (Wake and Yanev 1986) differentiated forms of *Ensatina.* Only two populations of large-blotched salamanders have been sampled genetically, both of which are well-differentiated from populations currently allocated to other subspecies of *Ensatina* (see Wake and Yanev 1986, Wake et al. 1986). Further work on the geographic pattern of genetic and morphological variation in *Ensatina eschscholtzii klauberi* and its allies are needed to reveal whether specific-level recognition for this taxon is justified.

Distribution: The known range of this apparent California endemic is discontinuous from the San Jacinto Mountains in Riverside County to Cottonwood Creek, San Diego County, California (Figure 6). Its known elevational range extends from 518 m (Alpine, San Diego County) to 1646 m (Idyllwild, Riverside County). An old, single record reported as 120 km (75 mi) southeast of San Diego (Lockington 1880; this distance would actually place this record in the Sierra de Juarez) was thought to have come from from the Sierra San Pedro Mártir, Baja California (Dunn 1926, Slevin 1930), and Stebbins (1949) speculated they might occur there (see also Mahrdt 1975), but no further specimens attributed to localities outside of California have been found.

Life History: Little is known of the life history of this form of *Ensatina,* largely because little effort has been made to study it. Laurence Monroe Klauber found an adult female attending a group of 14 eggs on 25 July 1927 (Storer 1929). Like other forms of *Ensatina* studied (see Stebbins 1954a), development is presumed to be direct. Large-blotched salamanders are insectivorous and are known to eat a variety of ground- or litter-dwelling arthropods (Stebbins 1954a). Surface activity is restricted to the period of the year with sufficient surface moisture, usually November to April. Yet, *E. e. klauberi* has been found in logs that harbor a favorable microenvironment into July (Stebbins 1954a). Longevity in the field is unknown, but captive adults have lived over 4 years (Bowler 1977).

Habitat: Large-blotched salamanders occupy a reasonable broad range of habitats from canyon live oak- and Coulter pine *(Pinus coulteri)*-dominated woodland and yellow pine- and incense cedar *(Calocedrus decurrens)*- dominated coniferous forest to California scrub oak-, toyon *(Heteromeles arbutifolia)*-, and buckwheat *(Eriogonum fasciculatum)*-dominated shrubby assemblages. Ecologically, this taxon appears to be rather generalized; Stebbins (1949) suggested that-the larger-blotched forms of *Ensatina* such as the large-blotched salamander had a selective advantage over other pattern variants of *Ensatina* because they could be cryptic on both light and dark substrates instead of being cryptic on one substrate category. Oak logs and debris, especially that provided by coast live oak *(Quercus agrifolia)* and black oak may be favored (M. Long, D. Morafka, and D. Wake, pers. comm.; pers. observ.); woody debris has been identified as a key habitat component for other forms of *Ensatina* (Aubry et al. 1988; Block et al. 1988; see also Stebbins 1954a).

Status: Special Concern; this taxon is considerably more common than was historically believed. Its relatively broad habitat requirements and its occurrence in woodland habitats,

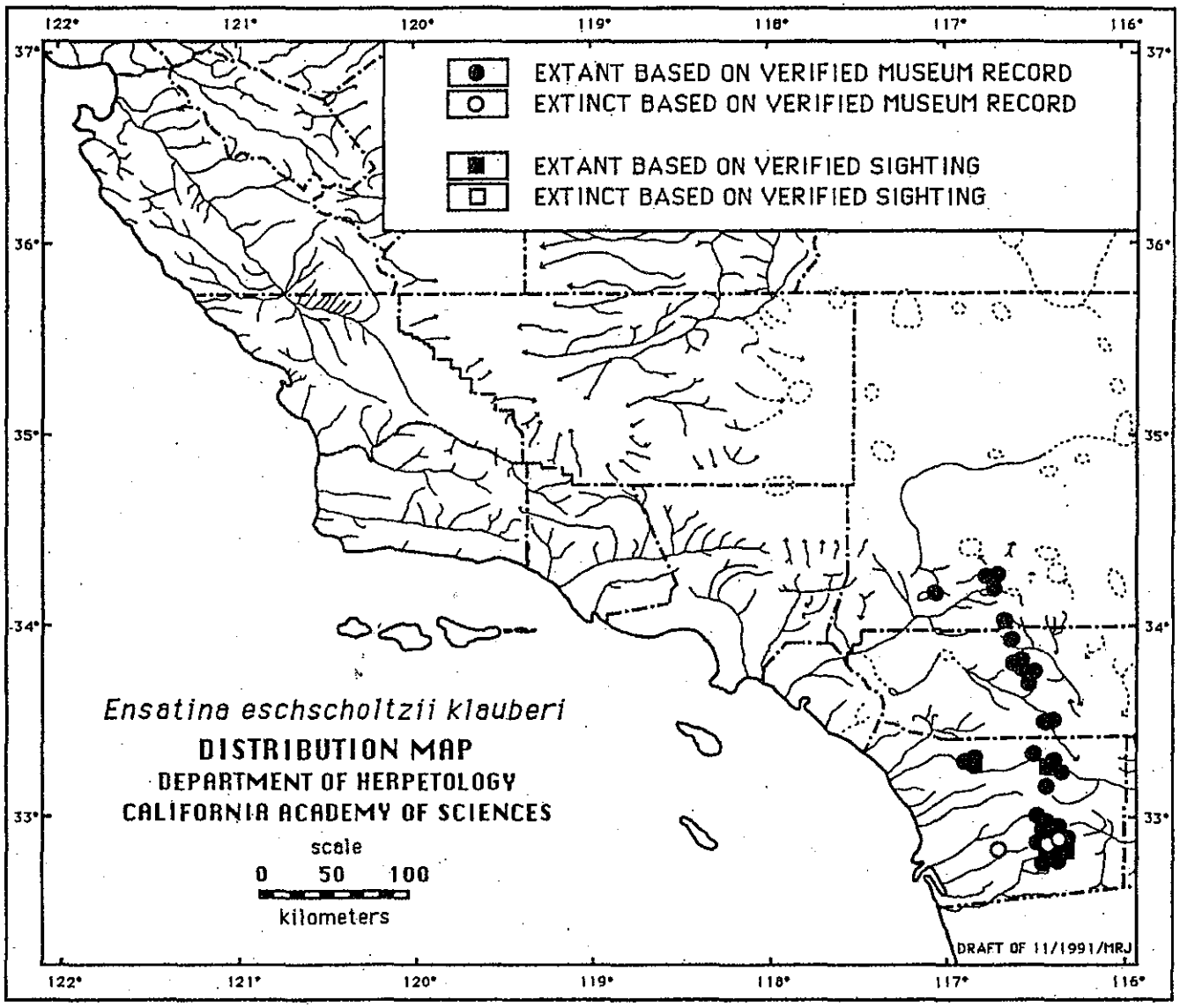

Figure 6. Historic and current distribution of the large-blotched salamander (*Ensatina eschscholtzii klauberi*) in southern California based on 133 locations from 639 museum records and 24 records from other sources.

including residential yards (J. Copp, pers. comm.), with a relatively undisturbed rocky granitic parent substrate that are less accessible may limit the potential threats to this species. Moreover, original concerns regarding exploitation of this salamander by the pet trade (J. Brode, pers. comm.) are less significant as it is now illegal to sell California amphibians and reptiles (Nicola 1981). Nevertheless, continued growth has resulted in a trend toward more intensive development of less accessible sandstone/woodland associations on steep slopes in montane Riverside and San Diego counties, particularly for improved pasture, drip-irrigated orchards and luxury homes, development that is often associated with more intensive substrate disturbance. Potential impacts to populations from mining exist in the Crystal Creek area of the San Bernardino Mountains (J. Brode, pers. comm.).

Management Recommendations: A better understanding of the local and geographic distribution of this taxon are needed. In particular, the habitat features that influence its local distribution are only vaguely understood and need study in the event that directed management of this taxon becomes necessary. Surveys for this taxon should be a routine component of feasibility assessments addressing potential development in the area of its geographic range.

MOUNT LYELL SALAMANDER
Hydromantes platycephalus (Camp 1916)

Description: A moderate-sized (44.0-70.0 mm SVL) salamander with a blotched rock-flake pattern resulting from flecks and patches of pale metallic gold, gray to whitish pigment on a brown to nearly black background color (Stebbins 1954b). Twelve costal grooves are present (Storer 1925), the feet are prominently webbed (Stebbins 1985), and the iris is bright yellow (Camp 1916a).

Taxonomic Remarks: This taxon is one of the three recognized species in the genus *Hydromantes* from California (Gorman 1988). The Mount Lyell salamander appears genetically distinct from other recognized species of *Hydromantes,* but only one population of *H. platycephalus* has been sampled genetically (Wake et al. 1978), so data on the geographic pattern of genetic variation within *H. platycephalus* are lacking.

Distribution: The known range of this California endemic extends from the Smith Lake area (El Dorado County) to the Franklin Pass area (Tulare County) in the Sierra Nevada Mountains (Figure 7). An isolated population is present on the Sierra Buttes, Sierra County (Stebbins 1985). Its known elevational range extends from 1260 m to 3635 m.

Life History: Mount Lyell salamanders are nocturnal (Adams 1942) and adapted to cool conditions; they are known to be active between -2.0°C and 11.5°C (mean = 5.6°C; Brattstrom 1963), which is the lowest temperature range under which any species of *Hydromantes* is known to be voluntarily active (Gorman 1988) and may be the lowest known for any North American salamander. They climb using the tail, a distinctive mode of locomotion that helps them move over the smooth, inclined surfaces of glacially polished rock, which is frequently encountered in their environment (Stebbins 1947). They are presumed to undergo direct development like other plethodontid salamanders; Gorman (1956) examined an 11 egg-bearing female *H. platycephalus* and concluded that they lay fertilized, but undeveloped eggs. Mount Lyell salamander are insectivorous with hatchlings and juveniles apparently restricted to eating smaller forms, such as globular springtails (Sminthuridae) and fungus gnats (Mycetophilidae: Adams 1938, 1942). The season of near-surface activity ranges from around May 1 to late August, after which individuals probably retreat to refugia in talus slopes and fissures with sufficient moisture.

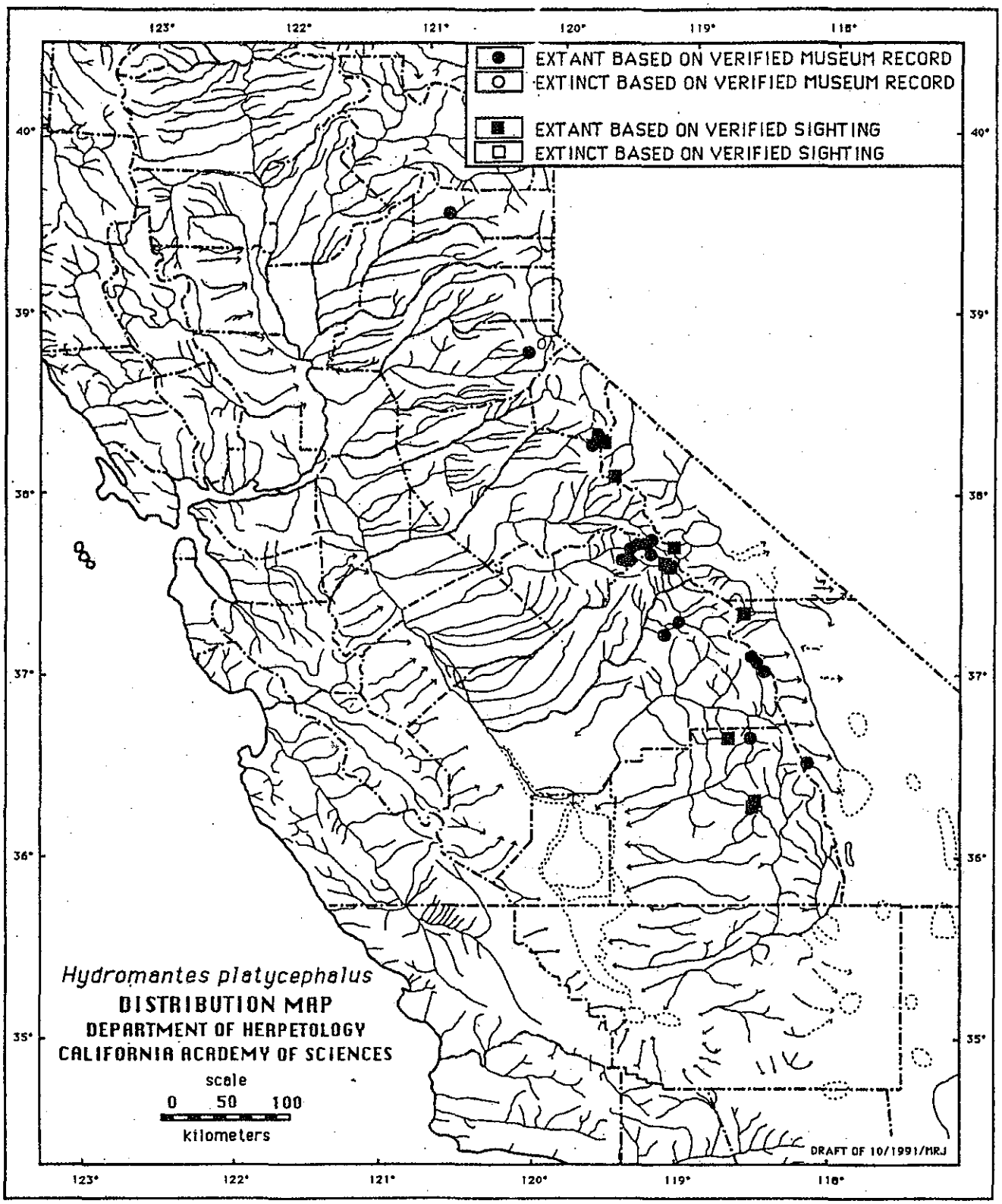

Figure 7. Historic and current distribution of the Mount Lyell salamander (*Hydromantes platycephalus*) in central and northern California based on 56 locations from 386 museum records and 13 records from other sources.

Habitat: *Hydromantes platycephalus* is largely restricted to alpine or subalpine vegetation associations (Adams 1938, 1942; Stebbins 1951), although scattered records of this species exist from somewhat lower elevations. Extensive outcrops of rock and scattered boulders are characteristic of the habitat of *H. platycephalus* (Stebbins 1985). Free surface water, such as a permanent stream, waterfall, seepage, or runoff from melting snow, is almost always present within a few meters, and usually within a few centimeters, of the sites where *H. platycephalus* is present as it has been described as being no more resistance to water loss than wet paper (Gorman 1988). This high elevation endemic is most frequently found beneath rocks on a moist-to-wet substrate of rock and soil with little humus (Gorman 1988), on north and east slopes (Zeiner et al. 1988). Woody vegetation (largely alpine willow *[Salix anglorum],* heather *[Phyllodoce breweri]* scrubby whitebark pine *[Pinus albicaulis]),* is typically sparse or absent altogether; but grasses, sedges, mosses, or lichens may be present.

Status: Special Concern; although this California endemic has the broadest geographic range of the known species of *Hydromantes,* within that range, *H. platycephalus* may be very patchily distributed (Zeiner et al. 1988) with local populations of 6-60 individuals (Gorman 1988). Past observations indicate that large aggregations of adults may be susceptible to human intrusion during favorable years (Gorman 1988; H. Basey, pers. comm.). Until its microhabitat requirements are better understood, a conservative approach of giving it this designation is strongly recommended based on its potentially very patchy distribution that may be especially susceptible to local extirpation events. That listing may be modified as knowledge of its range and habitat requirements are acquired.

Management Recommendations: A much better understanding of the specific habitat requirements significant to the survival of this species are an absolute prerequisite to refining management efforts. Until specific habitat data become available, efforts should be directed at protecting the habitat ensemble associated with the rocky habitats where *H. platycephalus* has been found. In particular, efforts should be made to avoid any alterations that might result in alteration of the physical or hydrological structure of these areas. Wherever possible, talus slopes should be protected from intrusion. Disruption of exfoliated rocky shelves or granite fissures known to harbor salamanders should be avoided. Limiting or excluding climbing activity or the use of rock-altering climbing gear in areas where these salamanders are known to exist should be encouraged until the distribution of this salamander and how it responds to different habitat disturbances is better understood.

OWENS VALLEY WEB-TOED SALAMANDER
Hydromantes sp.

Taxonomic Remarks: This recently discovered, currently undescribed taxon appears to be a member of the genus *Hydromantes* (Jennings 1987a, Gorman 1988, Macey and Papenfuss 1991a). Individuals of this taxon that have been found appear to be morphologically (colorwise) distinct from *H. platycephalus* (J. Brode, pers. comm.).

Distribution: Preliminary data indicate that this taxon is endemic to California, and probably restricted to Mono and Inyo counties on the east slope of the Sierra Nevada Mountains (Macey and Papenfuss 1991a; Figure 8).

Life History: The life history of this taxon is unknown, but is presumed to be nocturnal with a pattern similar to that described for *H. platycephalus* (Macey and Papenfuss 1991a).

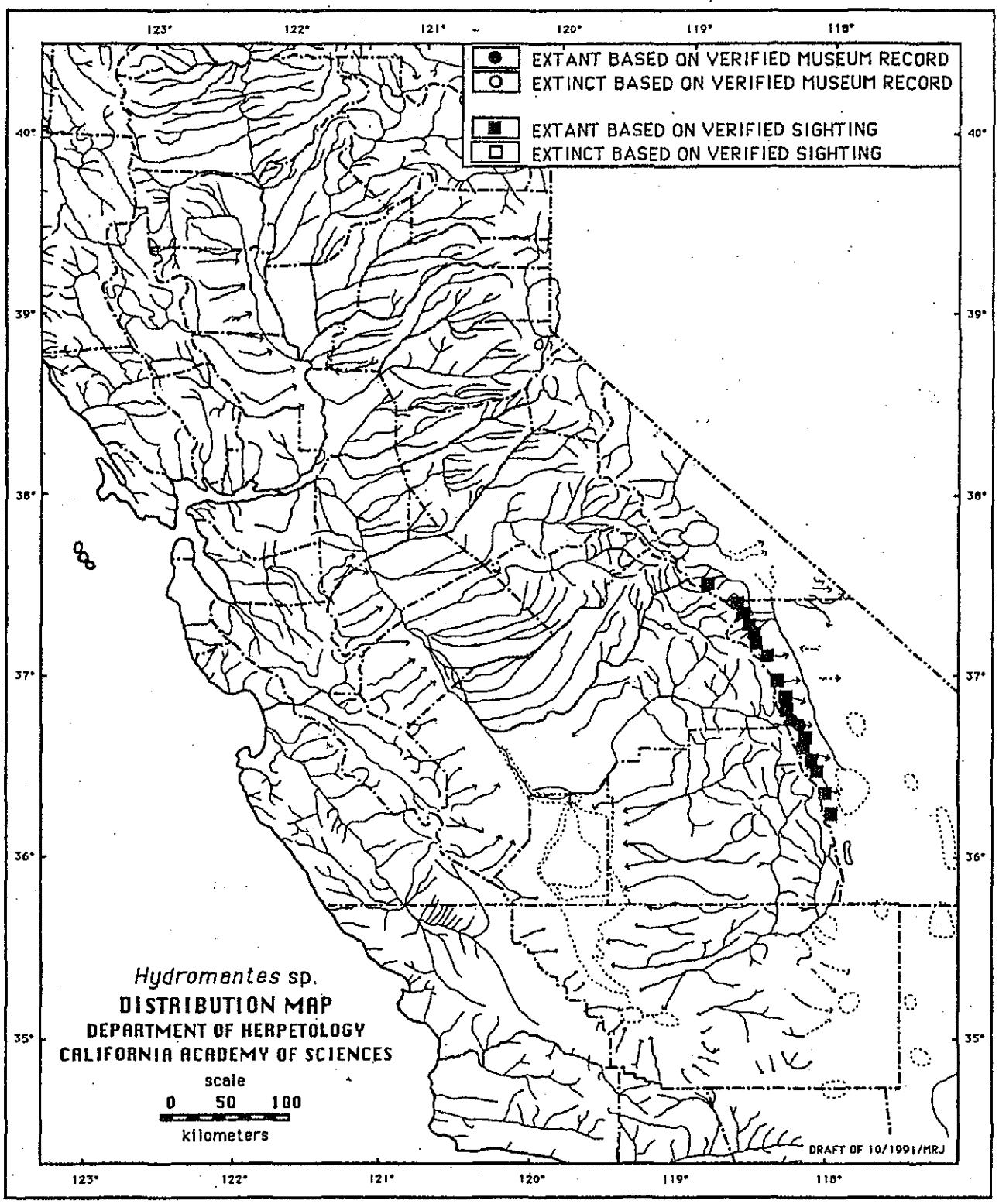

Figure 8. Historic and current distribution of the Owens Valley web-toed salamander (*Hydromantes* sp.) in central California based on 16 locations from 163 museum records and 29 records from other sources.

Habitat: This taxon is known to occur in localized talus adjacent to very moist riparian areas in the vicinity of permanent springs and mountain streams (Macey and Papenfuss 1991a). It can be found under woody debris or rocks in areas with moist soil. A more precise understanding of the habitat features of localities where the Owens Valley web-toed salamander has been found awaits its formal description.

Status: Special Concern; although not yet described, this taxon is likely to be restricted to the east slope of the Sierra Nevada in California. A conservative approach of listing this species at this level is strongly recommended based on its relatively restricted known range, small numbers of adults (≤ 8) observed in each population, and lack of knowledge of its habitat requirements. That listing may be modified as knowledge of its range and habitat requirements are acquired.

Management Recommendations: Efforts should be made to protect areas known to serve as habitat for this species on the east slope of the Sierra Nevada. In particular, activities that result in disturbance of the mesic, rocky talus or the seep hydrology where this salamander occurs should be prohibited. Recommendations made for *H. platycephalus* probably apply equally well to this species. Knowledge of habitat requirements must be greatly improved before recommendations can be refined.

DEL NORTE SALAMANDER
Plethodon elongatus elongatus Van Denburgh 1916

Description: A moderate-sized (51.0-75.0 mm SVL) black or dark brown salamander often with a reddish dorsal stripe (Brodie 1969, 1970). Undersurfaces are black except for a light gray throat that is often mottled. White and yellow iridophores are scattered over the body, but particularly concentrated on the sides of the head and body, the upper surfaces of the limbs, and the throat (Brodie and Storm 1971). Seventeen to 20 costal grooves are present (Stebbins 1985). The iris is dark brown with few or no iridophores (Brodie 1969, 1970).

Taxonomic Remarks: Genetically, *Plethodon elongatus* is well differentiated from its close relatives (Feder et al. 1978, Highton and Larson 1979), but no data exist on how populations within California may vary. Some authors include *P. stormi* in this taxon (e.g., Bury 1973a, Stebbins 1985), but genetic data appear to justify specific recognition for both taxa (Highton and Larson 1979). A much better understanding of the genetic pattern of geographic variation within *P. elongatus* is needed, especially in view of the fact geographically correlated differences in external morphology seem to exist. In particular, *P. elongatus* in coastal California are smaller and darker, have immaculate sides, and have the dorsal stripe nearly obscured in adults; *P. elongatus* from inland locations are larger and lighter-colored with a persistent dorsal stripe and scattered white spots on the sides (Nussbaum et al. 1983).

Distribution: The known distribution of the Del Norte salamander extends from the vicinity of Port Orford, Curry County, Oregon to central Humboldt County, California. In California, it ranges from the Oregon border adjacent Del Norte and eastern Siskiyou counties south to Humboldt County (Figure 9). Its known elevational range extends from near sea level to ca. 1097 m.

Life History: Similar to other plethodontid salamanders, this species lays terrestrial eggs and has direct development. Females oviposit in spring and brood eggs in a terrestrial nest during the summer (Nussbaum et al. 1983). A nest in a small cavity in a redwood *(Sequoia sempervirens)* post found on 27 July 1958 contained 10 eggs in a grape-like

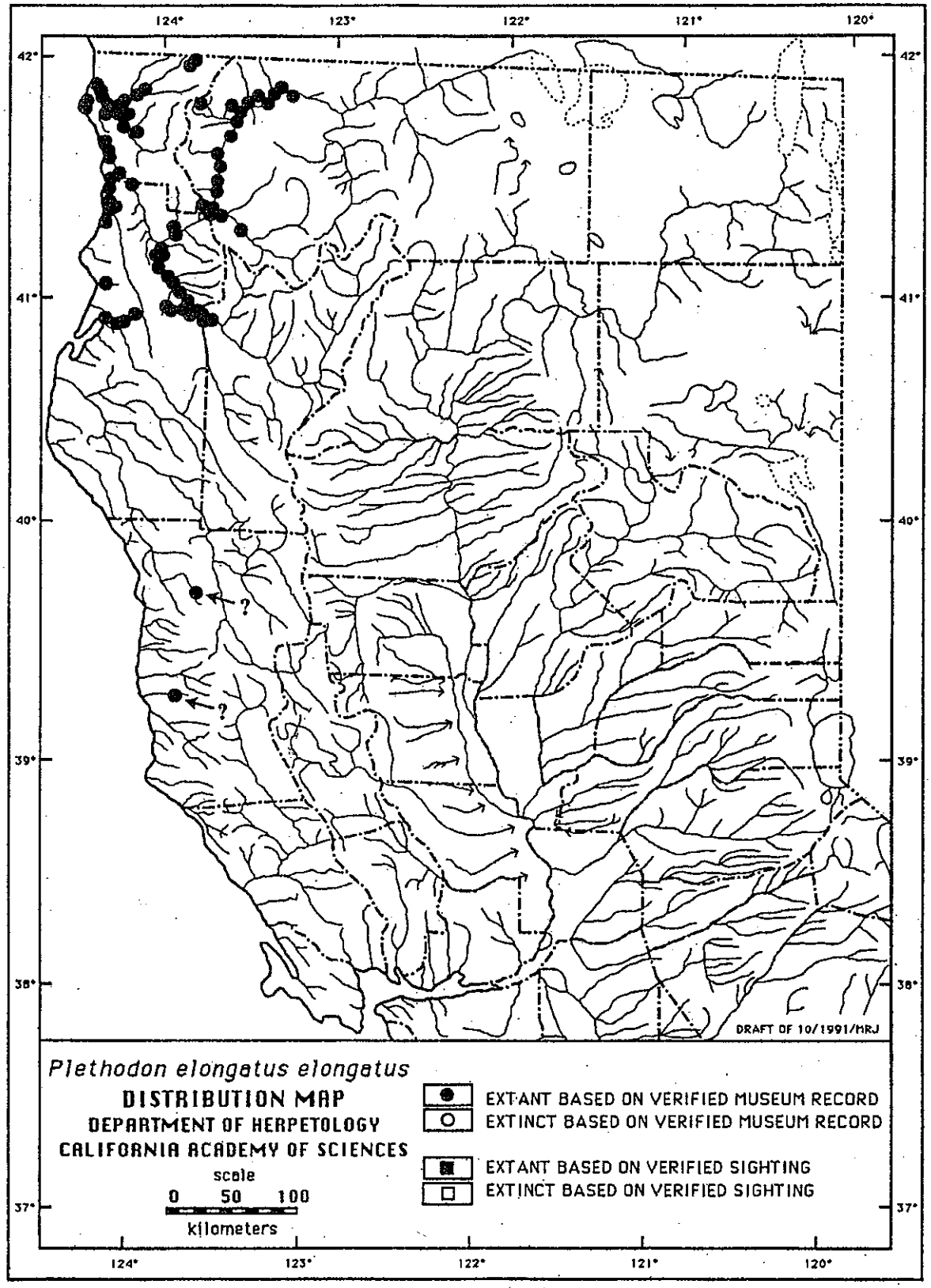

Figure 9. Historic and current distribution of the Del Norte salamander (*Plethodon elongatus elongatus*) in northern California based on 216 locations from 1297 museum records.

cluster (Livezey 1959). Eighteen mature gravid females from Siskiyou County, California contained 3-11 large eggs (Nussbaum et al. 1983). Stebbins (1951) reported gravid females obtained at Orick and near Willow Creek, Humboldt County, California on 15 February and 16 November to contain 10 and 11 eggs. On 17 November 1988, two females carrying spermatophores (= sperm packets) were also found at a site in this vicinity (Welsh and Lind 1992). Limited data indicate that *P. elongatus* eats mostly springtails (Collembola) and larval and adult beetles (Coleoptera: Bury and Johnson 1965) as well as termites (Isoptera), ants (Formicidae), and orbatid mites (H. Welsh, pers. comm.). During a 3-year study of *P. elongatus* in the Klamath Mountains of northwestern California, Welsh and Lind (1992) found this salamander to be a very sedentary species; 80% of adult recaptures moved < 7.5 m over 3 years. The greatest distance traveled by any salamander was 36 m (straight line) in 6 months. Welsh and Lind (1992) also reported that growth rates for females (averaged 1.1 mm/yr) less than half that for males (averaged 2.4 mm/yr). This species seems to be more frequently encountered near the surface following winter rains.

Habitat: The Del Norte salamander is largely restricted to the redwood and north coast forests of northwestern California and southwestern Oregon (Stebbins 1951). Relatively recent work has identified *P. elongatus* as most abundant in old-growth forest (Bury 1983, Raphael 1988, Welsh 1990, Welsh 1993) with intermediate levels of moisture (Welsh and Lind 1988), particularly in association with talus slopes (Bury 1973a, Herrington 1988, Diller and Wallace 1994) and outcrops of fractured metamorphic rock (Welsh and Lind 1988), which is consistent with *P. elongatus* being tolerant to intermediate levels of water loss relative to other salamanders (Ray 1958). The relative abundance of the hardwood understory in general and specifically that of tanbark oak *(Lithocarpus densiflora)* have been positively correlated with the relative abundance of *P. elongatus* (Raphael 1987, 1988; but see also Diller and Wallace 1994 for data from more mesic sites). However, what other hardwoods might be important to *P. elongatus* and how hardwoods are important'to the life history of *P. elongatus* needs study. Welsh and Lind (1991) and Welsh (1993) found the best-fit multivariate model describing the habitat characteristics of *P. elongatus* to be one where its distribution was positively correlated with seeps and a rocky substrate, and negatively correlated with the volume of downed hardwood logs and the weight of small downed logs. Their findings indicate that greater attention and study should be devoted to the presence of seeps with regard to understanding the distribution of *P. elongatus*.

Status: Special Concern; this species has a relatively restricted distribution in California (the extreme northwest portion of the state) and its range outside California is limited. Although still somewhat abundant along a narrow coastal strip of mesic habitats in northern California (Diller and Wallace 1994), inland populations have relatively specialized habitat requirements (mostly old-growth situations associated with a fractured rocky substrate) that make *P. elongatus* is vulnerable. Currently, timber harvest is the most significant activity within the range of *P. elongatus* that threatens remaining old-growth stands.

Management Recommendations: In the absence of data needed to understand whether inland populations of *P. elongatus* at low densities in non-old-growth stands can survive long-term, preservation of old-growth stands is imperative to ensure the survival of a significant proportion of *P. elongatus* populations. Efforts should be focused on protecting talus slopes and outcrops of fractured metamorphic rock from alteration, especially those in association with seeps in old-growth stands. Impacts to old-growth canopy and to the hydrology of seeps should especially be avoided. In particular, any type of alteration that modifies natural grade and canopy cover, such as logging, should be minimized or prohibited in the vicinity of such habitats (Corn and Bury 1989). Based on the data of Welsh and Lind (1991) and Welsh (1993), a better understanding of the relative importance of seeps to the distribution of *P. elongatus* is needed. An understanding of the

recolonization potential of *P. elongatus* under different alteration regimes in both coastal and inland locations is also needed.

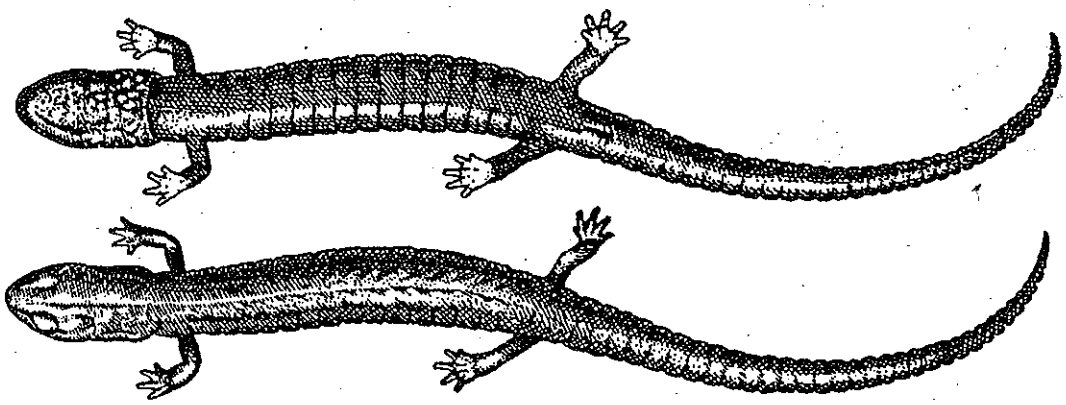

Plate 2. Adult Del Norte salamander (*Plethodon elongatus elongatus*) [from Stebbins 1951].

SOUTHERN SEEP SALAMANDER
Rhyacotriton variegatus Stebbins and Lowe 1951

Description: The southern seep salamander is a moderate-sized (ca. 40.0-51.4 mm SVL) olive or pale olive salamander with strongly black to brown spots, and some fine white guanophores dorsally (Stebbins and Lowe 1951, Good and Wake 1992). Undersurfaces range from greenish yellow to yellow, usually heavily flecked and spotted with dark melanic blotches of variable size (Fitch 1936; Stebbins and Lowe 1951; Good and Wake 1992; pers. observ.). The iris is blackish-brown with metallic, light-colored markings (Stebbins and Lowe 1951).

Taxonomic Remarks: *Rhyacotriton variegatus* had been previously recognized as part of a single, wide-ranging species, *R. olympicus* (e.g., Stebbins and Lowe 1951, J. Anderson 1968, Stebbins 1985), but Good et al. (1987) identified considerable genetic variation within this species, which ultimately led to the partitioning of the latter into four species, including *R. variegatus* (Good and Wake 1992). Information presented in this account is restricted to *R. variegatus,* the only one of the four species found in California.

Distribution: This species ranges from the vicinity of Point Arena, Mendocino County, California (Stebbins 1955) to the Little Nestucca River on the northwest coast of Oregon (Good et al. 1987, Good and Wake 1992). In California, this taxon ranges from Mendocino County to the Oregon border (Figure 10). Its known elevational range extends from near sea level to ca. 1200 m (Nussbaum et al. 1983).

Life History: The life histories of seep salamanders *(Rhyacotriton* spp.) are poorly known and even fewer data apply *R. variegatus* in California. Males found in California indicated reproductive readiness in mid-February, but females with ovarian eggs approaching full size on 1 October and ovarian eggs visible through the body wall in June (Welsh and Lind 1992) suggest that oviposition may occur as early as the fall (Stebbins and Lowe 1951). The only field description of a seep salamander oviposition site is that assumed to belong to *R. kezeri* (Nussbaum 1969); large (4.5 mm dia), pigmentless eggs found in December were loosely placed in cracks in saturated sandstone. If oviposition is similar to that observed for *R. olympicus* (see Noble and Richards 1932), communal deposition of singly laid eggs in concealed locations may be typical. Based on data from Fall Creek (Lincoln County), Oregon, the embryonic and larval interval combined is extremely long (ca. 4.0-4.5 years), and reproductive maturity may require 6-7 years or more (Nussbaum and Tait 1977). Adults are active at air and water temperatures lower than those known for any other aquatic salamander, between 5° and 10°C (Stebbins and Lowe 1951; Stebbins 1955; Brattstrom 1963; see also Nussbaum and Tait 1977), and have among the lowest critical thermal maxima (28.3°C: Brattstrom 1963) of any salamander known. *Rhyacotriton variegatus* may also be the most desiccation intolerant salamander found in California (see Ray 1958), which is likely related to a high degree of dependence of seep salamanders on cutaneous respiration for oxygen exchange (Whitford and Hutchinson 1966). Adults of *R. variegatus* eat mostly amphipods (Amphipoda), springtails, and the larvae of insects (Insecta) found in moist habitats (Bury and Martin 1967). Recent data collected by Welsh and Lind (1992) suggests that *R. variegatus is* highly sedentary. Welsh and Lind (1992) note, however, that caution is needed in the interpretation of the degree to which *R. variegatus* is sedentary because movement of salamanders beyond their sample area could not be determined. Their data also indicate that larvae are more vagile than adults, suggesting that larval dispersal is the most likely means of connectivity between populations. Welsh and Lind (1992) emphasize that such a scenario requires interconnecting aquatic habitats, which may be an infrequent rainy season phenomenon in the drier interior portions of the range of *R. variegatus* in California. Much of the movement ecology of *R. variegatus* remains to be understood.

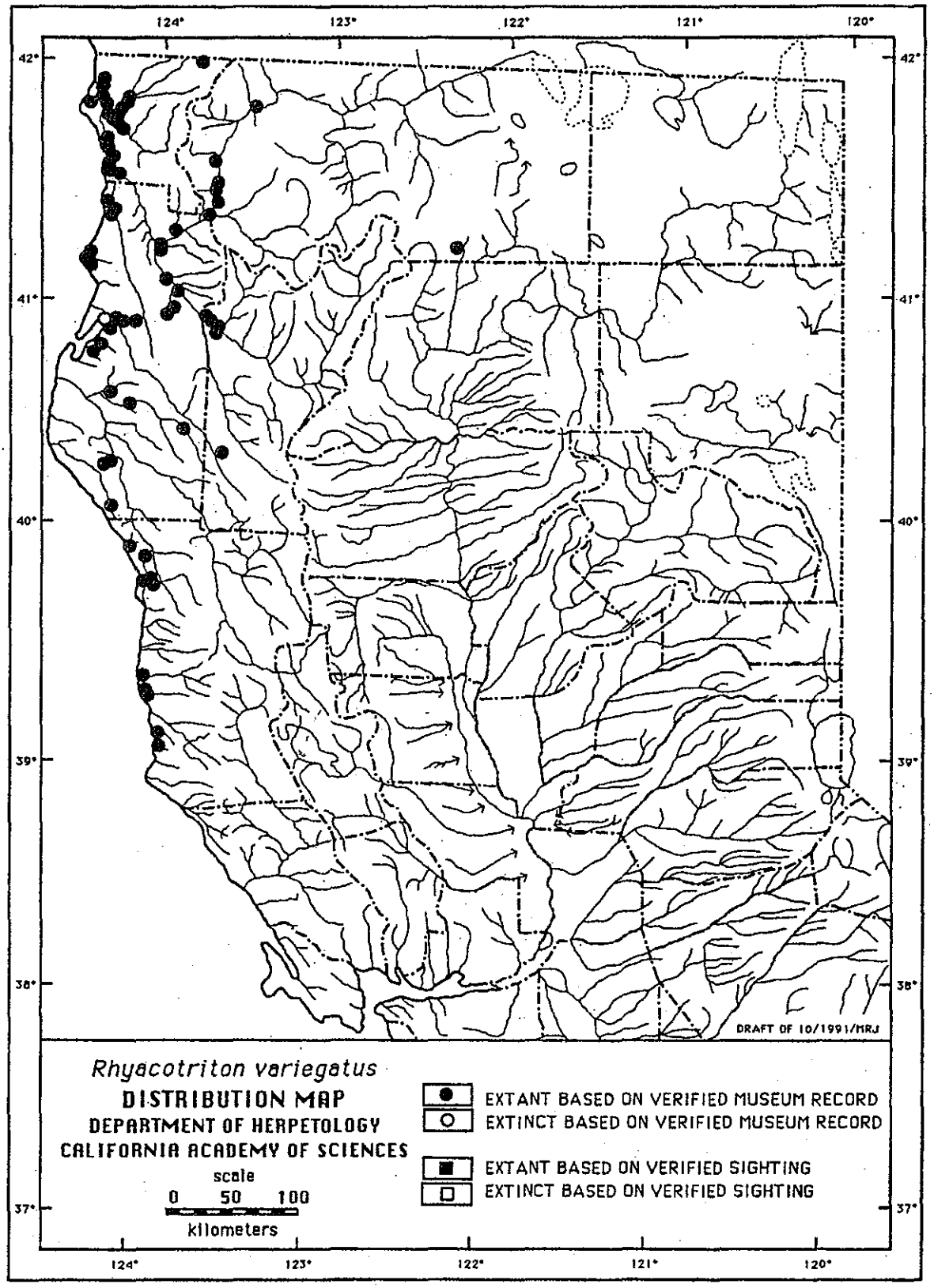

Figure 10. Historic and current distribution of the southern seep salamander (*Rhyacotriton variegatus*) in northern California based on 111 locations from 567 museum records.

Habitat: Cold, permanent seeps and small streams with a rocky substrate appear to be the preferred habitats (Fitch 1936, Stebbins and Lowe 1951, Stebbins 1955). Relatively recent work has linked this species to seeps, small streams, and waterfalls in wet or mesic, coastal old-growth habitats (Bury 1983; Welsh and Lind 1988; Corn and Bury 1989; Good and Wake 1992; Welsh 1993; see also Raphael 1988), an association that is likely influenced by the fact that old-growth provides the hydric and thermal environment more favorable (cooler and wetter) to the survival of *R. variegatus* for longer intervals than similar habitats in non old-growth situations (Welsh 1990). *Rhyacotriton variegatus* larvae may be found in somewhat larger streams (especially in the splash zone of waterfalls: D. Good, pers. comm.), but their abundance in seeps has led to the suggestion that predators, like the larvae of Pacific giant salamanders *(Dicamptodon ensatus* and *D. tenebrosus),* may largely exclude them from the former habitats (Stebbins 1955; see also Nussbaum 1969). The greater frequency of *R. variegatus* in seeps may also reflect the greater facility; and thus bias, with which seeps versus streams are sampled as well as the lack of systematic sampling for *R. variegatus* in streams, so the reasons for the apparent restriction of *R. variegatus* to seeps needs study in order to refine current understanding of the habitat requirements for this species. Adults and metamorphosed individuals have been found in concealed locations within a few meters of the seep habitat that displays surface flow; such locations typically have shallow free water or a saturated substrate (Stebbins and Lowe 1951).

Status: Threatened; The relatively narrow hydric and thermal requirements of *R. variegatus* make it particularly vulnerable, and are probably the reason this species is closely associated with seep habitats in coastal old-growth. Moreover, the apparently relatively long interval to reproductive maturity probably makes replacement of disturbed *R. variegatus* populations relatively slow. Until the variation in hydric and thermal requirements that appears to restrict this species to seep and small stream habitats are better understood, one must take the conservative approach that coastal old-growth seeps and small streams are the only habitats that can support viable populations of this species. Recent estimates place the amount of coastal old-growth redwood forests in California, which comprise a significant portion of coastal old-growth forests in California, at 12% of their historic extent (Fox 1988), over half of which is found on private or unreserved public lands, and therefore susceptible to significant timber harvest. Moreover, how *R. variegatus* is distributed through the remaining suitable habitat is poorly understood.

Management Recommendations: Efforts should be focused on protecting the remaining seep and small stream habitats that occur within coastal old-growth forests from alteration. Impacts to the hydrology of seeps and old-growth canopy should especially be avoided. In particular, logging activities or any type of construction that modifies natural grade should be minimized or prohibited in the vicinity of such habitats (Corn and Bury 1989). One of the biggest gaps in current understanding of the life history of *R. variegatus* is a better understanding of the movement ecology of larvae and post-metamorphs over diel and seasonal intervals. Until studies improve the understanding of its movement ecology, a significant impediment will exist to refining habitat-oriented management recommendations for California populations of *R. variegatus.* In particular, efforts should be made to determine whether the low densities of *R. variegatus* that occur outside of old-growth seeps and small streams do not simply represent individuals dispersing or moving from foci of suitable habitat or non-viable relict populations. Better survey and inventory methods for this cryptozooic species are especially needed.

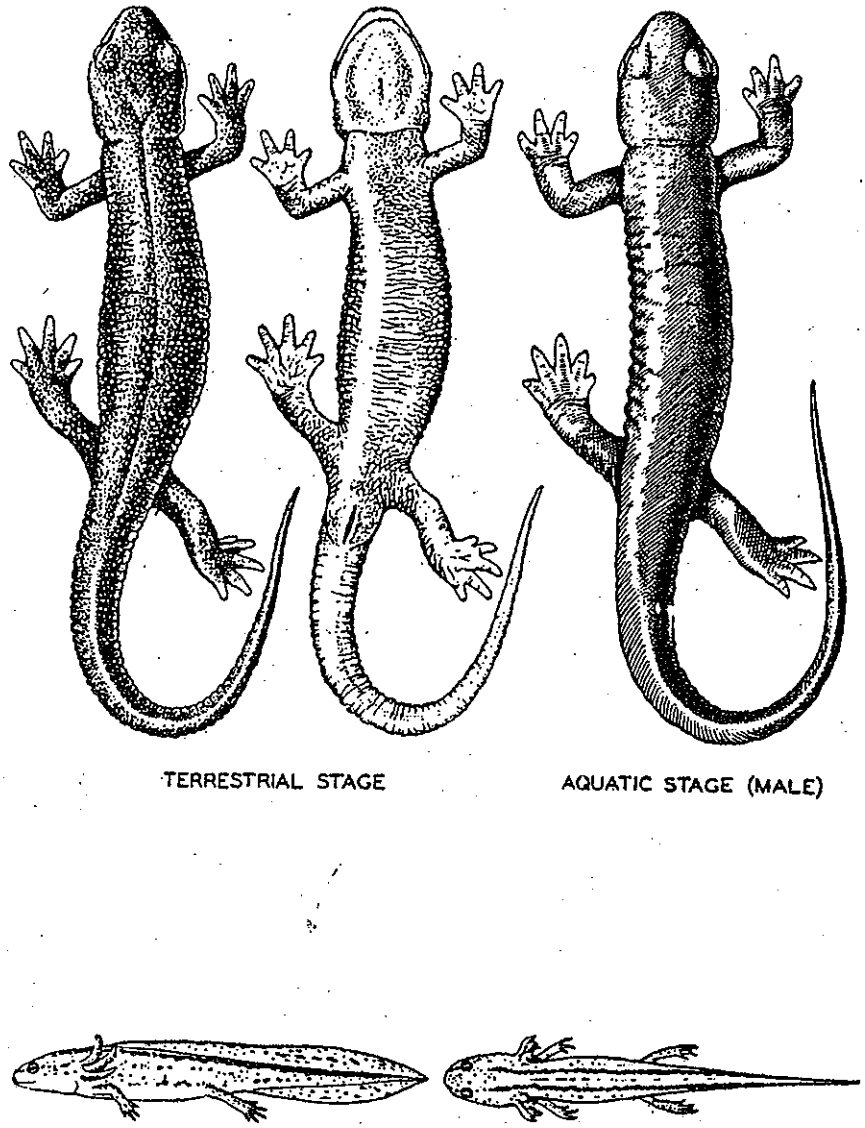

Plate 3. Larval, juvenile, and adult Coast Range newt (*Taricha torosa torosa*) [from Stebbins 1951].

COAST RANGE NEWT
Taricha torosa torosa (Rathke in Eschscholtz 1833)

Description: A moderate-sized (50.0-87.0 mm SVL) dark brown salamander with bright yellow-orange to orange undersurfaces (Riemer 1958); thick, relatively textured skin that becomes markedly rough-glandular during its terrestrial phase, but reverts to a relatively smooth condition during its aquatic phase (Nussbaum and Brodie 1981). Each iris has areas of dense gold iridophores interrupted by a prominent brown, horizontal eyestripe that broadens toward the outer edges of the iris (Riemer 1958).

Taxonomic Remarks: Genetic variation in *Taricha torosa torosa* is known from only 6 populations in central California, the southernmost two of which showed considerable genetic divergence from the northern four (Hedgecock and Ayala 1974, Hedgecock 1977). This coupled with apparent significant differences in timing of reproduction of *T. t. torosa* from Monterey County south may indicate that more than one taxon is currently concealed within *T. t. torosa.*

Distribution: Historically distributed in coastal drainages from the vicinity of Sherwoods (central Mendocino County) in the North Coast Ranges, south to Boulder Creek, San Diego County (Figure 11). Nevertheless, populations in southern California appear to be highly fragmented, even historically. The records of Slevin (1928) for Baja California are thought to be erroneous (Stebbins 1951). The known elevation range of this species extends from near sea level to ca. 1830 m (Stebbins 1985).

Life History: A frequently conspicuous diurnal salamander that, if the behavior of the related red-bellied newt *(T. rivularis)* can be considered an appropriate indicator (Hedgecock 1978), probably engages in stereotyped, sometimes long-distance (i.e., > 1 km) migrations to breeding sites. In spring, males congregate at breeding sites first (Ritter 1897), followed by females some days to weeks later (Smith 1941). In a relatively stereotyped courtship, females pick up sperm packets (spermatophores) deposited by males (Smith 1941), internal fertilization occurs, and females deposit 3-6 egg spheriodal masses each containing 7-47 eggs over a period of several days on rocks, stems, or root masses (Ritter 1897; Brame 1956,1968; Riemer 1958; pers. observ.). Eggs apparently hatch after 4-6 weeks (Kats et al. 1994). In central California, breeding appears to occur in two waves, the first in January or February and the second in March or April (Twitty 1942, Stebbins 1951, Miller and Robbins 1954), although Coast Range newts may enter ponds as early as December (Riemer 1958). Larvae take approximately 3-6 months to reach metamorphosis (pers. observ.) and subsist largely on aquatic invertebrates and also conspecifics (Ritter 1897). Adult newts eat a wide variety of aquatic and terrestrial invertebrates (earthworms, insects, snails, beetles, butterflies, and stoneflies; Stebbins 1972, Hanson et al. 1994), as well as egg masses and larvae (Kats et al. 1992), and carrion (Hanson et al. 1994). If *T. t. torosa* is similar to the related *T. rivularis,* adults are probably long-lived (i.e., > 20 yrs) and may not reproduce every year (Hedgecock 1978). The Coast Range newt is one of a group of related newts thought to possess warning (aposematic) coloration (Brodie 1977). Whether or not the bright ventral coloration of the post-metamorphic Coast Range newt is aposematic, its skin and eggs are endowed with toxic glands (Buchwald et al. 1964, Brodie et al. 1974) that appear to have the ability to repel at least some predators *(e.g., Thamnophis elegans,* Hubbard 1903) and can be presented to predators in distinctive postures (Brodie 1977). The Coast Range newt seems to have greater opportunity to display any distinctive coloration or noxious skin gland because its morphology (it possesses thicker skin and a significantly larger bladder capacity than most other salamanders), its behavior (it maintains more frequent body contact with the substrate than other salamanders), and its physiology (it has a higher temperature tolerance than most other salamanders) make it more resistant to desiccation than most other

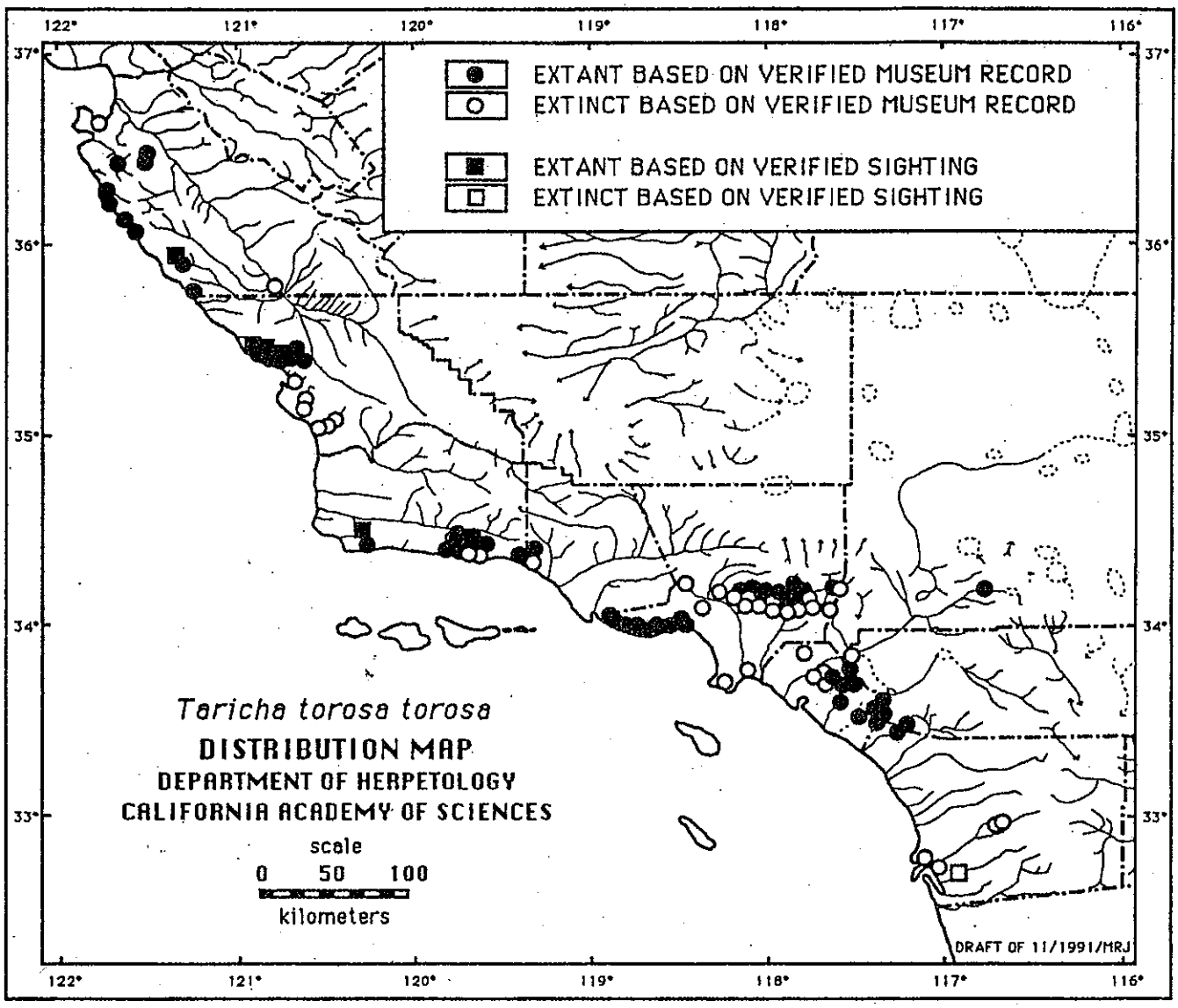

Figure 11. Historic and current distribution of the Coast Range newt (*Taricha torosa torosa*) in southern California based on 374 locations from 1,690 museum records and 29 records from other sources.

salamanders (Cohen 1952, McFarland 1955, Brattstrom 1963, Brown and Brown 1980). Larval *T. t. torosa* may be a seasonally very significant food resource for newborn individuals of certain species of garter snakes *(Thamnophis* sp.), including the federally endangered San Francisco garter snake, *Thamnophis sirtalis tetrataenia* (S. Barry, pers. comm.). Although the movement ecology of the related *T. rivularis* has been well-studied (Twitty et al. 1967a, 1967b), that of *T. t. torosa* is essentially unknown (Twitty 1959).

Habitat: Coast Range newts frequent terrestrial habitats, but breed in ponds, reservoirs, and slow-moving streams (Stebbins 1954b, 1985). Lack of data on the movement ecology of this species prevents a complete characterization of the microhabitats used.

Status: Special Concern--southern California populations only from south of the Salinas River in Monterey County; if the sizes of local populations (demes) of the related *T. granulosa* (pers. observ.) and *T. rivularis* (Hedgecock 1978) consisting of many thousands of individuals can be considered a suitable indicator, historically, *T. t. torosa* may have been one of the most abundant, if not the most abundant amphibian through much of its range. Only in the small coastal drainages of the Santa Ynez Mountains of Santa Barbara County were populations probably historically always relatively small (estimated at between 50 to 100 adults; S. Sweet, pers. comm.). This species has been depleted by large-scale historical commercial exploitation coupled with the loss and degradation of stream habitats, especially in Los Angeles, Orange, Riverside, and San Diego counties. Our own observations indicated that the breeding habitat of *T. t. torosa* has, at best, been severely degraded over much of its range, largely due to a shift in sedimentation dynamics that has resulted in greater filling and less frequent scouring of pools to allow them to retain their characteristic structure (Coming 1975 as modified and cited in Faber et al. 1989).

Management Recommendations: The movement ecology, age structure, and longevity of *T. t. torosa* must be better understood before really effective management recommendations can be made. Meanwhile, efforts should be made to preserve historic sites where *T. t. torosa* has been known to breed. Until a better understanding of its movement ecology is obtained, it is unclear how much terrestrial habitat will be needed to ensure long-term survival of *T. t. torosa* populations, but until that time, the decision to preserve terrestrial habitat associated with the breeding sites for this species should conservatively preserve the largest terrestrial areas possible. A thorough study of the geographic pattern of genetic variation within *T. t. torosa* is needed to determine whether more than one taxon is represented because if more than one taxon is present, each taxon will not only have a more restricted geographic range, but each will require more intensive life history study to determine if significant differences in their ecologies exist.

Plate 4. Larval and adult tailed frog (*Ascaphus truei*) [from Stebbins 1951].

ANURANS

TAILED FROG
Ascaphus truei Stejneger 1899

Description: A small (35.0-45.0 mm SUL) olive, brown, gray, or reddish frog, often with a pale yellow or greenish triangle extending between the eyes and snout, and a dark eyestripe (Mittleman and Myers 1949, Metter 1964a). The undersurfaces are white to yellowish white. The eyes are brown with gold iridophores on both the upper and lower portions of the iris, but a greater density of iridophores is present on the upper iris (Metter 1964a).

Taxonomic Remarks: *Ascaphus truei* is probably the most distinctive species of North American frog, and it is currently regarded as the only species within the genus *Ascaphus*. However, indications of potential geographic polymorphism in the karyotypes of *A. truei* (Green et al. 1980) and larval and postmetamorphic morphology (Mittleman and Myers 1949; Metter 1964a; J. Applegarth, pers. comm.) suggest that the geographic pattern of genetic variation within *A. truei* should be examined with the idea of identifying potentially cryptic taxa, particularly in view of the fact that a number of isolates between which there is little or no gene flow occur throughout its geographic range (Metter and Pauken 1969; see also Daugherty 1980).

Distribution: The known range of the tailed frog extends from extreme northern Mendocino County, California in the United States north to Bute Inlet, British Columbia in Canada; disjunct population systems also occur in Idaho, western Montana, and extreme southeastern British Columbia; extreme eastern Oregon; extreme eastern Washington (Metter 1968a); and the McCloud River system in the Shasta region of California (Bury et al. 1969). In California, the distribution extends from coastal Mendocino County (Salt 1952, Welsh 1985) north to the Oregon border (Grinnell and Camp 1917, Mittleman and Myers 1949) with the disjunct population system in the Shasta region (Figure 12). The known elevational range of the tailed frog extends from near sea level (Mill Creek, Humboldt County) to 1981 m (Pony Mountain, Trinity County: Bury 1968).

Life History: Most data in this summary of the life history of *A. truei* comes from outside of California. *Ascaphus truei* has one of the most distinctive life histories of any North American frog. Adults are nocturnal and have been observed to be active between April and October, and may reproduce during most months over that interval (Gaige 1920, Stebbins 1985). Amplexus is pelvic, males use their small tail as a penis in sperm transfer (Slater 1931, Wemz 1969), females can store sperm (Metter 1964b), and fertilization is internal (Metter 1964a). The unpigmented, heavily yolked eggs are among the largest of any North American frog (ca. 4.0 mm average diameter; Wright and Wright 1949) and are deposited in rosary-like strings of 33-98 eggs on the undersurfaces of submerged rocks (Nussbaum et al. 1983, Adams 1993). Embryos have the narrowest range of thermal tolerance (5°-18°C) and the lowest critical thermal maximum of any North American frog (Brown 1975a). The rate of oxygen consumption during development is also very low (Brown 1977). This suite of features gives *A. truei* the slowest rate of embryonic development among North American frogs. Tadpoles, which have the lower lip expanded into a distinctive sucker-like disk (Gaige 1920, Gradwell 1973), normally attach themselves to rocks in turbulent water (Altig and Brodie 1972), where they feed on diatoms, filamentous green algae, desmids, and conifer pollen for up to 9 months of the year (Metter 1964a, Brown 1990). Tadpoles exhibit a diel cycle that involves movement to high positions on rocks at night, presumably for feeding purposes (Altig and Brodie 1972). They also actively avoid water temperatures above 22°C and die at water temperatures

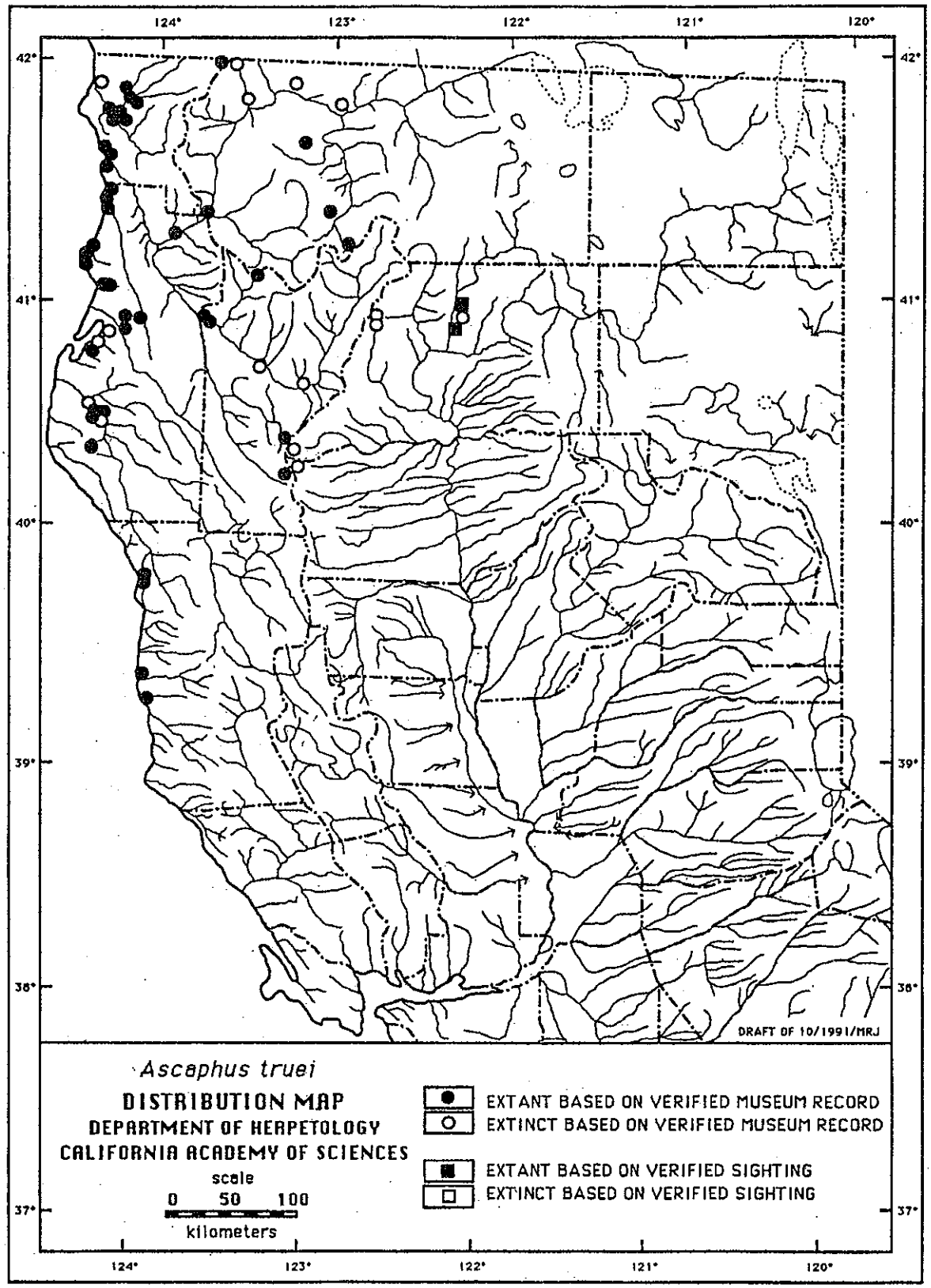

Figure 12. Historic and current distribution of the tailed frog (*Ascaphus truei*) in northern California based on 88 locations from 283 museum records and 2 records from other sources.

> 30°C (de Vlaming and Bury 1970). Preference for low temperatures and hibernation during winter months are probably two reasons why larval development is slow (Brown 1989), and the time required to reach metamorphosis requires at least 2-3 years (Ricker and Logier 1935; Metter 1964b, 1967), and has been recently postulated to take as long as 4 years (Brown 1990). Adults also appear sensitive to elevated temperatures (Metter 1966, Landreth and Ferguson 1967, Welsh 1990) with lethal thermal maxima at 23-24°C (Claussen 1973a). In western Montana, the minimum age at which *A. truei* first reproduce has been estimated at 7 years, males and females are estimated to first reproduce in their 8th and 9th years, respectively, and adults may have an average lifespan of 15-20 years (Daugherty and Sheldon 1982a). Following metamorphosis, pre-reproductive *A. truei* from Montana exhibited limited movement, and adults, who were highly philopatric, moved even less (Daugherty and Sheldon 1982b), probably spending the majority of their time immersed in water (e.g., Claussen 1973b). Nevertheless, occasional observations of *A. truei* some distance from streams (Slater 1934; Bury and Corn 1988a, 1988b) indicate that it is able to resist desiccation like other terrestrial anurans (Claussen 1973b) and that some variation in its movement ecology may exist across its geographic range. Pacific giant salamanders *(Dicamptodon ensatus* and *D. tenebrosus),* foothill yellow-legged frogs *(Rana boylii),* and Oregon garter snakes *(Thamnophis hydrophilus)* coexist with *A. truei in* streams in California (Myers 1931, Bury 1968), and may prey on tailed frog larvae (Metter 1963; Bury 1968; Welsh and Lind, pers. comm.). Adults and juveniles of *A. truei* eat mostly amphipods, springtails, and the larvae of insects found in moist habitats (Bury 1970).

Habitat: The habitat of *A. truei* is best characterized as permanent streams of low temperature to which many aspects of its life history can be correlated (Bury 1968). Intermittent streams with all the other proper environmental factors are unsuitable habitats (Brown 1990). Tailed frogs have been recorded in forested assemblages dominated by Douglas fir *(Pseudotsuga menziesii),* redwood, Sitka spruce *(Picea sitchensis),* Ponderosa pine, and western hemlock *(Tsuga hererophylla).* Although not correlated with any specific forest assemblage, recent work has established that tailed frogs are either recorded more frequently or solely in mature and old-growth stands (Bury 1983; Bury and Corn 1988a, 1988b; Raphael 1988; Welsh and Lind 1988; Corn and Bury 1989; Welsh 1990; Welsh 1993), which possess the habitat structure most likely to create the low temperature and clear water conditions that the life stages of *A. truei* require (Welsh 1990; Welsh 1993). In California, tailed frogs are largely restricted to coastal forests with ≥ 100 cm annual precipitation (Bury 1968).

Status: Threatened in upper Sacramento River system; Special Concern elsewhere in the state; the highly specialized features of tailed frog biology (e.g., the low temperature requirements of various life stages coupled to densely forested streams) that result in long periods of development and long intervals to replace adults make this species vulnerable (Bury and Corn 1988b). Noble and Putnam (1931) and Metter (1964a) noted that *A. truei* disappeared with the removal of timber through harvesting or fire, presumably because of the increased temperatures that result when the stream is exposed (Gray and Edington 1969, Brown and Krygier 1970). Further support for the latter emerged recently when significantly different densities of tailed frogs were encountered in small streams with different temperatures because of differential removal of forest cover during the 1980 Mount Saint Helens eruption (Hawkins et al. 1988). Deforestation appears to be somewhat less detrimental along the immediate coast (Corn and Bury 1989), presumably because the maritime climate maintains a more favorable (cooler) temperature regime (Bury 1968), but the demography of *A. truei* in coastal situations needs study. For the aforementioned reason, populations of *A. truei* occupying interior locations in the upper Sacramento River system are considered at greater risk than those occupying coastal drainage systems in California. Flooding also appears to have the ability to significantly modify the structure of

A. truei populations (Metter 1968b), so modification of the historical flooding regime may influence whether this species survives locally.

Management Recommendations: The temperature requirements of *A. truei* makes it essential that stream systems be managed in a manner that will maintain the low temperature regimes essential to the survival of *A. truei.* To date, most data have focused on the critical thermal maxima of various life stages; more attention needs to be paid to the seasonal variance in stream temperatures in the habitats where *A. truei* occurs. Monitoring temperature variation in streams where *A. truei* occurs should be an essential part of any management plan directed at this species. This is particularly important where any sort of alteration likely to increase stream temperatures may occur. Foremost among this class of alterations within the range of *A. truei* in California is timber harvest. Where timber harvest must occur, a no-harvest band of a specified minimum width (e.g., two tree heights (based on mature trees) on each bank (see Fritschen et al. 1971)) along the stream corridor should be implemented (Mahoney and Erman 1984, Bury and Corn 1988b). Since timber harvest can also increase siltation load (Cordone and Kelly 1961, Newbold et al. 1980, Murphy and Hall 1981, Everest et al. 1985, Corn and Bury 1989), such a policy may also help decrease the silt load that has frequently been observed in timber harvest situations. The effect of the latter, especially on the developmental stages of *A. truei,* needs study. Road crossings of stream corridors should be designed in a manner that will minimize modification of the riparian corridor and the creation of migration barriers to tadpoles and metamorphosed *A. truei.* Although many significant aspects of the life history of *A. truei* are reasonably well known, an understanding of its movement ecology is not. The movement ecology of *A. truei* needs to be well understood to better gauge the terrestrial habitat needs of the species.

COLORADO RIVER TOAD
Bufo alvarius Girard in Baird 1859

Description: A large (110-187 mm SUL) olive brown to black toad with distinctive, large, oval to sausage-shaped glands located on some of the upper surfaces of all limbs (Fouquette 1970). One to four white warts (tubercles) occur just behind the angle of the mouth (Wright and Wright 1949, Fouquette 1970). The iris is dark brown or black with a few guanophores (pers. observ.).

Taxonomic Remarks: This large toad is unquestionably a distinct species, as indicated by data on eggs (Savage and Schuierer 1961), parotoid venom (Porter and Porter 1967), and skin secretions (Erspamer et al. 1967). The geographic pattern of genetic variation within *B. alvarius* is unknown and needs study.

Distribution: The known range of the Colorado River toad extends from southeastern California into lowland Arizona and extreme southwestern New Mexico in the United States and southward into the states of Sonora and northern Sinaloa, Mexico (Fouquette 1968, 1970). Colorado River toads are documented to occur up the Colorado River from Fort Yuma (Fouquette 1968) to the Blythe-Ehrenberg region (Vitt and Ohmart 1978), and historically, likely extended up the Colorado River bottomlands to extreme southern Nevada near Fort Mojave (Cooper 1869, Meams 1907, Storer 1925). In California, *B. alvarius* was historically present along the channel of the lower Colorado River and in the southern Imperial Valley (Figure 13). This toad ranges in elevation from near sea level to 1615 m (Cole 1962).

Life History: Colorado River toads generally appear just before summer showers, and congregate and breed in temporary pools after the rains begin (notes of J. J. Thomber in Ruthven 1907). Seven to eight thousand eggs are laid in long strings (Wright and Wright 1949) and are claimed to be distinctive in lacking an outer jelly envelope and any partitions between individual eggs (Savage and Schuierer 1961), although recent observations on other toads indicates this assertion needs re-evaluation (see Sweet 1991). Details of the larval period are lacking, but the interval is believed not to exceed 1 month (notes of John James Thomber in Ruthven 1907), and tadpoles metamorphose at a very small size (< 15 mm SUL; C. Schwalbe, pers. comm.). Adults may be long-lived; individuals are known to have survived over 9 years in captivity (Bowler 1977). *Bufo alvarius* has a rather catholic diet that includes other anurans (Gates 1957, Cole 1962). The skin toxins and parotoid poison of *B. alvarius* protect it from some predators (e.g., striped skunk *[Mephitis mephitis];* Hanson and Vial 1956), but others (e.g., raccoon *[Procyon lotor])* can avoid the toxins to prey on these toads (Wright 1966).

Habitat: Data on the habitat requirements of *B. alvarius* are scant. Although temporary pools and irrigation ditches are the habitat in which Colorado River toads have been observed to breed (Blair and Pettus 1954, Savage and Schuierer 1961, Stebbins 1985), an understanding of the range of conditions under which they may breed is not known.

Status: Endangered; in California, we did not observe Colorado River toads during our surveys, and no collections or observations of this species have been made since 31 July 1955 (Jennings 1987a) despite a 5 April-2 May 1991 search by CDFG personnel (Ring and Robbins 1991a). However, a single toad was taken in a can trap on a 30-ha barren dredged spoil on the Arizona side of the Colorado River in 1980 (Anderson and Ohmart 1982) and another was found on 8 September 1986 at the Cibola National Wildlife Refuge, which is adjacent to the dredge spoil site (J. Rorabaugh, pers. comm.). Both locations are approximately 37 river km south of Blythe. Additionally, sightings of 5-10 toads were made along agricultural borders on the Colorado Indian Reservation (in Arizona) during the

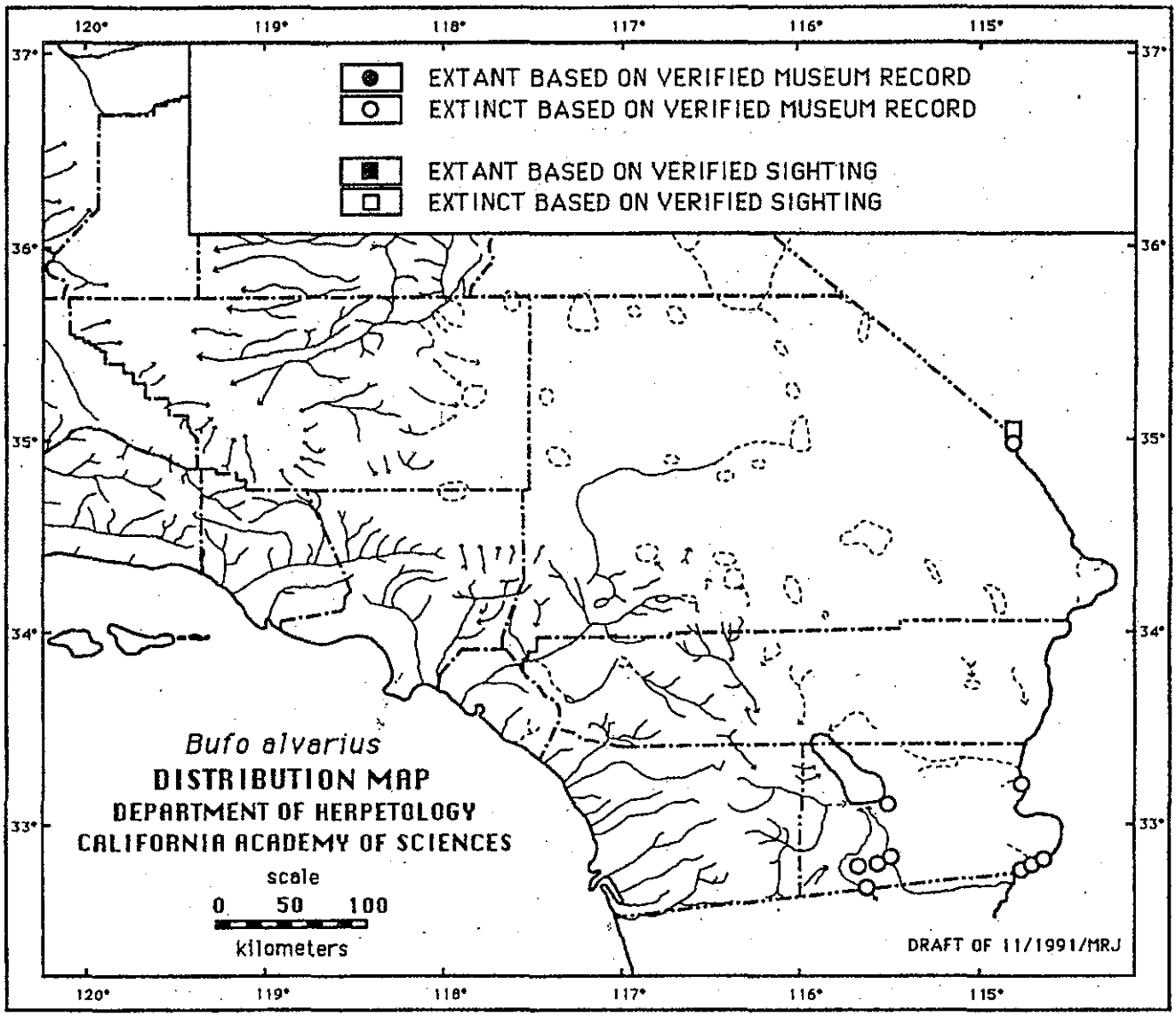

Figure 13. Historic and current distribution of the Colorado River toad (*Bufo alvarius*) in southern California based on 15 locations from 34 museum records and 2 records from other sources.

1970s (B. Loudermilk, pers. comm.). The species may have been extirpated over most its range in California because of habitat destruction (due to changing farming practices) and the extensive use of pesticides after World War II (Jennings 1987a). Moreover, although it has a relatively large range outside of California, some investigators have suggested that *B. alvarius* is imperilled throughout much of its range (B. Brattstrom, R. Ruibal, and C. Schwalbe, pers. comm.).

Management Recommendations: The severe habitat alteration that has taken place in the lower Colorado River region (e.g., see Ohmart et al. 1988) has undoubtedly impacted this species, but the lack of data on its habitat requirements hampers understanding how Colorado River toads may have declined in the region. Detailed information on the habitat requirements of this species are urgently needed to identify the range of conditions under which this species will thrive. A study needed to identify those conditions will probably have to be conducted outside of *B. alvarius'* range in California. An understanding of the microhabitats these toads use for refugia is unknown, and the latter need to be identified and coupled to knowledge of breeding habitat requirements so that a coherent picture of the toad's overall habitat requirements is available to guide land use managers.

Recently, law enforcement officers confiscated several shipments of *B. alvarius* that were in route to California. One Arizona raid resulted in the confiscation of 62 Colorado River toads (Banks 1994). These toads were intended to be used in the drug culture trade where individuals try to become intoxicated from licking the skin of toads (Leavitt 1989), or by smoking dried venom extracted [=milked] from the parotoid glands (Gallagher 1994, Richards 1994). The problem is extensive enough that some states have passed laws against toad licking (Landsberg 1990). The venom of toads is currently classified as controlled substance (Richards 1994). Any *B. alvarius* taken in drug raids should not be released into the wild.

YOSEMITE TOAD
Bufo canorus Camp 1916

Description: A moderate-sized (30.0-71.0 mm SUL) toad with rounded to slightly oval parotoid glands that displays a remarkable sexual dichromism (Karlstrom 1962). Females have black spots or blotches edged in white or cream that are set against a gray, tan, or brown ground color. Females also have prominent black spots or bars on the legs. In contrast, males have a nearly uniformly colored yellow-green to drab olive to darker greenish brown dorsum. A pencil-thin middorsal stripe is present in both juvenile males and females, but this stripe is lost more rapidly in males than females as they grow in size, resulting in younger adult females retaining a stripe fragment, whereas males of the same age generally lose the stripe entirely (D. Martin, pers. comm.). Iris color is dark brown with gold iridophores, the latter being especially dense on the upper and lower portions of the iris (pers. observ.).

Taxonomic Remarks: The Yosemite toad, long recognized as a distinct species (Camp 1916b), has not been confused with any other taxon (Karlstrom 1962). Feder (1977) found *B. canorus* to be distinctive based on electrophoretic data and based on her limited geographic sampling, also found some genetic variation within *B. canorus.* More comprehensive sampling is needed to assess genetic variation that may display geographic patterns. Yosemite toads are thought to hybridize with western toads *(B. boreas)* in the northern part of their range (Karlstrom 1962, Morton and Sokolski 1978), but no indication exists that western toads will threaten Yosemite toads through genetic swamping. Karlstrom and Livezey (1955) reported geographic variation in the pigmentation and size of *B. canorus* eggs, but the significance of this variation has not been investigated.

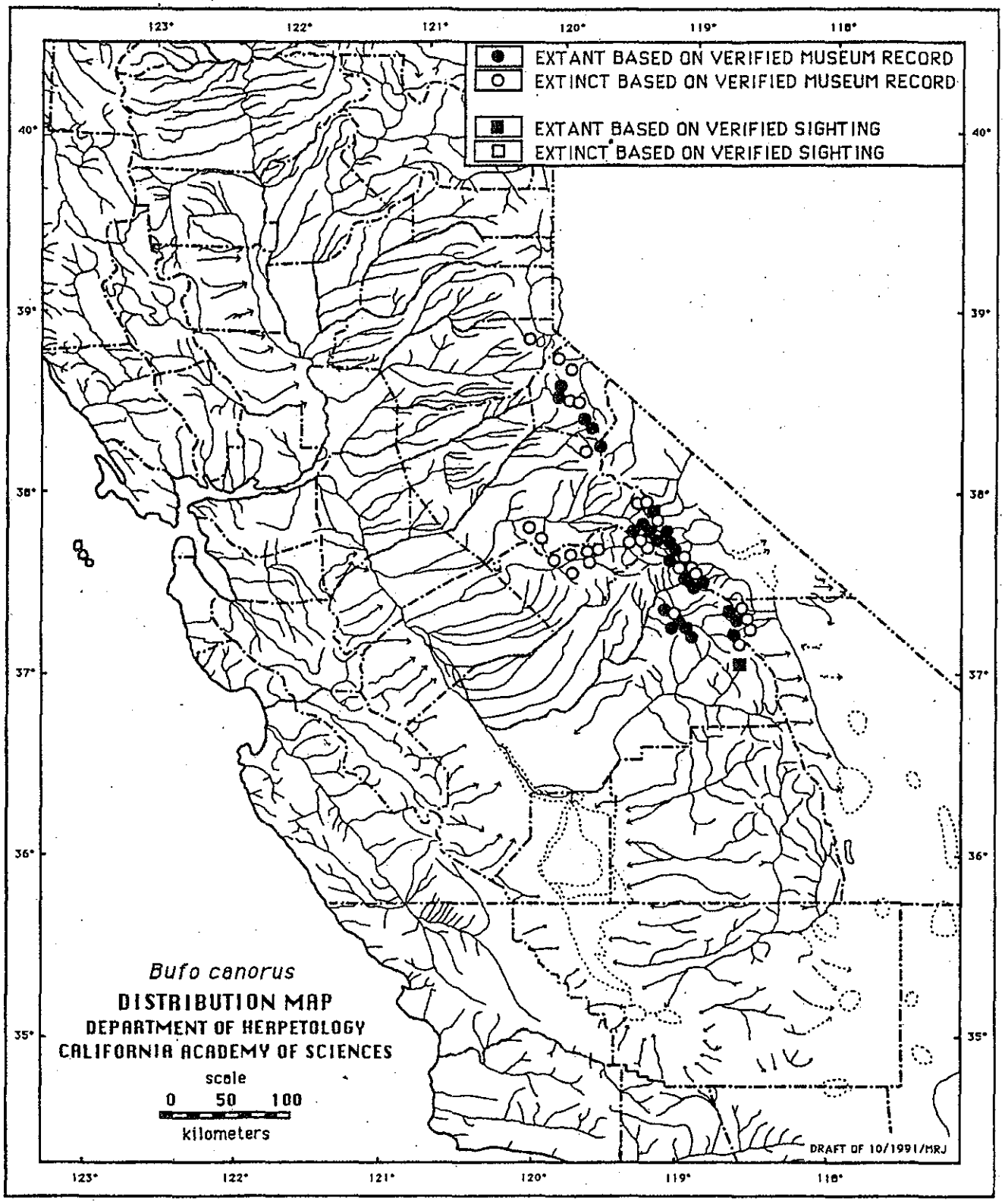

Figure 14. Historic and current distribution of the Yosemite toad (*Bufo canorus*) in central California based on 144 locations from 945 museum records and 14 records from other sources.

Distribution: This California endemic ranges in the Sierra Nevada from the Blue Lakes region north of Ebbetts Pass (Alpine County) south to 5 km south of Kaiser Pass in the Evolution Lake/Darwin Canyon area (Fresno County; Figure 14). Mullally and Powell (1958) reported two specimens collected from the vicinity of Heather and Grass Lakes (El Dorado County; see also Stebbins 1985), but these appear to represent misidentified high elevation isolates of *B. boreas* that have some *B. canorus*-like color dimorphism (D. Martin, pers. comm.). Its known elevational range extends from ca. 1950 m (Aspen Valley, Tuolumne County) to ca. 3450 m (Mount Dana, Tuolumne County: Karlstrom 1962).

Life History: *Bufo canorus* is a largely diurnal toad that emerges from winter hibernation as soon as snow-melt pools form near their winter refuge sites (Karlstrom 1962, Kagarise Sherman 1980). The timing of emergence varies with elevation and season, but known dates of emergence range from early May to mid-June (Kagarise Sherman 1980). Males form breeding choruses and breeding occurs soon after emergence. Large eggs (relative to other toads; 2.1 mm average diameter), brownish black or jet black over the upper three-fourths and gray or tannish gray on the lower fourth, are deposited in strings of single or double strands, or in a radiating network or cluster four or five eggs deep (Karlstrom and Livezey 1955). Females are estimated to deposit between 1,000 and 1,500 eggs (Kagarise Sherman 1980). Eggs strings are typically wound around short emergents in shallow (I 7.5 cm deep), still water with a flocculent or silty bottom (Karlstrom 1962). Following breeding, adults feed in subalpine meadows until entering hibernation (Kagarise Sherman 1980) and may be active after dark when the nights are warm during midsummer (A. McCready, pers. comm.). Larvae hatch in 3-6 days, depending on temperature, and typically metamorphose 40-50 days after fertilization. Based on observing immature tadpoles well into September, Mullally (1956) thought that *B. canorus* might overwinter as tadpoles, but corroboration for overwintering tadpoles has not been found (see Karlstrom 1962; Kagarise Sherman 1980; D. Martin, pers. comm.). Like many species of toad tadpoles, those of *B. canorus* are black and tend to aggregate (Brattstrom 1962). During daylight hours, *B. canorus* tadpoles tend to remain in warmer (average 23.3°C: Cunningham 1963), shallow water, but at night, they move to deeper water (Mullally 1953). Yosemite toad tadpoles tolerate higher temperatures as development advances and tadpoles with limb buds have critical thermal maxima ranging from 36°C to 38°C (Karlstrom 1962). At metamorphosis, juveniles are around 10 mm (SUL). Although some individuals may attain the minimum reproductive size at 30 mm (SUL) in 2 years, most probably require longer to become sexually mature. Both sexes grow slowly and males begin breeding at 3-5 years of age, whereas females begin breeding at 4-6 years of age (Kagarise Sherman 1980, Kagarise Sherman and Morton 1984). Females probably do not breed each year once they are sexually mature (Morton 198 1). A number of predators, such as the mountain yellow-legged frog *(Rana muscosa:* Mullally 1953), dragonfly naiads (species unspecified: Cunningham 1963; D. Martin, pers. comm.), and possibly larval long-toed salamanders *(Ambystoma macrodactylum:* A. McCready, pers. comm.), probably occasionally prey on the young life stages of Yosemite toads. However, garter snakes, particularly the western terrestrial garter snake *(Thamnophis elegans),* likely prey on significant enough numbers of Yosemite toad larvae and metamorphs (Karlstrom 1962; D. Martin, pers. comm.) that they may be seasonally important prey in the diet of these snakes (Jennings et al. 1992). California gulls *(Larus californicus)* and Clark's nutcrackers *(Nucifraga columbiana)* have been observed to kill breeding toads (Kagarise Sherman 1980; Mulder et al. 1978; Kagarise Sherman and Morton 1993; M. Morton, pers. comm.), and American robins *(Turdus migratorius)* have eaten tadpoles (C. Kagarise Sherman, pers. comm.). Desiccation of pools before metamorphosis is a major cause of mortality (Zeiner et al. 1988; Kagarise Sherman and Morton 1993; R. Hansen, D. Martin, and M. Morton, pers. comm.).

Habitat: The Yosemite toad is a high-elevation endemic that seems to prefer relatively open montane meadows, although forest cover around meadows is also used (Karlstrom 1962, Kagarise Sherman and Morton 1984). Yosemite toads are found in high montane and subalpine associations in meadows surrounded by forests of lodgepole pine (Pinus *contorta)* or whitebark pines. Suitable breeding sites are generally found at the edges of meadows or slow, flowing runoff streams. Short emergent sedges *(Carex* spp.) or rushes (Juncus spp.) often dominate such sites. Overwintering sites are rodent burrows. Burrows of Belding's ground squirrels *(Spermophilus beldingi)* and yellow-bellied marmots *(Marmota flaviventris)* may be preferred for over-wintering because their greater depth probably make such overwintering sites less susceptible to freezing (Kagarise Sherman 1980). However, the burrows of meadow voles *(Microtus montanus)* and mountain pocket gophers *(Thomomys monticola)* are probably also used. Burrows of all four species are probably used as temporary refuge sites during the summer season (Mullally and Cunningham 1956a).

Status: Endangered; despite the fact that many populations of *B. canorus* occur in areas that are among the least physically disturbed in California, this species has declined or disappeared from more than 50% of the sites from which it has been recorded. Abundant populations Kagarise Sherman (1980) and Martin L. Morton (pers. comm.) studied have either disappeared or exist at very low densities (Kagarise Sherman and Morton 1993). Other observations (D. Bradford, L. Cory, R. Hansen, and D. Martin, pers. comm.) suggest similar patterns elsewhere within the range of the Yosemite toad. Some population declines can be attributed to the effects of extended drought and the grazing of livestock in breeding and rearing sites (R. Hansen, D. Martin, A. McCready, and M. Morton, pers. comm.). Attempts to link these declines to acidification from atmospheric deposition and inorganic aluminum have not been successful; some acidification has been identified, but it is above the levels that can induce significant mortality in the life stages of Yosemite toads (Bradford et al. 1991, 1992, 1994). Non-localized declines imply an atmospheric causal agent. In the light of overwhelming recent evidence of ozone depletion (Watson et al. 1988) and concomitant increases in ultraviolet radiation (UV) reported from alpine regions (Blumthaler and Ambach 1990), an unexamined, but potentially important atmospheric causal agent in such declines is increased levels of ambient UV (see also Blaustein et al. 1994). Increases in ambient UV may explain the immuno-suppressive effects hypothesized to have occurred in the decline of high-elevation toad populations in Colorado where individuals died presumably as consequences of the bacterial pathogen, *Aeromonas hydrophila* (Carey 1993). Differential mortality in egg masses at breeding sites associated with differential exposure to the sun (D. Martin, pers. comm.) may be explained by differences in exposure to UV (see also Blaustein et al. (1994) for data with closely related *B. boreas).* Some investigators also believe that introduced fishes may be responsible for declines in *B. canorus* (E. Karlstrom and D. Martin, pers. comm.). Despite the generalized dogma about the unpalatability of larval *Bufo* (e.g., see Voris and Bacon 1966), the palatability of *B. canorus* to various predators, especially fishes, has not been examined.

Management Recommendations: Systematic population monitoring of *Bufo canorus,* already begun on a localized scale by a few investigators (C. Kagarise Sherman, D. Martin, and M. Morton, pers. comm.), urgently needs implementation on a larger scale. Population monitoring especially needs to be coupled to experiments designed to establish whether an atmospheric causal agent, like UV, is involved. Experiments should also address whether an interaction between an atmospheric effect and immune-system function may be causal (see Carey 1993). Although the life history of *B. canorus* is reasonably well known, the pattern of local extinction and recolonization is not. This aspect of Yosemite toad biology is in urgent need of study because it can provide insight into the probability of survival of local populations.

ARROYO TOAD
Bufo microscaphus californicus Camp 1915

Description: A moderate-sized (55.0-74.0 mm SUL), light-olive green to gray to tannish brown toad with small, oval parotoid glands, a light-colored, "v" shaped stripe between the eyelids, and usually lacking a middorsal stripe (Camp 1915; S. Sweet, pers. comm.; pers. observ.). Undersurfaces are creamy to dirty white, but never blotched, mottled, or spotted with dark markings. The iris is dark brown with scattered gold iridophores on upper and lower portions of the iris (pers. observ.).

Taxonomic Remarks: Long treated as a subspecies of *B. microscaphus* (Price and Sullivan 1988), it is becoming increasingly clear that *B. m. californicus* is morphologically differentiated enough from Arizona populations of *B. m. microscaphus* that species recognition is justified (Frost and Hillis 1990) even though limited genetic data show little differentiation (S. Sweet, pers. comm.), as do advertisement and release calls (Sullivan 1992). Genetic data indicating what variation may exist across the geographic range of *B. m. californicus* are currently not available but are presently under study (E. Gergus, pers. comm.).

Distribution: *Bufo microscaphus californicus* historically extended from the upper Salinas River system in the vicinity of Santa Margarita (San Luis Obispo County), California (Miller and Miller 1936) southward to the Rio Santo Domingo system in Baja California, Mexico (Tevis 1944). Its known elevational range extended from near sea level to ca. 2440 m (La Grulla Meadow, Baja California: Welsh 1988). In California, its distribution extended from the Salinas River system south through the Los Angeles Basin (Myers 1930b, Sanders 1950) and the coastal drainages of Grange and Riverside counties to the San Diego River system (Figure 15). The arroyo toad has been recorded at six locations on the desert slope (Patton and Myers 1992): the Mojave River, Little Rock Creek, Whitewater River, San Felipe Creek, Vallecito Creek, and Pinto Canyon.

Life History: Until the work of Samuel S. Sweet begun in 1980, the life history of *B. m. californicus* was known from only a handful of scattered observations (e.g., Sanders 1950, Stebbins 1951, Cunningham 1962). Most of the life history data in this account were synopsized from the data of Sweet (1991, 1993), conducted mostly on the Los Padres National Forest. Adults are entirely nocturnal and mainly active between the first substantial rains (January-February) and mid-summer (early August). Males emerge from stream terrace overwintering sites, precede females to the breeding pools, and call nightly from late March to late June, with local variation depending on elevation and seasonal variation in climate (Sweet 1991, 1993). Calling males display relatively high site fidelity and generally position themselves in an exposed location along the edge of the breeding pool, which is typically occupied by one to three males calling on any particular night (Sweet 1991). Males stop calling when they are disturbed or air temperatures fall below 13-14°C (Myers 1930b; pers. observ.). Females must forage for several weeks in order to produce a clutch of eggs; wide variation exists in the time required for individual females to complete this process due to variations in rainfall and stream flows from year to year, which seasonally results in available females mating over a several-month interval (Sweet 1991, 1993). Breeding may occur at any time between early April and early July (Myers 1930b; Cunningham 1962; Sweet 1991, 1993; pers. observ.). Female arroyo toads lay 2,000-10,000 (mean = 4,750) small (ca. 1.5 mm average diameter), darkly pigmented eggs in two long (3.0-10.7 m) strings in the shallow (mean = 3.1 cm) water of the male's calling site (Sweet 1991). Embryonic development requires ca. 5 days, but larvae cannot swim effectively until they are nearly 2 weeks old. Arroyo toad larvae have a black dorsal coloration similar to the larvae of other toads when they first hatch, but they become progressively lighter and more cryptically colored after about 3 weeks of age, making them

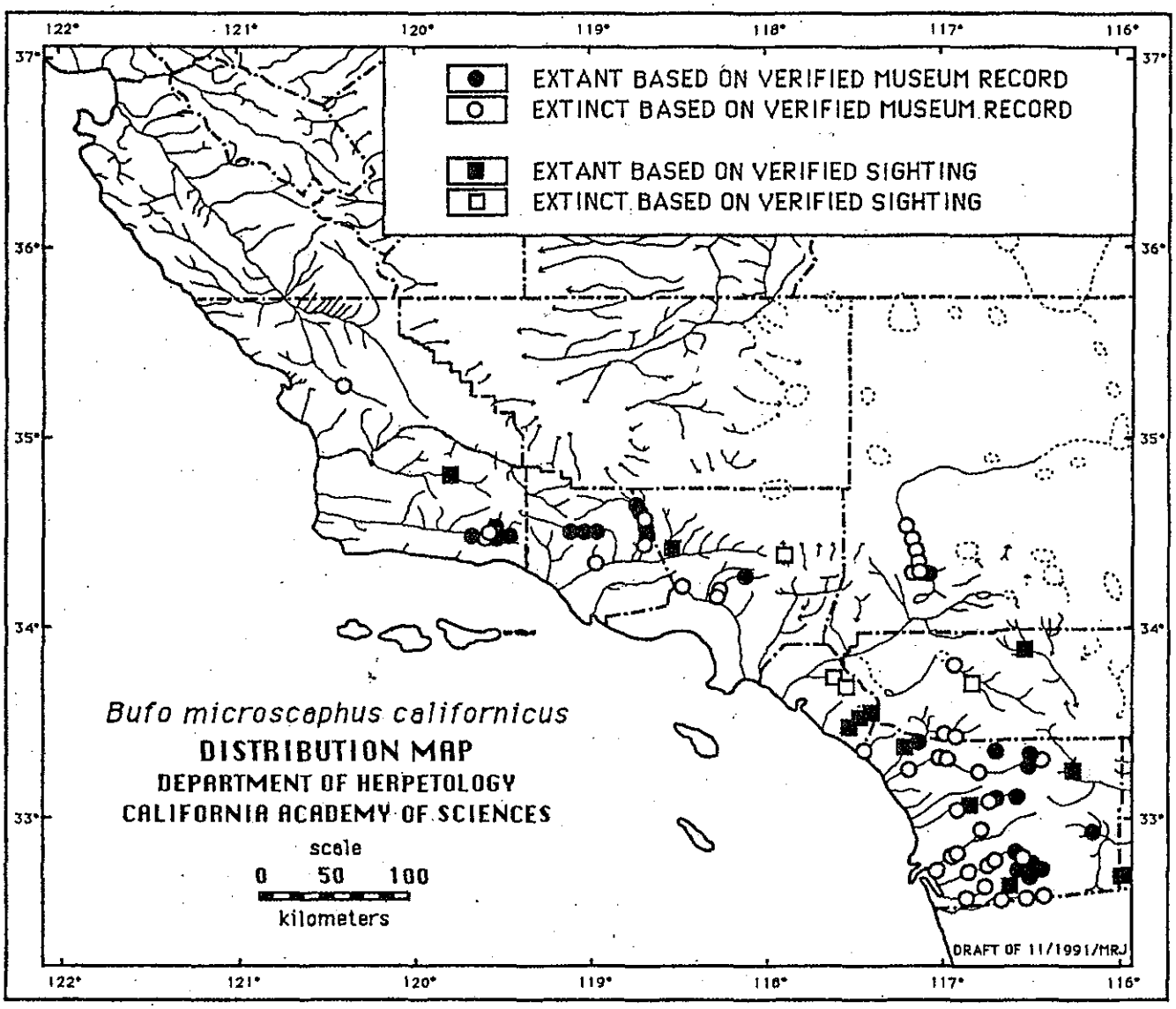

Figure 15. Historic and current distribution of the arroyo toad (*Bufo microscaphus californicus*) in southern California based on 157 locations from 1159 museum records and 32 records from other sources.

nearly invisible on a sandy substrate (Sweet 1991). This crypsis, their typically solitary behavior, and their inability to recognize fish predators suggests that arroyo toad larvae (like the larvae of many other native anurans in the western United States; see discussion in Hayes and Jennings 1986) are probably palatable, which makes them vulnerable to predation by exotic fishes and invertebrates such as crayfish *(Procambarus clarkii* and *Pacifasticus* spp). Arroyo toad larvae are also highly specialized when compared to the larvae of other California anurans; they are the only ones that feed by sifting the substrate for organic detritus and interstitial algae, bacteria, protozoans, and fungi (Sweet 1991). Larvae require 65 to 85 days to reach metamorphosis. Prior to metamorphosis, arroyo toad larvae stop feeding and assemble on the edges of open sand or gravel bars. Larvae need about 4 days to metamorphose, during which time their movements are impaired. Recently metamorphosed toads remain on the saturated margins of sand or gravel bars for about a week, then move to the somewhat drier areas of the bars for up to 8 weeks, depending on the variation in the physical environment of the bars (Sweet 1991, 1993; see also Linsdale 1932). Juveniles ≤ 22 mm (SUL) are highly cryptic on a mixed rocky-sandy substrate, diurnal, and actively select damp substrates with temperatures of 32-35°C; but they cannot burrow and avoid shade, dry substrates, and temperatures over ca. 42°C. During this interval, juveniles grow rapidly and feed mostly on ants (Sweet 1991). Around 20-25 mm SUL, juvenile toads begin to display burrowing capabilities, become nocturnal, and shift to a diet of small beetles. Sandy areas needed for burrowing are often limited on gravel-based bars, so juveniles in this size range may disperse to bordering willow *(Salix* spp.) areas at night (Sweet 1991). As juveniles approach 30 mm in size, they disperse into willow areas bordering the breeding pools regardless of substrate on the bars, and apparently burrow 10-18 cm into pockets of sandy substrate where they remain inactive for the next 6-8 months (Sweet 1993). Arroyo toads appear to require 2 years to reach reproductive maturity, although males can mature in a single year under favorable rainfall conditions (Sweet 1993). Adults return to stream terraces in mid-summer after breeding, where they construct relatively deep burrows and remain inactive through fall and winter (Sweet 1991). Data on longevity are largely unknown; some populations of arroyo toads have been identified as being not particularly long-lived (ca. 5 years; see Sweet 1991, 1993), a situation that may vary with local conditions. Much of the movement and physiological ecology of adults and juveniles is poorly understood, but recent data collected by Sweet (1993) show many subadults and some adult males moving alongstream frequently > 0.8 km in distance and > 1.0 km in a few cases.

Recruitment failures because of embryonic or larval mortality may be frequent. When stream levels are stable, most arroyo toad eggs hatch and little predation on eggs or larvae occurs (Sweet 1991, 1993). However, streamflow alteration by humans (e.g., suction dredge mining) can eliminate an entire cohort (Sweet 1993). Survivorship is high in pools lacking exotic fishes or with shallow refuge areas for larvae, but poor where introduced green sunfish *(Lepomis cyanellus),* juvenile bass *(Micropterus* spp.), fathead minnows *(Pimephales promelas),* bullfrogs, and red swamp crayfish occur (see Sweet 1993). Native garter snakes *(Thamnophis* spp.) and selected aquatic hemipterans (especially *Abedus indentatus)* are known to prey on arroyo toad larvae, but these predators do not seem abundant enough to be consistently significant (Sweet 1993). Direct human impact (through trampling, illegal road maintenance, and fires) and birds (especially killdeer *[Charadrius vociferus])* were identified as the principal agents of the catastrophic metamorphic and young juvenile mortality that most extant populations of arroyo toads sustained during 1991-1993 (Sweet 1993). Drought can also markedly affect cohort size by influencing the number of toads that breed. During 1989 and 1990 at the end of the 4-year drought, only 20 and 7 pairs of toads bred, respectively, at sites examined on the Los Padres National Forest, whereas in 1991, 166 pairs bred with above average rainfall totals (Sweet 1991). This improving trend continued in 1992 with above average rainfall totals resulting in the breeding of 263 pairs (Sweet 1993).

Habitat: Arroyo toads have perhaps the most specialized habitat requirements of any amphibian found in California. Adults require overflow pools adjacent to the inflow channel of 3rd- to greater-order streams that are free of predatory fishes in which to breed (Sweet 1991; pers. observ.). Exposed pools (i.e.; with little marginal woody vegetation) that are shallow, sand- or gravel-based and have a low current velocity are strongly favored (Sweet 1991). Pools with a minimum of silt are necessary for arroyo toad larvae to feed and grow rapidly (see Sweet 1993). Such breeding pools must occur in the vicinity (ca. 10-100 m) of juvenile and adult habitat, which consists of a shoreline or central bar and stable, sandy terraces. Shoreline or central bars dampened through capillarity and possessing some emergent vegetation (e.g., *Veronica)* seem preferred because they possess the thermal and refuge conditions that juvenile arroyo toads need to survive and grow rapidly (Sweet 1991). Inability of small juvenile toads (< 20 mm SUL) to burrow makes them vulnerable to desiccation; under hot, windy conditions, small juveniles must shelter in holes in drying algal mats or available small damp refuges and depressions. Stable, sandy terraces should possess a moderately well-developed, but scattered shrub and tree vegetation overstory (Sweet 1991), and typically have mulefat *(Baccharis viminea),* California sycamore *(Plutanus racemosa),* Fremont's cottonwood *(Populus fremontii),* or coast live oak present (Myers 1930b; Cunningham 1962; S. Sweet, pers. comm.; pers. observ.). The understory is generally barren or contains dead leaves or a few scattered grasses and rodent burrows (see also Linsdale 1932). Gravel or cobbles may be a part of such terraces, but fine sand seems to be the essential because adults and juveniles burrow or overwinter on terraces (Cunningham 1962, Sweet 1991).

Status: Endangered; the species has disappeared from 76% of its total historic range in the United States [= California]. Populations have disappeared entirely from the northern, central, and eastern parts of its range; the extreme habitat specialization of arroyo toads coupled with the fact that most factors that undoubtedly contributed to the extirpation of most populations still impact or threaten the few (less than 25) remaining small (30-100 adults) populations (Sweet 1991, 1993) probably make this taxon the most vulnerable in California Coupled requirements of relatively large, streamside flats with scattered vegetation (juvenile-adult habitat) adjacent to shallow pools with open sand or gravel bars place significant constraints on where arroyo toads may occur. Development and alteration of streamside flats (particularly by changing the natural hydrologic regime) may have been the crucial factors contributing to the extirpation of historic populations. One or more of excessive human use (campgrounds), manipulation of the hydrologic regime, urban development, placer mining (especially by suction dredges), off-road vehicle use, introduction of exotic predators, and cattle grazing threaten all known remaining populations (see examples in Sweet 1993). Additionally, natural disturbances such as forest fires and four consecutive years of drought have almost eliminated several already stressed populations (Sweet 1991, 1993; pers. observ.). The poor recruitment identified in the Los Padres National Forest is creating an aging population of breeding adults to which, based on existing levels of recruitment, few or no adults will be added until 1993 or 1994. Exactly what happens hinges mostly on the mortality of adult toads because those available to breed in 1992-1993 will be the mostly survivors from the 1991 breeding population. The current situation may become more precarious than realized if the short adult lifespan implied by the comparative size data Sweet (1991, 1993) presents are borne out. Whatever occurs, a population bottleneck in 1992-1994 is unavoidable; whether the bottleneck will cause local extinctions cannot be predicted precisely, but existing indications make this a likely possibility given the present human activities at some sites (see management update in Sweet 1993). Additionally, in the small populations of breeding adult arroyo toads, local chance effects, such as interference with successful breeding by male western toads *(Bufo boreas),* are more likely (e.g., see Awbrey 1972).

Management Recommendations: Greater protection of the habitat ensemble of overflow pools and streamside flats where extant populations of *B. m. californicus* exist is extremely urgent because of the precarious condition of existing populations (Sweet 1991, 1993). The stream conditions that create sandy, streamside flats in combination with appropriate shallow pools and adjacent open sand or gravel need detailed study to understand how stream hydrology can be maintained or manipulated to maintain or create habitat for *B. m. californicus.* Since it is likely that unfavorable habitat conditions impinging on the arroyo toad result from broad-scale manipulation of hydrologic basins and regimes, conditions now at least 2 decades old in most cases, habitat restoration will probably require radical solutions that will necessitate major changes in current patterns of hydrologic manipulation and land use policies. Such changes may require time intervals equal to or longer than those under which current pattern of hydrologic manipulation have existed simply to begin to be effective. Disturbance or development of streamside flats in the vicinity of known populations of *B. m. californicus* should be eliminated. Manipulations of the hydrologic: regime that scour overflow pools during the interval between breeding and metamorphosis of any year's cohort of *B. m. californicus* should he avoided. Land use conditions that contribute to siltation of streams during the breeding interval should also be avoided. Isolation of existing *B. m. californicus* populations from the exotic aquatic fauna should be maximized; translocation of the exotic aquatic fauna should be prohibited. Rangewide surveys are needed to determine if undetected populations stilt exist and focal surveys are needed for monitoring existing populations.

NORTHERN RED-LEGGED FROG
Rana aurora aurora Baird and Girard 1852

Description: A moderate-sized (42.0-101.0 mm SWL) brown, reddish brown to greenish gray frog with marked dorsolateral folds and a dorsal pattern of either small, irregular dark brown to black spots; small dark spots with light centers; or a fine dark reticulum (Dunlap 1955, Dumas 1966). A distinct, but irregular pattern of contrasting light and dark markings is consistently present in the groin; the light markings range from offwhite to sun yellow to red to green (Dunlap 1955; pers. observ.). Some red coloration, variable in intensity and extent, is present on undersurfaces. The latter ranges from bright red on the undersurfaces of the limbs, along the sides of the body, and the abdomen to a very pale red on the undersurfaces of only the hind limbs (Dunlap 1955; pers. observ.). Each iris is dark brown with gold iridophores that are particularly dense on the upper and, to a lesser extent, the lower portions of the iris (pers. observ.).

Taxonomic Remarks: Recent. work on vocal sac variation suggests that the red-legged frog *(Rana aurora)* may actually represent two species that approximate the previously recognized subspecies (Hayes and Krempels 1986). Populations with at least some individuals that exhibit features intermediate between northern *(R. a. aurora)* and California red-legged frogs *(R. a. draytonii)* occur between northern Humboldt County and Pt. Reyes National Seashore, Marin County, but further study is needed to understand the relationships among red-legged frogs and the distribution of red-legged frogs with different morphologies. For the purpose of this report, the intermediate populations are lumped with the northern red-legged frog with regard to listing status because of the greater ecological and morphological similarity of individuals in these populations to northern red-legged frogs; impacts on these populations are likely to be more similar to those affecting northern red-legged frogs.

Limited data indicate that northern red-legged frogs exhibit some degree of genetic differentiation from California red-legged frogs (Hayes and Miyamote 1984; Green 1985a, 1986b) and elsewhere:, similar data may be concealed because samples identified simply as

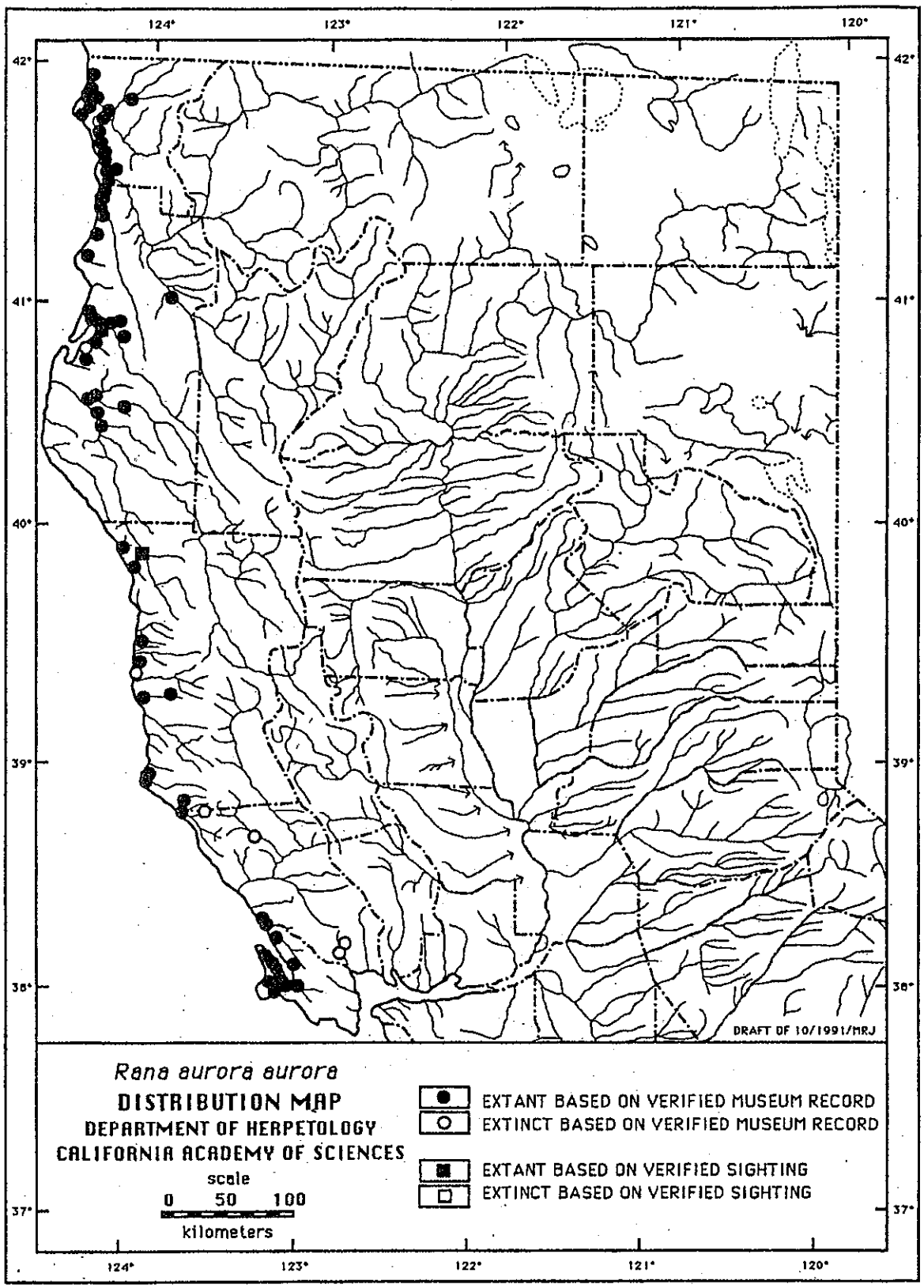

Figure 16. Historic and current distribution of the northern red-legged frog (*Rana aurora aurora*) and intergrades with the California red-legged frog (*Rana a. draytonii*) in northern California based on 96 locations from 286 museum records and 6 records from other sources.

red-legged frogs were lumped (Case 1976, 1978b). Because various studies have obtained material from geographically disparate localities within the range of red-legged frogs and analyses and standards are non-parallel, it is impossible to interpret the variation observed across these different studies. Genetic data are urgently needed to better understand the variation across the geographic range of both northern red-legged frogs and red-legged frogs in general to identify the distribution of taxa that may need recognition.

Distribution: The northern red-legged frog is known to occur from northern Humboldt County, California northward to Sullivan Bay, British Columbia (Stebbins 1985). Additionally, frogs that exhibit primarily features associated with the northern red-legged frog appear to extend southward into coastal California to the latitude of Pt. Reyes National Seashore, Marin County. The known elevational range of the northern red-legged frog and associated intermediate populations extends from near sea level to 1160 m (Salt Creek Falls, Lane County, Oregon; Dunlap 1955). In California, the northern red-legged frog and populations intermediate between northern and California red-legged frogs extend from Marin County north to the Oregon state line (Figure 16). The elevational range of the northern red-legged frog and intermediate populations in California is from near sea level to ca. 300 m.

Life History: Life history data on northern red-legged frogs, with rare exceptions (e.g., see Twedt 1993), come from populations outside California. Northern red-legged frogs have the lowest embryonic critical thermal maximum known (21°C) for any North American ranid frog (Licht 1971), which is probably the reason that oviposition is restricted to a time-window early in the year (January-March: Storm 1960, Licht 1969b, Brown 1975b). Males are observed at breeding sites for as much as a month before females appear at water temperatures as low as 2°C, and can be under skim ice (Licht 1969b). Moreover, males may typically call from underwater (Storm 1960, Licht 1969b, Calef 1973a). Male northern red-legged frogs are particularly tenacious in amplexus (Twedt 1993) and the female behavior needed to obtain release from the amplectic male is distinctive and highly stereotyped (Licht 1969a). Large (3.0 mm average diameter: Livezey and Wright 1945), pigmented eggs are laid in a rounded, submerged egg mass that contains 194-1081 eggs and is attached to a vegetation brace (Storm 1960, Licht 1974, Brown 1975b). After oviposition takes place, adult *R.* a. *aurora* vanish from the breeding site (Twedt 1993; R. Storm, pers. comm.) and disperse into moist areas of dense, thick vegetation, where they can be observed through late spring and summer (Twedt 1993; pers. observ.). The time required for *R. a. aurora* embryos to develop to hatching can vary from less than 1 week (at 20°C) to over 8 weeks (at 4.5°C), but embryos typically require around 4-5 weeks at field water temperatures of 6-9°C (Storm 1960, Licht 1971). At hatching, young larvae are 11-12 mm total length (Storm 1960, Brown 1975b). Larvae are often cryptic and may display a preference for a light- and dark- striped substrate which is correlated with their developing in a habitat with a striped light and shade mosaic (Wiens 1970). Larvae are algal grazers, and can significantly reduce the standing crop of epiphytic algae under certain conditions (Dickman 1968). Larval development to metamorphosis seems to require ca. 3.5 months (Licht 1974, Brown 1975b), but an understanding of the variation in the length of the larval developmental interval is lacking.

Males can become sexually mature the breeding season following metamorphosis, at ca. 45 mm SUL (Licht 1974; pers. observ.), but most probably do not reproduce until their second breeding season following metamorphosis. Females do not appear to become sexually mature until at least the second breeding season following metamorphosis, at ca. 60 mm SUL (Licht 1974; pers. observ.), but most probably do not reproduce until their third breeding season following metamorphosis. Longevity of adults in the field is unknown, but data from captives indicate that adults can live in excess of 10 years (Cowan 1941). Postmetamorphic *R. a. aurora* are largely insectivorous, with larger frogs being

capable of eating larger prey (Licht 1986a). Different predators typically prey on the various life stages of the northern red-legged frog, but most mortality occurs during the larval, metamorphic, and recent post-metamorphic stages (Licht 1974). Throughout the range of *R. a. aurora,* the northwestern salamander *(Ambystoma gracile)* and the rough-skinned newt *(Taricha granulosa)* are probably among the most important predators of larval northern red-legged frogs (Calef 1973b, Licht 1974), whereas certain species of garter snakes are probably among the most important predators on metamorphic and recent post-metamorphic life stages (Fitch 1941, Licht 1974). In each case, these predators may be seasonally dependent, even if not for a long interval, on the particular life stage of *R. a. aurora* for food. Postmetamorphic *R. a. aurora* appear to depend largely on crypsis for concealment, remaining immobile until a predator, such as a garter snake, approaches too closely, whereupon they depend on their leaping ability to move out of the range of the predator and take up a new cryptic, immobile position (Gregory 1979, Licht 1986b). Recent field studies by Twedt (1993) show that introduced bullfrogs eat postmetamorphic northern red-legged frogs where the two coexist. The movement ecology of adult northern red-legged frogs is essentially unknown.

Habitat: Northern red-legged frog breeding habitat typically consists of permanent or temporary water bordered by dense grassy or shrubby vegetation (Storm 1960, Licht 1969b, Calef 1973a, Brown 1975b, Twedt 1993). If temporary, standing water is typically available for the life stages of *R. a. aurora* for a period of 4-6 months (see Storm 1960; pers. observ.). Habitat used by post-metamorphic frogs consists of patches of dense grassy or shrubby vegetation (Stebbins 1951, Storm 1960, Twedt 1993), such as willow thickets and dense sedge swales, that maintain significant substrate moisture (pers. observ.). Bury and Corn (1988a) found a high frequency of juvenile *R. aurora* in a mature Douglas fir forest stand having moderate moisture levels in the State of Washington, but the context of this observation is unclear. In northwestern California, the dense undergrowth created by sword ferns *(Polystichum munitum)* and sedges along streamside flats within coastal redwood forest is often used by adult and subadult northern red-legged frogs (see Twedt 1993). Habitat associated with beaver *(Castor canadenis)* dams seems to provide all the aforementioned conditions and may be particularly favorable for northern red-legged frogs because they frequently occur in such habitat (see Stebbins 1951 and Brown 1975b; pers. observ.).

Status: Special Concern; this taxon has been identified as declining in British Columbia, Oregon, and Washington (see summary in Hayes and Jennings 1986). Although surveys for this taxon have not been systematically conducted in California, many of the coastal watersheds in the region where it occurs have sustained significant alteration related to timber harvest (California Department of Forestry and Fire Protection 1988) and urban development. Bullfrogs and selected exotic predatory fishes now occur in a significant number of northwest coastal drainages where *R. a. aurora* are infrequently observed (pers. observ.; see also Twedt 1993). Habitat degradation because of local coastal development and grazing may have also contributed to the apparent decline of this taxon in California.

Management Recommendations: Systematic surveys of this taxon in California are urgently needed. Although a general idea of the impacts and problems with *R. a. aurora* exists, data are unavailable to indicate how serious impacts on this taxon are or what trends may be evolving. How disconnected the dense grassy or shrubby habitat for postmetamorphs can be from the aquatic breeding habitat before the habitat can no longer support this taxon is unknown; this aspect especially needs the type of study that will link it to the movement ecology of this taxon. Additionally, the significant populations of *R. a. aurora* that remain in California are associated with the freshwater marsh portions of the lagoons of coastal drainages. Although salinity tolerance of *R. a. aurora* is unknown, it is likely to be similar to that reported for *R. a. draytonii* (see Jennings and Hayes 1989), so

changes in the salinity gradients in coastal lagoons that could significantly impact the survivorship of *R. a. aurora* in a manner similar to that reported for *R. a. draytonii* (see Jennings and Hayes 1989) need study. Finally, because it is likely that many of the conditions that impact *R. a. aurora,* allowing for differences in their respective life histories, also impact *R. a. draytonii,* the account for the California red-legged frog should be read to gain a broader perspective on other potential impacts.

CALIFORNIA RED-LEGGED FROG
Rana aurora draytonii Baird and Girard 1852

Description: A large (85.0-138.0 mm SUL) brown to reddish brown frog with prominent dorsolateral folds and diffuse moderate-sized dark brown to black spots that sometimes have light centers (Storer 1925; pers. observ.). Distribution of red or red-orange pigment is highly variable, but usually restricted to the belly and the undersurfaces of the thighs, legs, and feet. Some individuals have red pigment extending over all undersurfaces and upper surfaces of the body; other individuals lack red pigment entirely or have it restricted to the feet (pers. observ.). The groin has a distinct black region with a complex arrangement of light blotches that range from white to pale yellow in color. The posterior thigh is a nearly uniform brown color with 3-12 distinct white to lemon-yellow spots. The iris is dark brown with iridophores on the upper and lower portions of the iris (pers. observ.).

Taxonomic Remarks: See the northern red-legged frog *(Rana aurora aurora)* account for pertinent remarks. The California red-legged frog *(R. a. draytonii)* is a morphologically (larger body size, males have paired vocal sacs), behaviorally (males always call in air, adults do not leave the site of oviposition), and probably genetically distinct form (Hayes and Miyamoto 1984; Green 1985a; pers. observ.). Comprehensive study of the geographic pattern of morphological, behavioral, and genetic variation, some of which is underway, is needed to determine whether the California red-legged frog represents a distinct species.

Distribution: The historic range of this frog extends through Pacific slope drainages from the vicinity of Redding (Shasta County: Storer 1925) inland and at least to Point Reyes (Marin County: pers. observ.), California (coastally) southward to the Santo Domingo River drainage in Baja California, Mexico (Linsdale 1932). Historically, it also occurred in a few desert slope drainages in southern California (Jennings and Hayes 1994). Populations in central southern Nevada are introduced (Linsdale 1940, Green 1985b). In California, it occurs from Shasta County south to the Mexican border (Figure 17). The records for Santa Cruz Island have been shown to represent an introduction (Jennings 1988a). Its known elevational range extends from near sea level to around 1500 m, although some of the populations toward the upper limit of the range of this species may represent translocations (unpubl. data).

Life History: California red-legged frogs breed early in the year (late November-late April: Storer 1925; Hayes and Jennings 1986; S. Sweet, pers. comm.; pers. observ.), undoubtedly because they have a low embryonic critical thermal maximum (see Hayes and Jennings 1986) that restricts them to using a time-window with a high probability of ensuring embryonic survival. Males appear at breeding sites from 2-4 weeks before females (Storer 1925). At breeding sites, males typically call in small, mobile groups of 3-7 individuals that attract females (pers. observ.). Females move toward male calling groups and amplex a male. Following amplexus, females move to the site of oviposition and attach egg masses containing ca. 2,000 to 6,000 moderate-sized (2.0-2.8 mm in diameter), dark reddish brown eggs to an emergent vegetation brace (Storer 1925; pers.

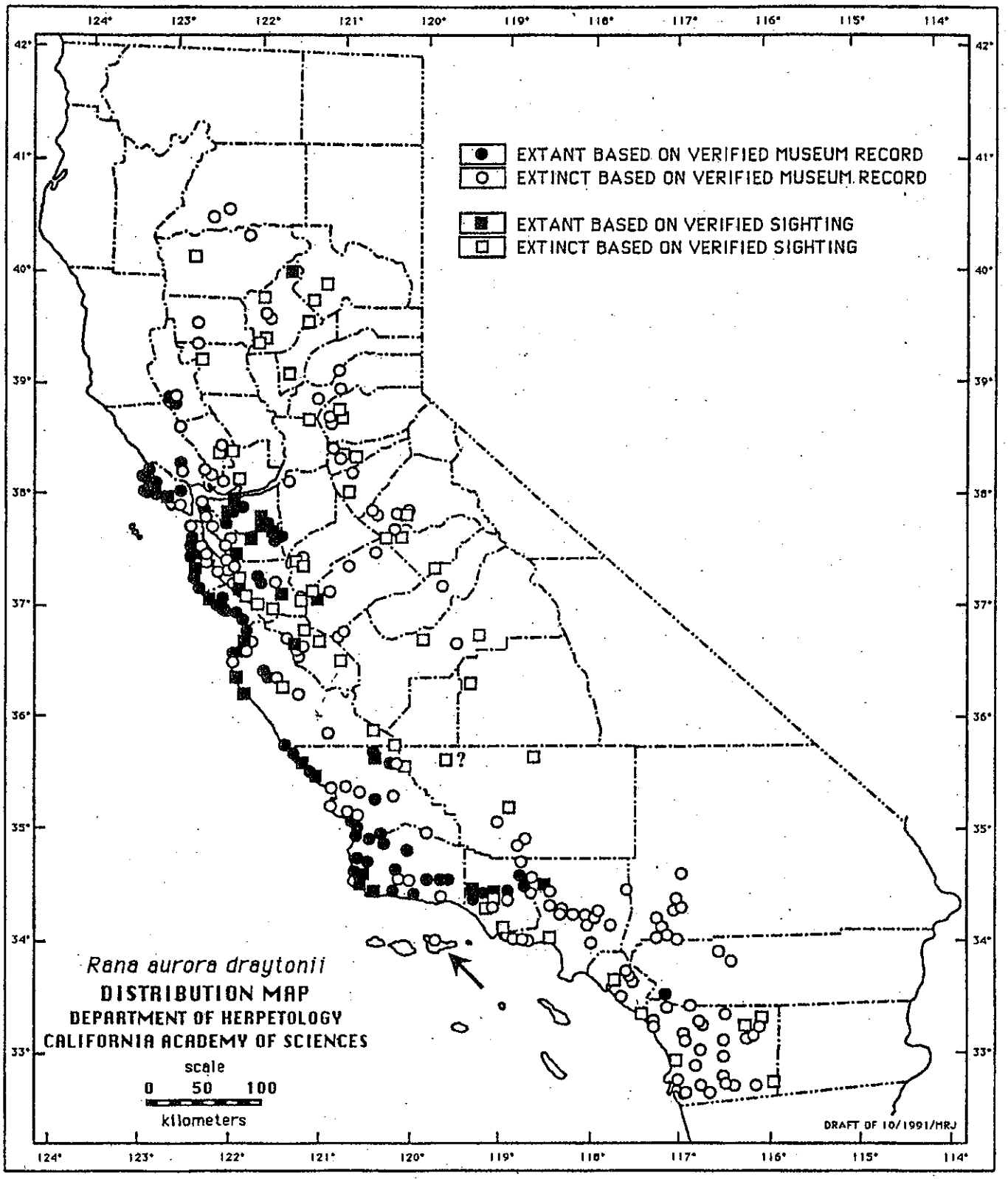

Figure 17. Historic and current distribution of the California red-legged frog (*Rana aurora draytonii*) in California based on 762 locations from 1229 museum records and 291 records from other sources.

observ.). Embryos hatch 6-14 days after fertilization, and larvae require 4-5 months to attain metamorphosis (Storer 1925). Larvae are thought to be algal grazers, but the foraging ecology of larval *R. a. draytonii* is unknown. Larvae are infrequently observed in the field because they spent most of their time concealed in submergent vegetation or organic debris (pers. observ.). Larvae, which are not known to overwinter, typically metamorphose between July and September (Storer 1925; pers. observ.). Postmetamorphs grow rapidly, and sexually maturity can be attained at 2 years of age by males and 3 years of age by females (Jennings and Hayes 1985), but both sexes may not reproduce until 3 and 4 years of age, respectively (pers. observ.). Females attain a significantly larger body size than males (138 mm vs. 116 mm SUL: Hayes and Miyamoto 1984). No data are available on the longevity of California red-legged frogs.

Unlike northern red-legged frogs, adult California red-legged frogs do not appear to move large distances from their aquatic habitat, although they are known to make pronounced seasonal movements within their local aquatic and terrestrial habitats. Adult *R. a. draytonii* move seasonally between the site of oviposition and the foraging habitat occupied in spring and summer (Jennings and Hayes 1989; pers. observ.), but a few data indicate that they move into terrestrial riparian thickets during the fall (Rathbun et al. 1993). It is also known that during periods of high water flow, California red-legged frogs are rarely observed (S. Sweet, pers. comm.; pers. observ.). Where frogs go during this interval is not well understood, but at least some individuals have been observed concealed in pockets or small mammal burrows beneath banks stabilized by shrubby riparian growth (pers. observ.). Nevertheless, much of the movement ecology of *R. a. draytonii* remains poorly understood.

Postmetamorphs have a highly variable animal food diet (Hayes and Tennant 1986). Most prey that can be swallowed that are not distasteful are eaten, with larger frogs capable of taking larger prey. Frogs (Anura) and small mammal prey may contribute significantly to the diet of adults and subadults (Arnold and Halliday 1986, Hayes and Tennant 1986). Adult frogs appear to use vibrations transmitted along willow branch runways to detect approaching small mammal prey (see Hayes and Tennant 1986; pers. observ.).

In general, adult frogs are quite wary. Highly nocturnal (Storer 1925, Hayes and Tennant 1986), adults appear to face frequent attempts at predation by wading birds (e.g., black-crowned night herons *[Nycticorax nycticorax]*, bitterns *[Botaurus lentiginosus])*, judging from the number of dorsal puncture-like wounds observed on frogs (pers. observ.). Moreover, adult frogs also seem to use vibrations transmitted along willow branches or vegetation upon which they are resting to detect the approach of certain predators (e.g., raccoons). In contrast, juveniles (< 60-65 mm SUL) are much less wary, are frequently active diurnally, and spend much of the daytime hours basking in the warm, surface-water layer associated with floating and submerged vegetation (see Hayes and Tennant 1986), where they can fall prey to predators such as San Francisco garter snakes (Wharton 1989) and two-striped garter snakes *(Thamnophis hammondii:* Cunningham 1959a). California red-legged frogs are seasonal prey in the diet of the San Francisco garter snake (Wharton 1989).

Habitat: Habitat of California red-legged frogs is characterized by dense, shrubby riparian vegetation associated with deep (≤ 0.7 m), still or slow-moving water (Jennings 1988b, Hayes and Jennings 1988). The shrubby riparian vegetation that structurally seems to be most suitable for California red-legged frogs is that provided by arroyo willow *(Salix lasiolepis);* cattails *(Typha* sp.) and bulrushes *(Scirpus* sp.) also provide suitable habitat (Jennings 1988b). Although California red-legged frogs can occur in ephemeral or permanent streams or ponds, populations probably cannot be maintained in ephemeral

streams in which all surface water disappears. Water should have a salinity of ≤ 4.5 ‰ to ensure the survival of embryonic stages (Jennings and Hayes 1989). Juvenile frogs seem to favor open, shallow aquatic habitats with dense submergents (pers. observ.).

Status: Endangered in the Central Valley hydrographic basin (includes the Sacramento, San Joaquin, Kings, Kaweah, and Kern River systems) and in southern California from the Santa Clara River system south to the Mexican border; Threatened throughout the remainder of its range in California; once the abundant species of large ranid frog throughout most of lowland California, this species has sustained large reductions both in geographic range and in the size of local populations. Historically, California red-legged frogs were heavily commercially exploited for food, a situation that led to their becoming severely depleted by the turn of the century (Jennings and Hayes 1985). Continued exploitation of depleted populations and the prior and subsequent establishment of a diverse exotic aquatic predator fauna that includes bullfrogs, crayfish, and a diverse array of fishes likely contributed to the decline of the California red-legged frog (Hayes and Jennings 1986), although it is not understood which exotic aquatic predator or predators may have been most significant (Hayes and Jennings 1988). Further, habitat alterations that are unfavorable to California red-legged frogs and favorable to most of the exotic aquatic predators are confounded with potential direct effects of predation by such exotics (Hayes and Jennings 1986). The tone of these suggestions is not new. Nearly 20 years ago, Robert L. Livezey (in litt., 3 February 1972 to Leonard Fisk, then Senior Fishery Biologist with CDFG charged with investigating the state of non-game amphibians and reptiles) attempted to draw attention to the fact that he believed that the California red-legged frog has suffered a drastic reduction over the previous 15 to 20 years because of bullfrogs and expanding human activities. Regardless of the exact cause, our surveys for California red-legged frogs at over 95% of the historical localities in the Central Valley hydrographic basin over the last 10 years indicate that this species has probably disappeared from over 99% of its former range within that region. The few remaining populations are threatened by proposed reservoir construction, off-road vehicle use, and continued habitat degradation due to the cumulative effects of abusive land use practices, especially with regard to livestock grazing (pers. observ.; see Kauffman et al. 1983; Kauffman and Krueger 1984; Bohn and Buckhouse 1986) and development of groundwater resources (see Groeneveld and Griepentrog 1985). The only locality within the Central Valley hydrographic basin that supports California red-legged frogs that receives some degree of protection, the Corral Hollow Ecological Reserve, is currently threatened by siltation promoted by an off-road vehicle park and livestock grazing practices upstream. Similarly, between the Santa Clara River system and the Mexican border, extant populations of California red-legged frogs are known from only four relatively small areas. These combined areas represent no more than 1% of the area historically occupied by California red-legged frogs within that region. Additionally, no more than 10% of the localities where California red-legged frogs were recorded within the Salinas River hydrographic basin and inner Coast Ranges between the Salinas basin and the San Joaquin south of the Pacheco Creek drainage still have *R. a. draytonii.*

Significant numbers of California red-legged frogs occur only in the relatively small coastal drainages between Point Reyes (Marin County) and Santa Barbara (Santa Barbara County). The drainages within this region are characterized by more suitable habitat and a less frequent occurrence of exotic aquatic predators than elsewhere. Yet, even the California red-legged frogs within this region are threatened by an exotic aquatic predator fauna that is still slowly expanding its range, continuing habitat degradation because of abusive grazing practices, and decreased water quality because of increases salinities related to decreased freshwater flows because of increased human use and recent decreases in annual rainfall potentially related to global climate changes.

Management Recommendations: Riparian habitats where California red-legged frogs still occur need a greater degree of protection. In particular, emphasis needs to be placed on retaining the dense riparian vegetation associated with deep water habitats used by this taxon. Additionally, the water quality standards (e.g., low salinity levels: Jennings and Hayes 1989) and water flow regimes of such sites need to be maintained. This taxon is suspected of being particularly sensitive to changes in water quality due to a variety of factors (e.g., various herbicides and pesticides, sulfate ions) that have not been examined specifically for their effects on the developmental stages of this taxon; these urgently need study. The local hydrology of sites where California red-legged frogs still occur should be carefully monitored. Impacts such as additional withdrawals of surface and groundwater that modify existing flow regimes and can change water quality should especially be avoided. Particular efforts need to be made to reduce or eliminate habitat modification that results from overgrazing because grazing and similar land use practices are especially effective at reducing or eliminating the dense riparian cover required by California red-legged frogs. Despite the fact that the total protection of entire local hydrographic basins has been suggested (Moyle 1973, Hayes and Jennings 1988), that suggestion remains unimplemented. That approach may ultimately be the only way to protect some of the remaining populations of this taxon.

FOOTHILL YELLOW-LEGGED FROG
Rana boylii Baird 1854

Description: A moderate-sized (37.2-82.0 mm SUL) highly variably colored frog, but usually dark to light gray, brown, green, or yellow with a somewhat mottled appearance often with considerable amounts of brick or reddish pigment, and rough, tubercled skin (Zweifel 1955; unpubl. data). A light band is present between the eyelids that often appears as a pale triangle between the eyelids and the nose. Undersurfaces of the legs and lower belly are yellow or orangish-yellow, the latter color usually present on the largest individuals (pers. observ.). The iris is silvery gray with a horizontal, black countershading stripe (pers. observ.).

Taxonomic Remarks: Since the work of Zweifel (1955), this frog has been recognized as a distinctive species. An understanding of the genetic and karyologic variation within *R. boylii* is limited to 13 populations in central and northern California and one population in Oregon (Houser and Sutton 1969; Haertel et al. 1974; Case 1976, 1978a, 1978b; Green 1986a, 1986b). Available data indicate complex genetic variation within *R. boylii,* but data are both difficult to interpret because of some lumping of nearby populations (Case 1978b) and too few to identify any geographic patterns to genetic variation conclusively. A sound understanding of the geographic pattern of genetic variation in *R. boylii,* with the intent of distinguishing potentially cryptic taxa, is needed.

Distribution: Historically, this species was known to occur in most Pacific drainages from the Santiam River system in Oregon (Mehama, Marion County) to the San Gabriel River system (Los Angeles County) in California (Storer 1923, 1925; Fitch 1938; Marr 1943; Zweifel 1955). Its known elevational range extends from near sea level to ca. 2040 m (lower end of La Grulla Meadow, Baja California, Mexico; Stebbins 1985). No desert slope populations are known, but an isolated outpost has been reported from the Sierra San Pedro Mártir, Baja California, Mexico (Loomis 1965). In California, *R. boylii* was historically distributed throughout the foothill portions of most drainages from the Oregon border to the San Gabriel River (Figure 18). Its known elevation range in California extends from near sea level to 1940 m (Snow Mountain, Trinity County: Hemphill 1952).

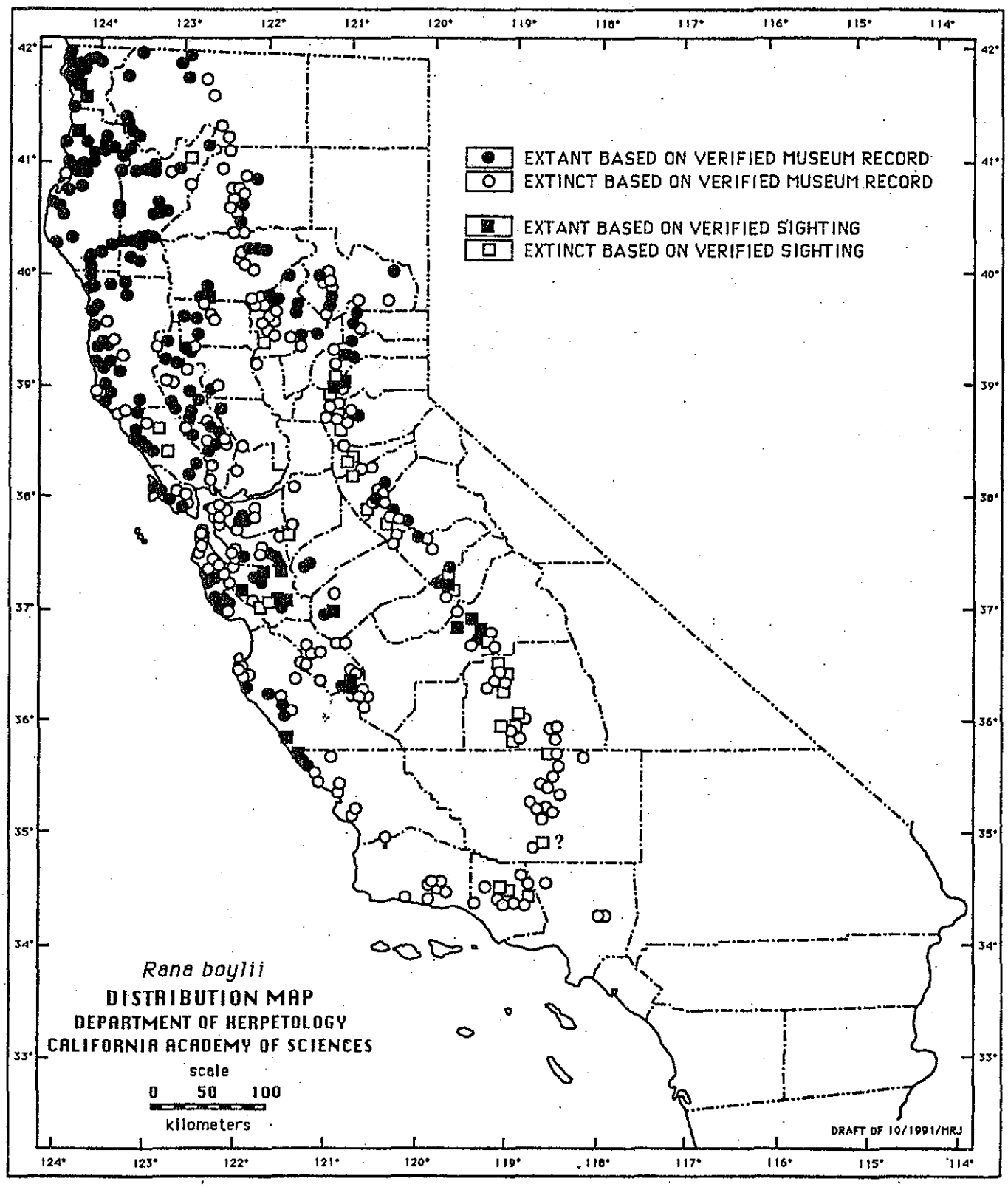

Figure 18. Historic and current distribution of the foothill yellow-legged frog (*Rana boylii*) in California based on 937 locations from 3195 museum records and 164 records from other sources.

Life History: *Rana boylii* is one of the most poorly known ranid frog species in California; no detailed study of its life history has ever been undertaken (although at least two investigators are currently gathering life history data on this species: H. Welsh, and A. Lind, pers. comm.). This species is a stream-dwelling form that deposits masses of 300-1200 eggs on the downstream side of cobbles and boulders over which a relatively thin, gentle flow of water exists (Storer 1925, Fitch 1936., Zweifel 1955). The timing of oviposition typically follows the period of high flow discharge resulting from winter rainfall and snowmelt, which results in oviposition usually occurring between late March and early June (Storer 1925; Grinnell et al. 1930; Wright and Wright 1949; unpubl. data). The embryos have a critical thermal maximum (CTM) of c 26°C (Zweifel 1955), but the precise embryonic CTM for this species is not known. Tadpoles display more dorsoventral flattening, have a more muscular tail fin, and have a larger number of tooth rows than most other ranid frogs native to the western United States, features thought to assist the larvae of this species in its flowing stream environment (Zweifel 1955). Tadpoles are infrequently observed because they are cryptic against the substrates of rocky pools and riffles in which they occur (pers. observ.). Tadpoles seem to be capable of growing much more rapidly on epiphytic diatoms than other types of algae, and have been observed to preferentially graze on this algal type (S. Kupferberg, pers. comm.). Such preferentially grazing has been observed to enhance the productivity of other algae (S. Kupferberg, pers. comm.) in a manner similar to that described for fishes (Power 1990). After oviposition, a minimum of roughly 15 weeks is needed to attain metamorphosis, which typically occurs between July and September (Storer 1925, Jennings 1988b). Upon metamorphosis, juveniles show a marked differential movement in an upstream direction (Twitty et al. 1967b) very similar to the compensating mechanism displayed by stream insects that are subject to downstream drift. Two years are thought to be required to reach adult size (Storer 1925), but no data are available on longevity. Postmetamorphs probably eat both aquatic and terrestrial insects, but few dietary data exist for this species (see Storer 1925, Fitch 1936). Red-sided *(Thamnophis sirtalis),* western terrestrial, and Oregon garter snakes have been reported as feeding on the post-hatching stages of *R. boylii* (Fitch 1941, Zweifel 1955, Lind 1990), whereas Evenden (1948) recorded *Taricha granulosa* predation on the eggs of *R. boylii.* The Oregon garter snake has been observed to feed more frequently on tadpoles than metamorphosed individuals (pers. observ.), whereas the other three garter snakes are recorded to feed more frequently on metamorphosed individuals. The diel and seasonal movement ecology and behavior of adults is essentially unknown.

Habitat: *Rana boylii* requires shallow, flowing water, apparently preferentially in small to moderate-sized streams situations with at least some cobble-sized substrate (Hayes and Jennings 1988, Jennings 1988b). This type of habitat is probably best suited to oviposition (see Storer 1925, Fitch 1936, Zweifel 1955) and likely provides significant refuge habitat for larvae and postmetamorphs (Hayes and Jennings 1988, Jennings 1988b). Foothill yellow-legged frogs have been found in stream situations lacking a cobble or larger-sized substrate gram (Fitch 1938, Zweifel 1955), but it is not clear whether such habitats are regularly utilized (Hayes and Jennings 1988). Foothill yellow-legged frogs are infrequent or absent in habitats where introduced aquatic predators (i.e., various fishes and bullfrogs) are present (Hayes and Jennings 1986, 1988; Kupferberg 1994), probably because their aquatic developmental stages are susceptible to such predators (Grinnell and Storer 1924).

Status: Endangered in central and southern California south of the Salinas River, Monterey County; foothill yellow-legged frogs have not been observed in or south of the Transverse Ranges since before 1978 (H, DeLisle, M. Long, G. Stewart, and S. Sweet, pers. comm.; pers. observ.). The last verifiable records from this region were a series of specimens collected 17 April 1970 on Piru Creek 10 miles north of Temescal Ranger Station, Ventura County (LACM 106062). and upstream from Piru Gorge (currently under

Pyramid Lake), Los Angeles County (California State University Northridge, uncat.; P. McMonagle, pers. comm.). High water conditions estimated to be of 500-year frequency, which occurred over much of southern California during the spring of 1969, are believed to be largely responsible for the apparent extirpation of this taxon in that region (Sweet 1983). The last reliable observation (unverified by specimens or photographs) of a foothill yellow-legged frog in the region occurred at 1-2 km south of Frenchman's Flat along Piru Creek (Los Angeles County) on 6 July 1977 (H. DeLisle, pers. comm.).

Threatened in the west slope drainages of the Sierra Nevada and southern Cascade Mountains east of the Sacramento-San Joaquin River axis; foothill yellow-legged frogs have not been observed for nearly 20 years at least 19 historical localities on the west slope of the southern Sierra Nevada (J. Brode, R. Hansen, D. Holland, and D. Wake, pers. comm.; pers. observ.), and localities at which this species is extant on the western slope of the northern Sierra Nevada and the extreme southern Cascades appear widely scattered.

Special Concern in the Coast Ranges north of the Salinas River; *Rana boylii* still occurs at many localities in coastal drainages north of the Salinas River system in California, some of which harbor significant numbers of frogs (E. Ely, A. Lind, and H. Welsh pers. comm.; pers. observ.). Nevertheless, even in this area, *R. boylii* is at risk due to the exotic predatory aquatic fauna that is still increasing its range in this region (Kupferberg 1993; S. Kupferberg and M. Power, pers. comm.), poorly timed water releases from upstream reservoirs that scour egg masses from their oviposition substrates (e.g., Trinity River system during the spring of 1991: H. Welsh and A. Lind, pers. comm.), and decreased waterflows that can force adult frogs to move into permanent pools where they may be more susceptible to predation (see Hayes and Jennings 1988). Additionally, aseasonally (late), forceful storms in most years since 1987 that are though to be responsible for scouring salmonid redds (M. McCain, pers. comm.) may have had similar effects on *R. boylii* egg masses (H. Welsh and A. Lind, pers. comm.). Aseasonal storms and decreases in annual rainfall that result in decreased waterflows may be linked to local and global anthropogenically influenced climatic changes.

Management Recommendations: A life history study that details the habitat requirements of *R. boylii,* especially for the larvae and early postmetamorphic stages, is urgently needed. Such a study would greatly facilitate refining the management recommendations made here. Until data indicate otherwise, habitat critical to the survival of *R. boylii* should be identified in part by the presence of oviposition habitat having riffle areas with a substrate of cobble-sized or larger rocks. Since such habitats are dynamic in stream systems based largely on the ability of the existing flow regime to differentially sort the loose substrate, particular attention should be paid to maintaining a flow regime that ensures the presence of suitable habitat for *R. boylii.* Moreover, an understanding of the variation in flow and shear conditions that egg masses and larvae will tolerate before they are damaged is needed, as well as a more precise understanding of the critical thermal maxima of the embryonic stages. Management should avoid water releases that create excess flow and shear conditions during the time interval that egg masses and the more fragile younger larval stages are present. *Rana boylii* egg masses are known to accumulate suspended particulates (Storer 1925), but how much silt deposition they can withstand and still survive is not known. Tolerance to silt deposition needs study because increased silt loads due to vegetation removal, such as logging and livestock grazing, are a frequent occurrence within the range of *R. boylii.*

CASCADE FROG
Rana cascadae Slater 1939

Description: A moderate-sized (50-75 mm SUL) brown, red-brown, or slightly greenish brown frog with prominent dorsolateral folds and a distinct light jaw stripe (Slater 1939a, Dunlap 1955, Dumas 1966). Individuals are usually spotted with a few to over 50 inky black, distinct-edged dorsal spots; rarely, individuals are entirely unspotted (Slater 1939a; pers. observ.). A diffuse light and dark reticulum is present in the groin (Dunlap 1955). Undersurfaces are yellow to cream without any dark pigment, the yellower areas largely confined to the posterior belly and the undersurfaces of the lower limbs. The iris is brown with some gold iridophores on the upper and lower portions of the iris (pers. observ.).

Taxonomic Remarks: *Rana cascadae* is a morphologically (Slater 1939a) and genetically (Case 1978b; Green 1986a, 1986b) distinct species. Although not universally recognized as such for a number of years following its description in 1939 (e.g., Stebbins 1951), Dunlap (1955) first confirmed its distinctiveness based on morphology, which was later reaffirmed by genetic data (Case 1978b; Green 1986a, 1986b). Data on genetic variation within *R. cascadae* is based on 6 populations in California (Case 1976, 1978a, 1978b) and 7 populations in Oregon and Washington (Haertel et al. 1974; Green 1986a, 1986b). Available allozyme data indicate some potentially significant genetic variation within *R. cascadae* (Case 1976, 1978b), but the data are both difficult to interpret because of lumping of adjacent populations (Case 1978b, Green 1986a) and are too few to identify any geographic patterns of genetic variation conclusively.

Distribution: Historically, *R. cascadae* was discontinuously distributed along the Cascade Mountain axis between northern Washington (Stebbins 1985) and northern California (Bury 1973b) and extended southward to the extreme northern end of the Sierra Nevada (Hayes and Cliff 1982). A disjunct population system also occurs in the Olympic Mountains in Washington (Stebbins 1985). The known elevation range of *R. cascadae* extends from near sea level to 2500 m (Emerald Lake, Lassen National Park, Shasta County). In California, *R. cascadae* was distributed from the Shasta-Trinity region eastward toward the Modoc Plateau and southward to the Lassen region and the upper Feather River system (Figure 19). Notably, numerous specimens identified as western spotted frog *(R. pretiosa)* from localities in eastern Siskiyou County are actually *R. cascadae,* so the historical range of *R. cascadae* in California shown here is more extensive than that shown by most current authorities (e.g., Altig and Dumas 1971, Stebbins 1985). The known elevational range of *R. cascadae* in California extends from 270 m (Anderson Fork, Butte County: Hayes and Cliff 1982) to 2500 m (Emerald Lake, Lassen National Park, Shasta County: Grinnell et al. 1930 as *R. pretiosa).*

Life History: Data on the life history of the Cascade frog are based almost entirely on studies conducted in Oregon, so inferences regarding the details of its life history in California should be viewed with caution. *Rana cascadae,* exclusively diurnal in its activity, appears soon after melting ice and snow creates some open water on the edges of ponds or ponded streams where this species hibernates in the mud bottom (Briggs 1976, 1987; pers. observ.)., Males appear hours to a few days in advance of females and intercept females as they appear (pers. observ.). The first female or first few females to deposit an egg mass seem to oviposit in the warmest melt-water available, whereas subsequent females appear to cue on the position, perhaps by olfaction, of previously laid egg masses. This results in most egg masses being aggregated (Sype 1975, Briggs 1987). Masses are globular, contain 400-600 eggs, are laid in shallow water, and are not attached to a vegetation brace. The aggregation of egg masses frequently results in their being stacked so that after their jelly swells, a significant number of the uppermost eggs are above the water line and can freeze (Sype 1975). Oviposition occurs some time in the interval of

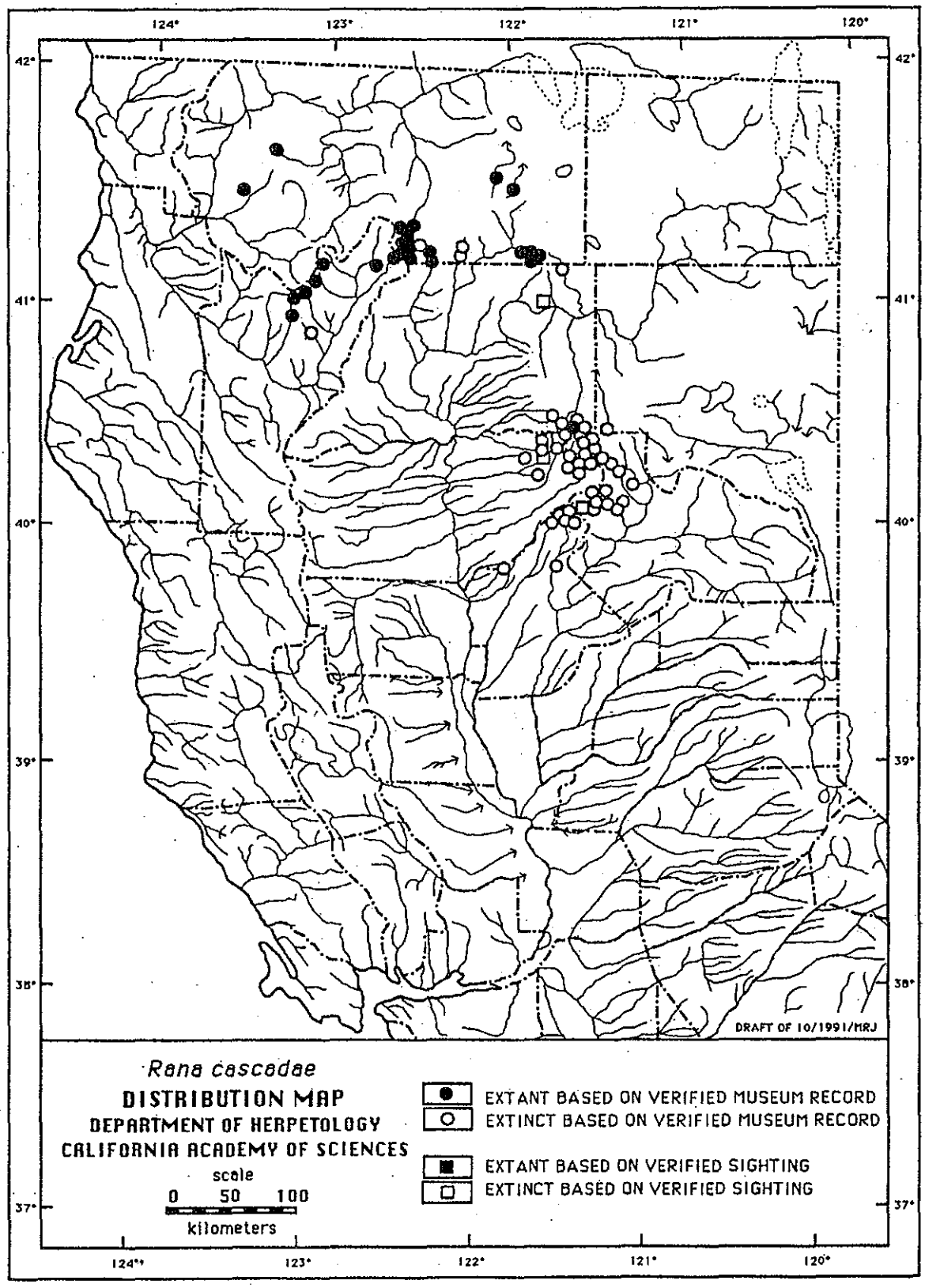

Figure 19. Historic and current distribution of the Cascade frog (*Rana cascadae*) in northern California based on 132 locations from 533 museum records and 6 records from other sources.

March-July depending on climatic conditions and elevation (Nussbaum et al. 1983); oviposition at any one locality, however, is completed in just a few days (T. Rodgers, pers. comm.; pers. observ.). Most embryos will die if water temperatures warm to ≥ 28°C (Sype 1975). After hatching, *R. cascadae* larvae are almost never found alone, but form spatially loose social aggregations of generally < 100 individuals composed primarily of kin (O'Hara and Blaustein 1985, Blaustein and O'Hara 1987). *Rana cascadae* larvae voluntarily select a high water temperature (27.3 ± 0.6°C; Wollmuth et al. 1987), presumably to optimize conditions for growth and development. The length of the larval period is also highly temperature dependent, but probably ranges from 1 to over 2 months in the field (Nussbaum et al. 1983, Briggs 1987). Upon entering metamorphosis, larvae voluntarily select the highest environmental temperatures (28.8 ± 0.4°C) during their developmental history since all postmetamorphic life stages voluntarily select temperatures < 17°C (Wollmuth et al. 1987). At a pond located at 1285 m elevation in Oregon, males and females first exhibited signs of sexual maturity at 35 mm and 52 mm SUL, respectively (Briggs and Storm 1970). Based on growth rates of marked individuals, males could mature by 2 years of age and females by 4 years of age. However, both sexes may not reproduce until they are one or two years older than the minimum ages at maturity. Longevity in *R. cascadae* is unknown, but the species is probably long-lived (> 5 years).

Habitat: *Rana cascadae* occurs and reproduces in both ephemeral and permanent ponds or streams (Zweifel 1955; Nussbaum et al. 1983; Briggs 1987; pers. observ.), but probably cannot survive in ephemeral situations where at least some of the substrate does not remain saturated. Oviposition habitat is open, shallow water (Briggs 1987) that remains unshaded during the hours of strong sunlight (pers. observ.). Aquatic sites in which *R. cascadae* is found are relatively oligotrophic (Briggs and Storm 1970, Nussbaum et al. 1983), so a certain level of water quality is undoubtedly important to its survival. However, what its tolerance limits to various water quality parameters are (except temperature; see life history section) are unknown. Cascade frogs typically occur in waters lacking predatory fish and indications exist that a shift away from the use of more permanent aquatic sites, in a manner similar to that described for California red-legged frogs (Hayes and Jennings 1988), may have been induced in part by fish plants (see Liss and Larson 1991). Hibernation occurs underwater or in saturated ground (Briggs 1987), presumably because frogs cannot survive the level of water loss sustained if a dry terrestrial hibernation site were used.

Status: Special Concern in the Trinity Alps and Shasta region and the headwaters of the Sacramento and McCloud River systems; Endangered elsewhere in the state (i.e., from the Pit River system south); our field surveys from Butte County northward through the Lassen National Park region to the Modoc Plateau area of eastern Siskiyou County failed to reveal any Cascades frogs at localities where they were historically known to occur. Only two adults of this taxon were recently found in each of two different years at the same location in Lassen Volcanic National Park following extensive searches during the summers of 1991-1993 (Fellers and Drost 1993; G. Fellers, pers. comm.). All available indications are that *R. cascadae* is exceedingly rare in this region, which is in sharp contrast to its historic abundance (Grinnell et al. 1930 [as *R. pretiosa*]; Badaracco 1960). Collections (MVZ 136125-136127, 136131-136136, 136138-136143, 148944-148988, 175949-175954; n = 68) indicate that this species was abundant at several locations within Lassen National Park in the mid-1970s (see also Case 1976, 1978a; Fellers and Drost 1993). Our field surveys for *R. cascadae* during 1990 indicated that it was moderately to extremely abundant in lake and ponded stream situations where few or no fishes were present from the upper McCloud River system (Colby Meadows) westward into the Trinity Alps at localities where it had been historically recorded.

Management Recommendations: Comprehensive genetic data are needed to identify potential cryptic taxa within *R. cascadae.* In California, the Trinity Alps-Shasta region

population system may be sufficiently differentiated from populations in, the Oregon Cascades to justify species recognition. Judging from the large number of misidentifications of *R. cascadae* in museum collections alone, its distribution in California is still poorly understood. Comprehensive surveys for this taxon in California are urgently needed. Surveys should focus on how far west along the Trinity Alps ridge system this species extends, on its pattern of occurrence in the Siskiyou-Klamath region of western Siskiyou County, and on its pattern of occurrence west and northwest of Mt. Shasta. How adversely this species may have been affected by the planting of trout in high elevation lakes is poorly understood, but some effort should be focused at understanding both the current and historical bases of this problem. An attempt should be made to work toward a policy of discontinuing fish plants and encouraging management alternatives that will eliminate exotic or transplanted fishes where populations of *R. cascadae* still exist, As a start, fishless lakes should be clearly identified and no such lakes should be planted. Termination of fish stocking or elimination of exotic fish should be considered on a case-by-case basis. Water quality variables and the tolerance limits of the various life stages of *R. cascadae* to those variables especially need study, as well as the effects of varying levels of UV radiation on developing eggs (see Blaustein et al. 1994). Although dispersal abilities of *R. cascadae* seem to be poor (O'Hara 1981), the movement ecology of *R. cascadae,* particularly with respect to its ability for recolonization following local extirpation, is essentially unknown. That knowledge is essential to the proper management of local areas where this taxon occurs.

MOUNTAIN YELLOW-LEGGED FROG
Rana muscosa Camp 1917

Description: A moderate-sized (ca. 40-80 mm SUL), highly variably colored frog with a dorsal pattern ranging from discrete dark spots that can be few and large, smaller and more numerous ones with a mixture of size and shapes, irregular lichen-like patches, or a poorly defined reticulum (Zweifel 1955). Color is highly variable, usually a mix of brown and yellow, but often with gray, red, or green-brown; some individuals may be dark brown with little pattern (pers. observ.). The posterior half of the upper lip is weakly light-colored. Dorsolateral folds are present, but not usually prominent (Stebbins 1985). The throat is white or yellow, sometimes with mottling of dark pigment (Zweifel 1955). The belly and undersurfaces of the high limbs are yellow, which ranges in hue from pale lemon yellow to an intense sun yellow. The iris is gold with a horizontal, black countershading stripe (pers. observ.).

Taxonomic Remarks: *Rana muscosa* has been regarded as a distinct species since the work of Zweifel (1955), who differentiated it primarily on morphological grounds. Subsequent genetic work (Houser and Sutton 1969; Haertel et al. 1974; Case 1976, 1978b; Green 1986a, 1986b) has confirmed its distinctiveness. Allozyme data, based on 16 populations, show a complex pattern of genetic variation (Case 1976, 1978b; Green 1986b), but the data are difficult to interpret because of lumping of populations along political boundaries and because sample sizes from most populations are too small to allow conclusive identification of a pattern. Comprehensive genetic data, particularly among disjunct population systems within *R. muscosa* are needed to help identify genetic variation, particularly since morphological differences have been noted between frogs collected from the Sierra Nevada and frogs collected from southern California (Camp 1917, Zweifel 1955).

Distribution: This near endemic to California is distributed more or less continuously in the Sierra Nevada from the vicinity of La Porte (southern Plumas County) southward to Taylor and French Joe Meadows (southern Tulare County; Zweifel 1955; Figure 20). It extends out of California into Nevada only in the vicinity of Lake Tahoe (Zweifel 1955, Jennings 1984a). Disjunct populations occur north and south of the ends of the main body of its geographic range. The northernmost populations includes a population cluster from the vicinity of Butts Creek (Plumas County; CSUC 1132-1133) to the upper reaches of the Butte Creek drainage (Butte County: Zweifel 1955). In southern California, a single specimen collected on 13 September 1952 at the USFS campground (2013 m elevation) on Breckenridge Mountain, Kern County (MVZ 63389) has been tentatively identified by us as *R. muscosa.* Additional populations of *R. muscosa* occur in isolated clusters in the San Gabriel, San Bernardino, and San Jacinto Mountains (Zweifel 1955), and an isolated outpost occurs in Pauma Creek flowing through Doane Meadow on Mt. Palomar in northern San Diego County (Klauber 1929; Figure 21). Its known elevation range extends from ca. 1370 m (San Antonio Creek, Calaveras County: Zweifel 1955) to > 3650 m near Desolation Lake (Fresno County: Mullally and Cunningham 1956b) in the Sierra Nevada. In southern California, its historical elevational range extended from 370 m (Eaton Canyon, Los Angeles County; M. Long, pers. comm.) to > 2290 m near Bluff Lake (San Bernardino County: Zweifel 1955).

Life History: *Rana muscosa* is a diurnal frog that emerges from overwintering sites immediately following snowmelt (D. Bradford, pers. comm.). Oviposition typically occurs in shallow water (Mullally 1959), with the egg mass unattached, and clustering of eggs masses occurs frequently (H. Basey, S. Morey, and Jay Wright, pers. comm.); however, in stream situations, the egg mass may be attached (Zweifel 1955). Clutch size and the time required for embryonic development are unknown. Larvae maintain a

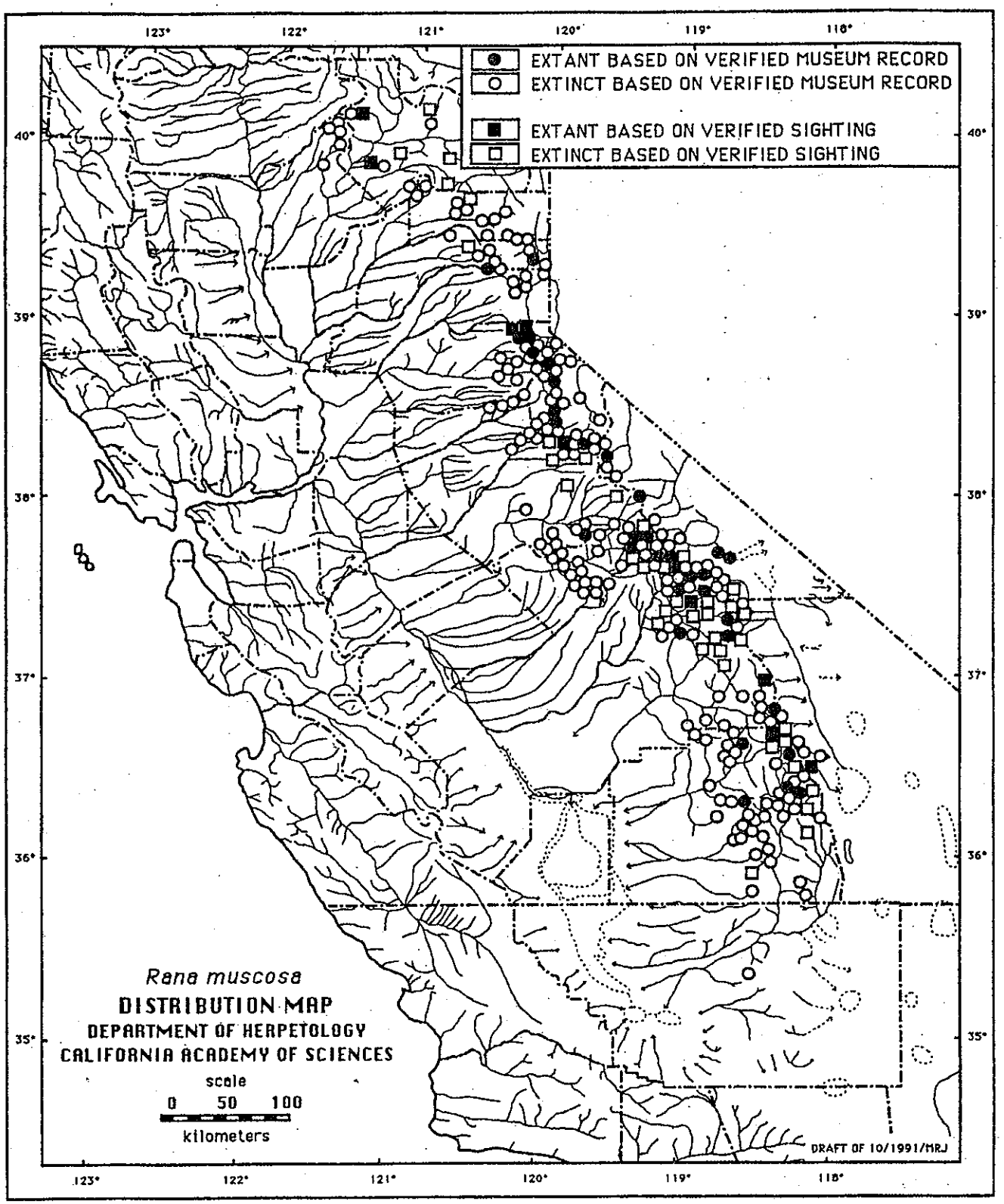

Figure 20. Historic and current distribution of the mountain yellow-legged frog (*Rana muscosa*) in central and and northern California based on 530 locations from 2270 museum records and 161 records from other sources. The distribution of *R. muscosa* in southern California is presented in Figure 21.

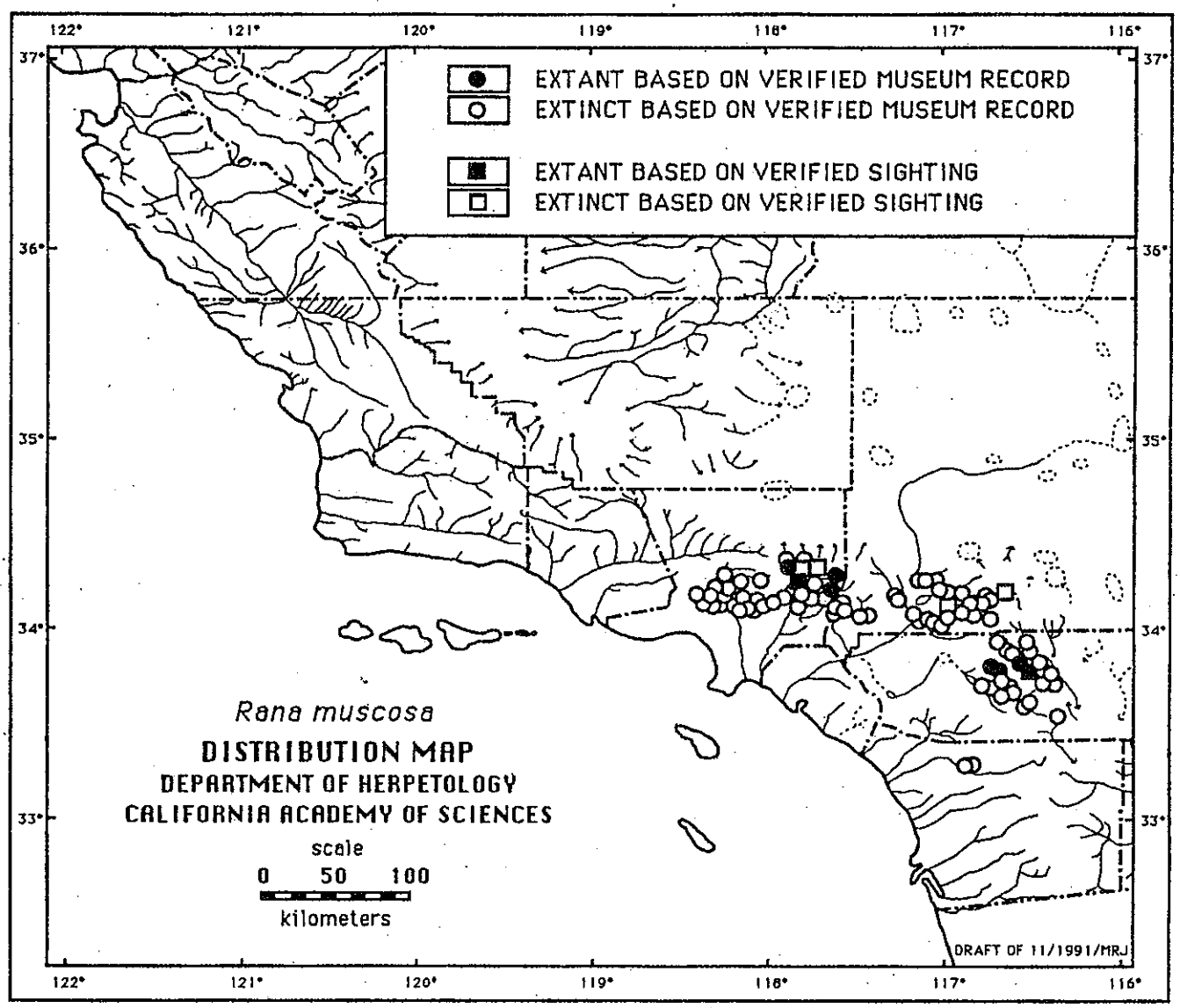

Figure 21. Historic and current distribution of the mountain yellow-legged frog (*Rana muscosa*) in southern California based on 166 locations from 651 museum records and 28 records from other sources. The distribution of *R. muscosa* in central and northern California is presented in Figure 20.

relatively high body temperature by selecting warmer microhabitats (Bradford 1984). Before spring overturn, larvae remain in warmer water below the thermocline; after spring overturn, they move to warm shallows on a daily basis, taking advantage of daily changes in water temperatures. Larvae may form diurnal aggregations in shallow water that may number in the hundreds, and voluntarily elevate their body temperatures to as high as 27°C (Bradford 1984). Despite such behavior, larvae apparently must overwinter up to two times for 6-9 month intervals (Cory 1962a, Bradford 1983) before attaining metamorphosis because the active season is short and the aquatic habitat maintains warm temperatures for only brief intervals (Mullally and Cunningham 1956b). Overwintering results in larvae dying when the aquatic habitat becomes ephemeral in some years (Mullally 1959). Larvae have the ability to survive anoxic conditions when shallow lakes freeze to the bottom for months (Bradford 1983). The time required to develop from fertilization to metamorphosis is believed to vary between 1 and 2.5 years. Data on the time required to reach reproductive maturity and longevity of adults is unknown. During the active season, postmetamorphs tend to maximize body temperature at nearly all times of day by basking in the sun, moving between water and land (depending on which is warmer), and concentrating in the warmer shallows along the shoreline (Bradford 1984). Postmetamorphs appear to be susceptible to winterkill in shallow lakes that undergo oxygen depletion because they are less tolerant of low oxygen tension than larvae (Bradford 1983). Frogs apparently must hibernate in water, probably because they can tolerate only limited dehydration (see Hillman 1980).

Postmetamorphic diet is dominated by beetles, flies (Diptera), ants, bees (Apoidea), wasps (Hymenoptera), and true bugs (Hemiptera: Long 1970). Larger frogs take more aquatic true bugs probably because of their more aquatic behavior. Coyotes *(Canis latrans),* Brewer's blackbirds *(Euphagus cyanocephalus),* and western terrestrial garter snakes are known to prey on the larvae and postmetamorphs of *R. muscosa* (Moore 1929, Mullally and Cunningham 1956b, Bradford 1991), but these life stages of *R. muscosa* are probably a regular seasonal component of the diet only for the western terrestrial garter snake (see Jennings et al. 1992). Mass mortality leading to a local extinction event was induced by unknown circumstances, although some of the affected frogs harbored pathogenic bacteria (Bradford 1991). *Rana muscosa* is apparently intolerant of introduced predatory fishes, since they rarely occur with such fishes where these have been introduced (Cory 1962b, 1963; Bradford 1989; Bradford et al. 1993, in press). Data on the movement ecology and recolonization capabilities of *R. muscosa* are lacking.

Habitat: *Rana muscosa* inhabits ponds, tams, lakes, and streams at moderate to high elevations (Mullally and Cunningham 1956b). It seems to be absent from the smallest creeks probably because these have insufficient depth for adequate refuge and overwintering. Although *R. muscosa* can occur in low numbers along a variety of shorelines, it appears to prefer open stream and lake margins that gently slope up to a depth of ca. 5-8 cm. Such shorelines are probably essential for oviposition and important for thermoregulation of larvae and postmetamorphs; additionally, this kind of shoreline configuration probably provides a refuge from predation if fishes occur in adjacent deeper water. *Rana muscosa* seems to be most successful where predatory fish are absent (Bradford 1989; Bradford et al. 1993, in press).

Status: Endangered in southern California; *R. muscosa* has probably been extirpated from > 99% of its historic range in southern California. No *R. muscosa* have been observed in the San Bernardino Mountains since the 1970s. In the San Gabriel Mountains small populations of frogs exist only in the upper reaches of Little Rock Creek, Devils Canyon, and the East Fork of the San Gabriel River (Jennings and Hayes 1994; unpubl. data). A visit to the Doane Meadow locality on Mt. Palomar found the pond overrun with bullfrogs and exotic fishes; *R. muscosa* and *R. aurora draytonii* have not been seen there

since the mid-1970s (T. Knefler and L. Grismer, pers. comm.). The only *R. muscosa* known to still occur in southern California (to our knowledge) can be found in four small tributaries of the upper reaches of the San Jacinto River system in the San Jacinto Mountains, and four small streams in the San Gabriel Mountains. Field surveys indicate that the entire remaining populations in the San Gabriel and San Jacinto Mountains probably numbers less than 100 adult frogs. Regardless of the precise number, *R. muscosa* in southern California is represented by a precariously small remnant.

Threatened in the Sierra Nevada; it is unclear from how much of its historic range in the Sierra Nevada *R. muscosa* has disappeared, but several indications suggest that the extent of disappearance is significant (Bradford et al. (in press); J. Boundy, D. Bradford, L. Cory, R. Hansen, D. Martin, and M. Morton, pers. comm.; unpubl. data). Introduced fishes have apparently eliminated *R. muscosa* from many lakes and streams (Grinnell and Storer 1924; Bradford 1989; Bradford et al. 1993, in press). However, *R. muscosa* was abundant at many sites at least until the 1960s (Zweifel 1955, Cory et al. 1970). Only a few *R. muscosa* have been observed at the extreme northern end of the range (Butte-Plumas counties) since the 1970s (unpubl. data). A significant number of local populations have also apparently become extinct in the central and southern Sierra Nevada since the 1960s (Bradford et al. (in press); L. Cory, R. Hansen, and D. Martin, pers. comm.). Some of these sites are unlikely to be recolonized because they are isolated from the nearest extant populations by aquatic habitats populated by exotic fishes (Bradford 1991, Bradford et al. 1993). Recent studies of the potential effects of acidification and inorganic aluminum indicate that neither of these factors is the likely explanation for the observed declines in the Sierra Nevada (Bradford et al. 1991, 1992, 1994).

Management Recommendations: A range-wide survey for extant populations of *R. muscosa* is needed to determine more precisely to what extent this taxon has disappeared. Such a survey should be conducted over several years to validate the accuracy of survey methods and to provide an indication of the degree of recolonization. Much of the basic life history of *R. muscosa* remains poorly understood, but for management, an understanding of its movement ecology, recolonization potential, and determination of whether the same oviposition sites are repeatedly used (as in *R. cascadae)* are especially needed. The policy of planting trout *(Oncorhynchus aguabonita, O. mykiss,* and *Salmo trutta),* charr *(Salvelinus fontinalis),* and other fishes in currently fishless high elevation lakes should be discontinued. In addition, a thorough inventory of Sierran sites supporting *R. muscosa* should be conducted. Such an inventory should be capable of identifying fish-linked recruitment failures. Where the inventory suggests fish-induced demographic changes, termination of stocking or eradication of exotics should be considered on a case-by-case basis. An economic argument for the retention of trout stocking in high elevation Sierran lakes is not justified based on backcountry use levels of these areas (P. Moyle, pers. comm.). Some recent declines are puzzling because the presence of pathogens suggests that a primary causative agent exists that makes frogs susceptible to pathogens and predators (see Bradford 1991). As with *Bufo canorus* and *R. cascadae,* the possibility exists that unexplained declines in *R. muscosa* are linked to non-acidification-mediated atmospheric effects (D. Bradford, pers. comm.); this alternative needs investigation (see Management Recommendations section of the Yosemite toad *(B. canorus)* account).

Plate 5. Larval and adult northern leopard frog (*Rana pipiens*) [from Stebbins 1951].

NORTHERN LEOPARD FROG
Rana pipiens Schreber 1782

Description: A moderate-sized (50-100 mm SUL) frog with moderate, to moderately large, dark brown spots, each edged with a narrow, halo of white, or pale yellow pigment (Pace 1974). Prominent, continuous dorsolateral folds are present. Dorsal ground color is highly variable, but typically includes a significant amount of green, the remaining areas being tan or beige (Stebbins 1985). Undersurfaces are cream, sometimes with a yellow taint, but without dark pigment or mottling of any kind. The iris is brown with some gold iridophores on the upper and lower portions of the iris (pers. observ.).

Taxonomic Remarks: Historically, this taxon was regarded as a highly variable species that included all taxa now regarded as part of the *R. pipiens* complex (Hillis 1988). The work of Pace (1974) conclusively separated *R. pipiens,* and later work helped define the geographic limits of this taxon (e.g., Dunlap and Kruse 1976, Lynch 1978). More recent genetic work (Hillis et al. 1983; see also discussion in Hillis 1988) has affirmed the specific status of this taxon. Genetic data on *R. pipiens,* which are limited to segments of its geographic range, have been used largely to differentiate *R. pipiens* from its close congeners rather than address the geographic pattern of genetic variation within the taxon (e.g., Kruse and Dunlap 1976, Platz 1976, Dunlap 1978). Studies are needed to determine whether a significant geographic pattern to genetic variation exists on a range-wide basis.

Distribution: Improved understanding and the relatively recent partitioning of the complex of species regarded as leopard frogs (Hillis et al. 1983, Hillis 1988) has still left the nominal species, *Rana pipiens,* as one of the most broadly distributed frogs in North America, with over 98% of its geographic range occurring outside California. The northern leopard frog extends northward to Great Slave Lake, southern MacKenzie District, Canada, eastward to southern Labrador and Newfoundland, Canada, and southward to Virginia, Nebraska, New Mexico, and northeastern Arizona (Stebbins 1985). Its known elevational range extends from near sea level to 3350 m (Stebbins 1985). In California, native populations of the northern leopard frog whose origin is largely unquestioned are historically recorded from only Modoc and Lassen counties (Figure 22). The origin of leopard frogs in the upper Owens Valley has been questioned (Bury and Luckenbach 1976), but no data dispute a native origin (see Macey and Papenfuss 1991b; pers. observ.), the treatment followed here. In California, its known elevational range extends from 1216 m (MVZ 71684: 1.6 km west of Big Pine, Inyo County) to 1503 m (CAS-SU 15230-15232: Pictograph Springs in Rattlesnake Creek above Big Sage Reservoir, Modoc County). Frogs in the vicinity of Lake Tahoe have been treated as native (Stebbins 1966, 1985), but historical evidence indicates that at least some of these are introduced populations (Bryant 1917, Storer 1925, Jennings 1984a). Leopard frogs that represent this taxon have been introduced at various sites elsewhere within the state (Storer 1925, Bury and Luckenbach 1976, Stebbins 1985), but no evidence exists that any of these introductions have resulted in large naturalized populations that continue to exist today (G. Hansen, and Jay Wright, pers. comm.; pers. observ.). The leopard frog historically present in the lower Colorado River, once labelled *R. pipiens* (Storer 1925, Ruibal 1959), is actually *R. yavapaiensis* (Platz and Frost 1984, Clarkson and Rorabaugh 1989).

Life History: No data are available on the life history of *R. pipiens* in California (e.g., see Storer 1925). This life history summary is a composite assembled from studies conducted at broadly scattered localities throughout the geographic range of *R. pipiens* outside California. Caution should be used to interpret the degree to which these studies reflect the behavior of *R. pipiens* that still occur in California. *Rana pipiens* emerges from underwater overwintering sites that consist of small pits the frogs apparently excavate in the bottom mud (Emery et al. 1972). Breeding seems to be initiated in spring when the

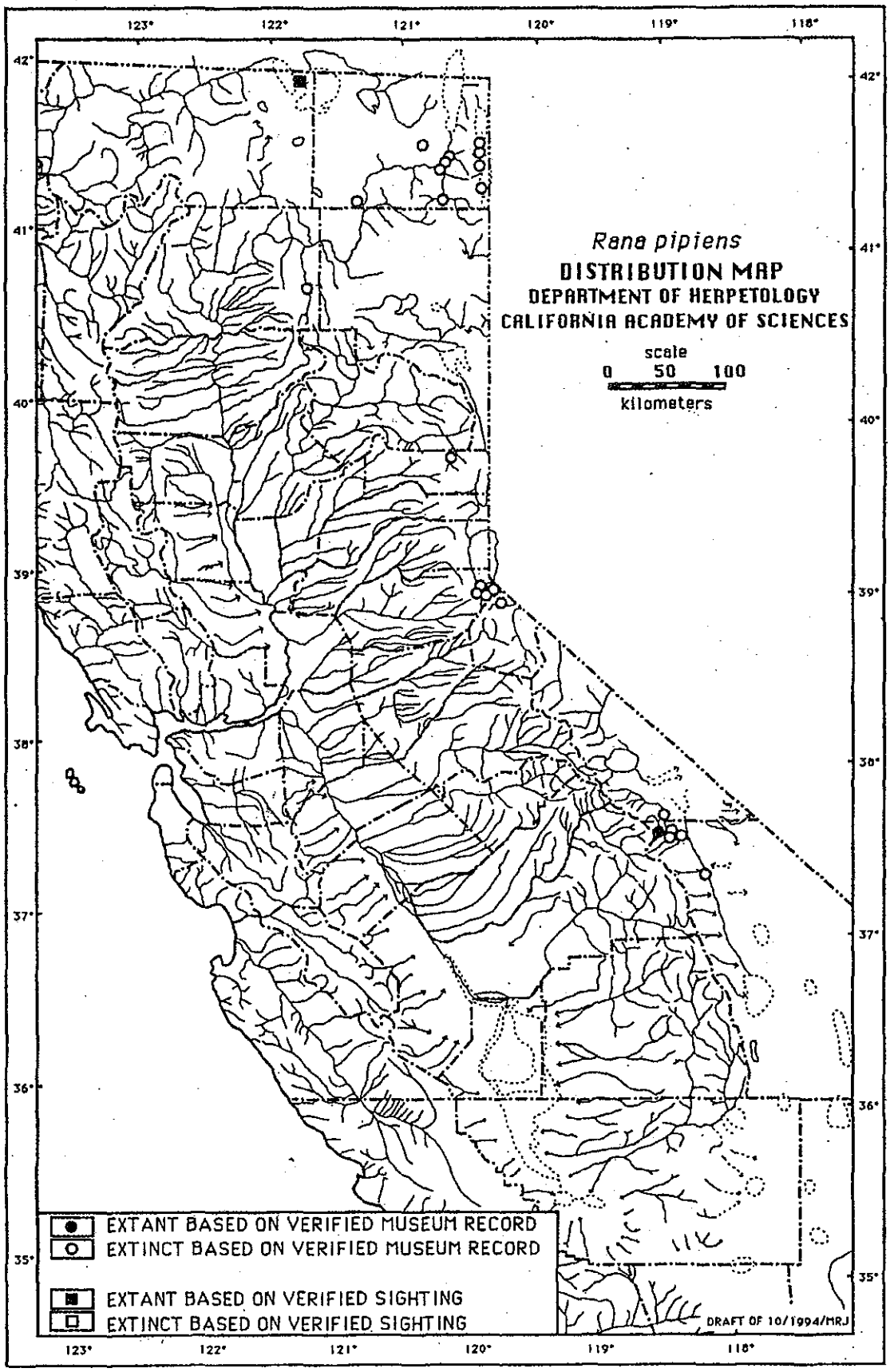

Figure 22. Historic and current distribution of presumed native populations of the northern leopard frog (*Rana pipiens*) in central and northern California based on 43 locations from 267 museum records and 2 records from other sources. Museum records based on known introductions are not plotted.

probability of minimum temperatures attaining the level of a hard freeze becomes very low (see Corn and Livo 1989). Males appear at breeding sites prior to females (Merrell 1977). When females begin to appear, males achieve an axillary (pectoral) amplexus (Noble and Aronson 1942), and females move to the site of egg deposition. Embryos hatch in 8-15 days (Hupf 1977) and larvae require 3-6 months before metamorphosing (Merrell 1977). Newly metamorphosed leopard frogs can move from natal ponds significant distances (800 m in 2-3 days; Dole 1971). Subadult frogs show a consistently higher degree of movement than adults (Dole 1965b, 1971). Males can mature at 1 year of age, but most probably become mature at 2, whereas females mature at 2 or 3 years of age (Rittschof 1975, Merrell 1977, Hine et al. 1981). Some indication exists that frogs at higher latitudes require longer to mature. Adults show a high degree of site fidelity, both intra- and inter-seasonally, although they will move under conditions that adversely modify their local habitat (e.g., lack of precipitation; Dole 1965a, 1965b). Adults frequently return to small pockets (called forms) at the base of dense graminoid or forb vegetation that has been molded into a resting location where frogs sit (Dole 1965a). Frogs may establish their adult home range as far as 5 km from their natal ponds (Dole 1971). Home ranges of adults may vary from < 20 m^2 to > 600 m^2 depending on local variation in habitat (Dole 1965b). Maximum longevity is unknown, but adults probably live 4-5 years (Rittschof 1975, Merrell 1977). Leopard frogs consume largely arthropods, with larger individuals capturing a higher frequency of larger, more mobile prey species (Linzey 1967).

Habitat: Leopard frogs require an aquatic habitat in which to overwinter (Emery et al. 1972) and lay eggs (Corn and Livo 1989). Emergent or submergent vegetation may be necessary both for oviposition and refuge during the breeding interval, but the degree to which leopard frogs require vegetation in the aquatic habitat where they deposit eggs has not been quantified nor experimentally evaluated. A dense, relatively tall, grass- or forb-dominated habitat with a moist substrate for foraging during the active season must occur in the vicinity of the aquatic habitat used for oviposition and overwintering (Dole 1965a, 1965b; Rittschof 1975; Merrell, 1977). A moist substrate is an essential aspect of *R. pipiens* habitat since they are relatively susceptible to water loss (Thorson 1955, 1956; Dole 1967; Gillis 1979). The degree to which the two required habitats must be juxtaposed to support a leopard frog population is poorly understood. Similarly, no understanding exists of the size of dense grass or forb habitat patches needed to sustain a leopard frog population (probably variable with habitat; see Dole 1965b) or inter-patch distances that will prevent recolonization of patches having sustained local extirpation.

Status: Endangered; no individuals of this taxon were encountered during our field surveys in California, and we know of only two recent sight records of this taxon from this region. A single adult leopard frog was observed beneath the outfall pipe moving water from the Lost River to the upper sump at the Tule Lake National Wildlife Refuge (Siskiyou County) during the summer of 1990 (R. Grove, pers. comm.), and 8-10 juveniles were observed in a marsh near Pine Creek, about 16 km northwest of Bishop (Inyo County), during the fall of 1994 (J. Brode, pers. comm.). Most of the habitat in the Pit River-Modoc Plateau area and the Owens Valley where this species occurred historically has been severely altered largely because of agricultural grazing practices. The dense tall-grass thickets and shelves bordering riparian zones that are essential habitat for this species are either no longer present or so fragmented that the habitat can no longer support populations of this taxon. Moreover, bullfrogs have become well-established along the riparian corridors where *R. pipiens* was historically present. Although the interaction between these two taxa is poorly understood, bullfrogs may have a negative effect on leopard frogs. Other members of the introduced predatory aquatic fauna that have been established alongside bullfrogs (e.g., red swamp crayfish, various exotic fishes) are likely to have negatively affected this species. Outside California, populations of *R. pipiens* from various

areas have been identified as being at risk. In the early 1970s widespread declines in the northern United States were attributed to overharvesting (Johnson 1975) coupled with other still unexplained factors (Hine et al. 1981). High elevation populations of this taxon in Colorado appear to be going extinct (Corn and Fogelman 1984). Like *Bufo canorus, Rana cascadae,* and *R. muscosa,* non-acidification atmospheric effects need investigation as a major cause for these declines.

Management Recommendations: Comprehensive surveys to determine the current distribution and status of *R. pipiens* in California are needed. We did not examine many aquatic habitats in the Siskiyou-Modoc-Lassen region that have some probability of harboring this species. Urgency is needed in addressing this taxon because four sequential years of drought in California (1986-1990) have exacerbated the already severe damage caused by grazing to potential *R. pipiens* habitat in this region. Special efforts should be made to implement programs that protect habitat for this species were populations of *R. pipiens* are detected. Particular attention should be paid to protecting juxtaposed grassy shelves and aquatic oviposition and overwintering habitat. Management should attempt to isolate this taxon from the introduced aquatic fauna; in particular, introduction of members of that fauna should be avoided. If significant populations of *R. pipiens* are found in California, some effort should be put into a local life history study to determine whether California leopard frogs behave in a manner consistent with what is known over the rest of their geographic range. Other studies should place some emphasis on assessing the patch sizes of habitat needed to sustain local populations long-term and evaluating the factors influencing recolonization potential when a local population become extinct.

SPOTTED FROG
Rana pretiosa Baird and Girard 1853

Description: A moderate-sized (60-110 mm SUL) brown frog with prominent dorsolateral folds and a highly variable pattern of dark spots ranging from large, "runny" ragged spots reminiscent of ink absorbed by a blotter, to diffuse-edged spots often with light centers (Dunlap 1955, Dumas 1966; pers. observ.). Undersurfaces are washed with reddish-orange, orange, or yellow in a manner that seems painted on (Dunlap 1955, Turner 1959a). Lower legs are relatively short (Dunlap 1955). The iris is brown with gold iridophores that are especially concentrated in the upper portions of the iris (pers. observ.).

Taxonomic Remarks: *Rana pretiosa* has been recognized as a distinctive taxon since the work of Dunlap (1955), but it is clearly a morphologically highly variable taxon with a broad geographic range that has made allocation of some populations difficult (Dunlap 1977). Allozyme data on *R. pretiosa* based on small samples from four populations in Idaho (Green 1986b), two populations in Montana (Case 1976, 1978b), and three populations in Oregon (Green 1986b), suggest considerable genetic variation. Current work now underway strongly suggests that at least three morphologically or genetically differentiated taxa are presently contained within *R. pretiosa* (D. Green, pers. comm.). Moreover, it has been recognized for some time that the variation in bright color pigments that different populations of *R. pretiosa* exhibit on their undersurfaces are geographically segregated (Nussbaum et al. 1983).

Distribution: As currently understood, this taxon is one of the most widely distributed frogs in the western United States. It ranges from southeastern Alaska westward to British Columbia and Alberta, Canada, southward to Montana, Wyoming, and Utah, and westward into Nevada, California, and Oregon (Turner and Dumas 1972). Its known elevational range extends from sea level to ca. 3050 m in western Wyoming (Stebbins 1985). In California, *R. pretiosa* is known from only 7 records (representing 5 localities) in Siskiyou and Modoc counties in the northeastern portion of the state (Figure 23). Its known elevational range in California extends from ca. 1000 m (Fall River Mills, Shasta County: USNM 38806) to ca. 1450 m (Pine Creek near New Pine Creek (town), Modoc County; J. Brode, pers. comm.).

Life History: No ecological or life history data exist for *R. pretiosa* from California. The life history summary presented here is a composite from studies conducted largely in British Columbia, Canada (Licht 1969b, 1971, 1974, 1986a, 1986b); Utah (Morris and Tanner 1969); and Wyoming (Turner 1958, 1959b, 1960). Caution should be used to interpret the degree to which these studies reflect the behavior of *R. pretiosa* in California, especially in view of the fact that this taxon may soon be partitioned (D. Green, pers. comm.). Whatever partitioning occurs, we anticipate that California populations will be ecologically and morphologically most similar to the *R. pretiosa* studied by Licht (1969b, 1971, 1974, 1986a, 1986b) along the Little Campbell River in British Columbia.

In southwestern British Columbia, *R. pretiosa* emerges from unspecified, but probably aquatic overwintering sites when air temperatures have attained at least 5.0°C; the first individuals appearing from late February to early March (from Licht 1969b). Males appear at breeding sites before females and form small aggregations in shallow-water areas that have emergent vegetation. The first females that appear are amplexed by males and they lay their eggs in shallow water that has reached at least 5°C in a manner that when the jelly becomes swollen, a significant portion of the eggs mass (often over half) is exposed to the air (Licht 1969b, 1971). Subsequent females oviposit on or immediately adjacent to the first egg mass laid, suggesting that they have to cue on the presence of an egg mass to deposit their own eggs (Licht 1969b). Egg masses of *R. pretiosa* contain a complement of

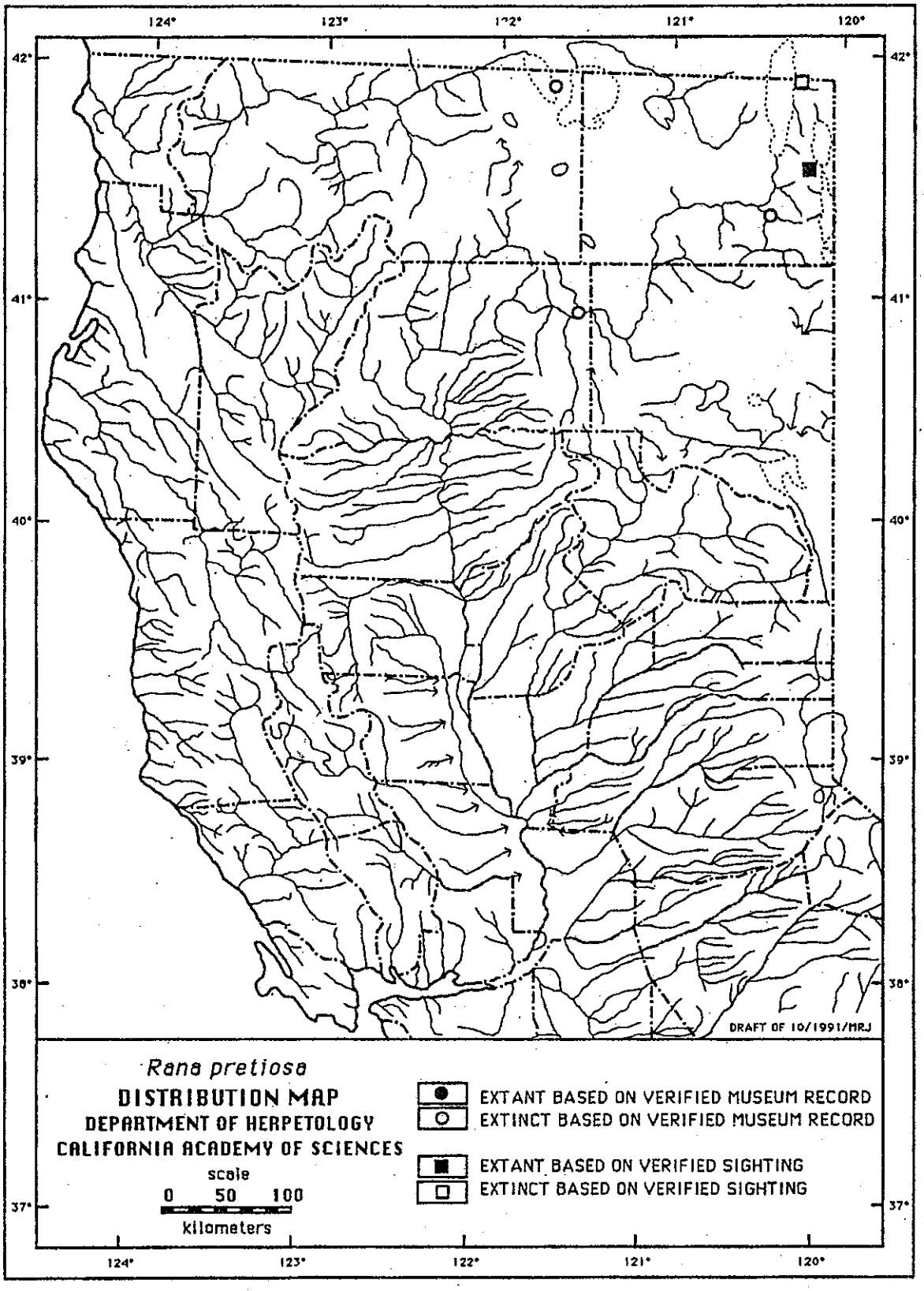

Figure 23. Historic and current distribution of the spotted frog (*Rana pretiosa*) in northern California based on 5 locations from 5 museum records and 2 records from other sources.

250-900+ moderate-sized (2.3 mm average diameter) eggs (Licht 1974). The thermal tolerance of *R. pretiosa* embryos ranges between 6°C and 28°C (Licht 1971). The pattern of oviposition often results in relatively high pre-hatching mortality (ca. ≥ 30%), largely because exposed embryos are susceptible to desiccation or freezing (Licht 1974). Larval mortality is greater and typically results in < 1% survival of eggs laid in any one season. Larvae require around 4 months to attain metamorphosis (Licht 1974). In British Columbia, *R. pretiosa* were sexually mature the third year after metamorphosis, but the time required to reach sexual maturity increases with altitude (see Turner 1960) and probably latitude, so *R. pretiosa* may mature at a younger age. In Wyoming, *R. pretiosa* were estimated to live in excess of 10 years (Turner 1960), but this pattern of longevity is probably related to the slow growth rates these frogs experience; populations at lower elevations or somewhat warmer clines may not live as long. Adult males have a somewhat lower survivorship than adult females, probably because of their increased exposure to predators during the breeding interval (Turner 1960, Licht 1974). Spotted frogs can engage in significant seasonal movements, primarily associated with movements between hibernacula and breeding sites in springs or movements out of drying aquatic habitats in late summer (Turner 1960); the magnitude of such movements is probably largely dependent on the local variation in habitat structure. Leeches *(Batrachobdella picta)* are significant predators on *R. pretiosa* eggs (Licht 1969b), and common garter snakes and great blue herons *(Ardea herodias)* are significant predators on tadpoles and postmetamorphs (Licht 1974). Postmetamorphic *R. pretiosa* nearly always escape predation by diving and submerging in the nearest water, from which they seldom leave (Licht 1986b). Postmetamorphic *R. pretiosa* are largely insectivorous, although larger frogs do eat smaller vertebrates (e.g., Pacific treefrogs, *Pseudacris regilla;* and juvenile northern red-legged frogs; Licht 1986a).

Habitat: The habitat requirements of *R. pretiosa* are poorly understood. Spotted frogs require shallow-water oviposition sites that may be in permanent or temporary water (Licht 1969b, 1971). If in temporary water, permanent water must occur in the vicinity for postmetamorphs, to survive. Historically, many oviposition sites were probably in overflow areas of large (≥ third order) streams flooded by high water during winter or spring months. Current indications that *R. pretiosa* typically uses temporary water for breeding may simply be an indication that most permanent sites are unsuitable because of introduced exotic aquatic predators not tolerated by the larval stages of *R. pretiosa* (see Hayes and Jennings 1986). Oviposition habitat is open (Licht 1971) and probably cannot be shaded because of the thermal requirements of the embryonic stages. Low emergent vegetation is probably also an important component of *R. pretiosa* habitat that is a significant element of the refuge habitat of postmetamorph juveniles and adult males (Licht 1969b; pers. observ.). Spotted frogs probably also require permanent water in which to overwinter, but the microhabitat characteristics of their overwintering site are unknown.

Status: Endangered; we found no individuals of this taxon during a concerted field effort on the Modoc Plateau, Pit River drainage, and in the Warner Mountains at sites where this taxon was historically present, and we know of only one recent sight record of this taxon in California. A single subadult frog was found beneath a woodpile at the Modoc National Forest Fire Station in Cedarville, Modoc County, on 24 September 1989 (G. Martinsen, pers. comm.). Virtually all frogs we encountered in museum collections allocated to this taxon from California are actually *R. cascadae.* The frogs found in California may be most closely related to the red- or orange-ventered *R. preriosa* populations in western Oregon and Washington. If this is the case, then the situation with *R. pretiosa* in California would be even more urgent because it may represent a species with an even more restricted range. Furthermore, accumulating evidence indicates that populations most likely related to those in California (e.g., western Oregon and Washington) have been largely extirpated over the past 50 years (McAllister and Leonard 1990, 1991; McAllister et al. 1993; unpubl. data).

Management Recommendations: Proper systematic characterization of *R. pretiosa* throughout its geographic range to determine what taxa may be represented in California is a top priority. Thorough field surveys for *R. pretiosa* are equally important. This taxon is most likely to exist in California in situations that are highly isolated from the widely distributed exotic predatory aquatic fauna and that have been least mechanically altered due to livestock grazing. Where populations of this taxon are identified, management should attempt to keep these populations isolated from exotic aquatic predators. Grazing should be excluded from such sites, but where this is impossible, levels of grazing should be managed to keep mechanical alteration of *R. pretiosa* habitat at an absolute minimum. If systematic studies identify more than one taxon within *R. pretiosa*, existing ecological studies will have to be linked to the proper taxon and studies will be needed to fill gaps in knowledge, especially those that characterize the difference in habitat utilization patterns between different taxa. Studies of the movement ecology and the ability of *R. pretiosa* or its contained taxa to recolonize are especially needed to establish better management guidelines.

Plate 6. Adult spotted frog (*Rana pretiosa*) [from Stebbins 1954b].

LOWLAND LEOPARD FROG
Rana yavapaiensis Platz and Frost 1984

Description: A moderate-sized (46-87 mm SUL) frog with prominent, light dorsolateral folds that are interrupted on the lower back and inset medially in the sacral region (Platz 1988). Background dorsal color is variable, but usually light gray-green to gray-brown, a low percentage of individuals are green; dorsal spots are irregularly elliptical, dark brown or black each surrounded by a narrow, light-colored halo; lemon yellow is present in the axillary region, the groin, and the posterior venter; remaining undersurfaces are cream to dirty white, sometimes with darker markings on the throat (Platz 1976; Platz and Frost 1984; M. Sredl, pers. comm.; pers. observ.). The iris is dark brown with some gold iridophores on the upper and lower portions of the iris (pers. observ.).

Taxonomic Remarks: This species is a genetically (Platz 1976, Hillis et al. 1983) and morphologically (Platz and Frost 1984) distinct member of the *Rana pipiens* complex that is most closely related to the Mexican species *Rana magnaocularis* (Hillis et al. 1983). Although this form has been recognized as distinct for over 15 years (Platz 1976), Platz and Frost (1984) did not formally describe it until 1984. The omission of *R. yavapaiensis* from Collins (1990) is apparently an oversight as this frog is a valid taxon (Frost 1985, Platz 1988).

Distribution: Historically, *R. yavapaiensis* was discontinuously distributed northward to Overton (Clark County), Nevada, and near St. George (Washington County), Utah; westward to San Felipe Creek (Imperial County), California; eastward to extreme western New Mexico; and southward into Sonora, Mexico (Platz and Frost 1984, Platz 1988). Its distributional range extended from near sea level to 1700 m (Platz 1988). In California, the known range extends discontinuously from San Felipe Creek near its junction with Carrizo Creek eastward through the Imperial Valley to the entire lower Colorado River (Jennings and Hayes 1994; Figure 24).

Life History: The life history of the lowland leopard frog is not well understood. In San Felipe Creek, Ruibal (1959) observed the initiation of breeding during the first 2 weeks of January in each of 3 years (1957-1959), and breeding adults were collected during 26-27 December 1938 (MVZ 27893-27897). Storer (1925) found an egg mass presumed to be that of this taxon in a pool 3.2 km east of Dixieland (Imperial County) on 28 March 1923. Oviposition is recorded for March-April and October in Maricopa and Yavapai counties, Arizona, suggesting that two breeding episodes are possible annually (Platz and Platz 1973, Collins and Lewis 1979, Frost and Platz 1983) and that cooler water temperatures may be necessary for reproduction. Salinities $\geq$ 5‰ are lethal to developing eggs, and those $\geq$13‰ are lethal to adults (Ruibal 1959), both of which are conditions likely to restrict the availability of sites where *R. yavapaiensis* can exist within its range in California; salinities in several of the few, widely scattered aquatic habitats in southeastern California are known to exceed these lethal limits seasonally. Larvae of this species can overwinter, and most individuals that overwinter are thought to result from fall breeding episodes (Collins and Lewis 1979). Other data on the development, growth, and phenology of the lowland leopard frog are currently lacking, but several individuals in Arizona are currently studying the ecology of this taxon (M. Sredl, pers. comm.).

Habitat: A detailed understanding of the habitat requirements of *R. yavapaiensis* is lacking, but this species apparently inhabited slackwater aquatic habitats dominated by bulrushes, cattails, and riparian grasses near or under an overstory of Fremont's cottonwoods and willows (Storer 1925, Stebbins 1951, Glaser 1970, Jennings and Hayes 1994; see also Lowe 1985, Jones 1988a [as *R. pipiens*]). Lowland leopard frogs were

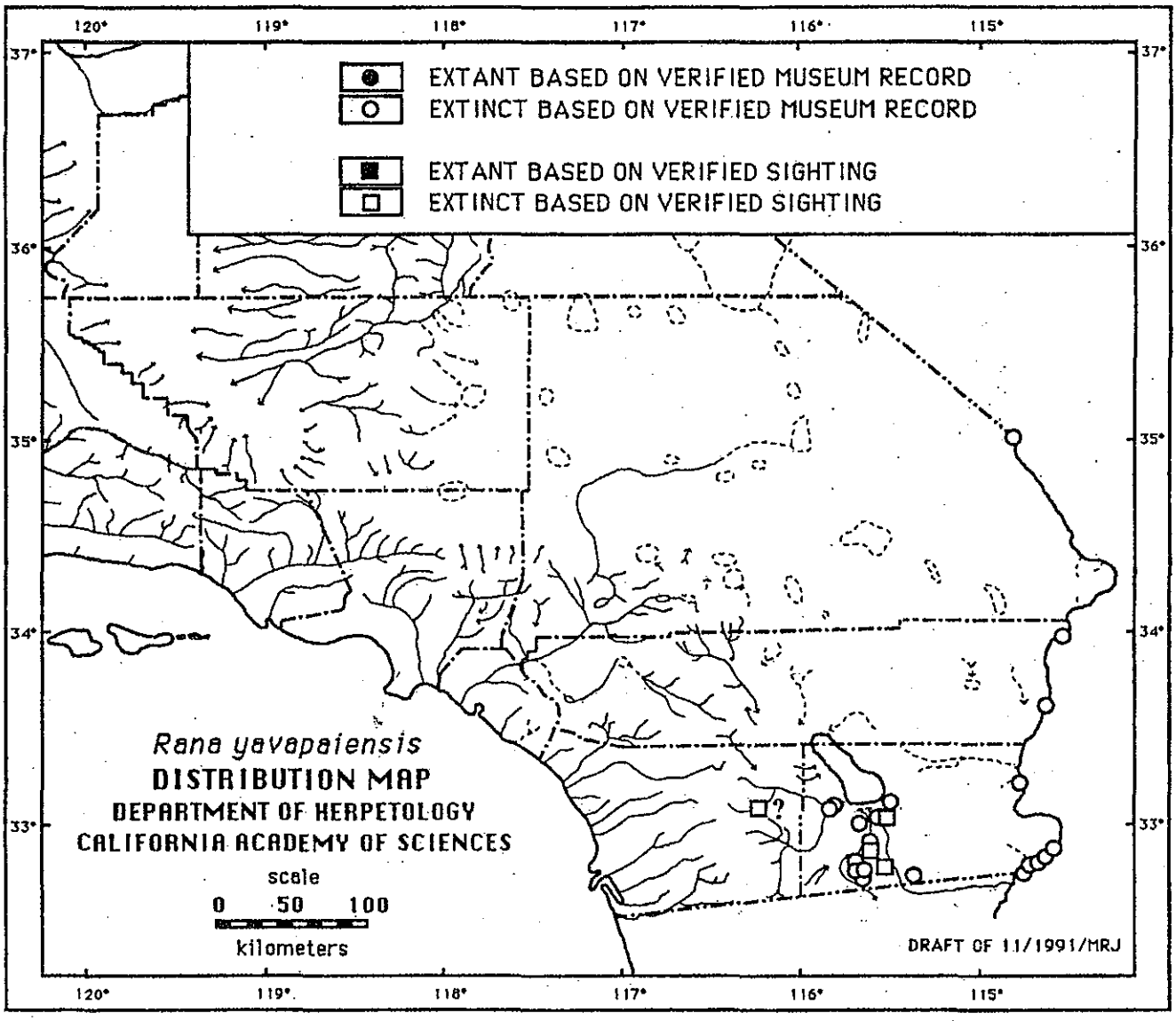

Figure 24. Historic distribution of the lowland leopard frog (*Rana yavapaiensis*) in southern California based on 28 locations from 116 museum records and 5 records from other sources.

also seen in canals, roadside ditches, and ponds in the Imperial Valley during the first quarter of this century (Storer 1925, Klauber 1934), but the context of its occurrence in those areas is not well understood because that era was a period of extensive habitat alteration. Lowland leopard frogs may have simply been transitory in those areas.

Status: Endangered; *Rana yavapaiensis* has been considered at risk in California for some time. Concern over this species was expressed nearly 20 years ago in a 7 February 1972 letter from Rudolfo Ruibal to Leonard Fisk (CDFG files), which indicated that this species was rare in California and should be protected. The habitat of the site at which Ruibal studied *Rana yavapaiensis* in the 1950s has been altered in a manner that makes it unsuitable for this species (B. McGurty, pers. comm.; see also Black 1980). Although this species has a reasonably broad range outside of California, scattered data indicate that this species has disappeared from > 50% of its historic range and is imperilled elsewhere, largely because of habitat changes associated with agriculture, livestock grazing, development, reservoir construction, and the introduction of exotic predatory fishes, crayfishes, and frogs (Clarkson and Rorabaugh 1989; M. Sredl, pers. comm.). In California, the most recent records of this species are from an irrigation ditch east of Calexico on 12-13 April 1965 (SSU 519-520). More recent surveys have failed to reveal this species in California (Vitt and Ohmart 1978, Clarkson and Rorabaugh 1989, Jennings and Hayes 1994), although an unverified sighting of a "leopard frog" exists from Sentenac Ciénega in May of 1988 (C. Fagan, pers. comm.). All post-1980 leopard frog records in the lower Colorado River have turned out to be the Rio Grande leopard frog *(Rana berlandieri),* which has recently established itself in the Imperial and lower Colorado River valleys (Platz et al. 1990, Jennings and Hayes 1994); although leopard frogs of uncertain taxonomic status at an isolated series of springs in extreme southern Nevada (near Lake Mead along the Colorado River) are currently under study (R. Jennings and D. Bradford, pers. comm.). *Rana yavapaiensis* is still present at at least two locations close to the Colorado River in Arizona (Clarkson and Rorabaugh 1989).

Management Recommendations: Although *R. yavapaiensis* has not been recorded from California since 1965, surveys conducted that had some possibility of detecting it were either of a general nature (the survey was not exclusively focused on lowland leopard frogs) or limited in their scope, so we cannot dismiss it as extinct within the state (e.g., see Scott and Jennings 1989). Intensive surveys repeated over several years at localities known to have historically harbored this species as well as other localities with potential habitat are needed to really ascertain its current status in California. If any populations are found, management efforts will have to emphasize maintenance of the quality and quantity of aquatic habitat where frogs occur and promote isolation from the exotic aquatic fauna now widespread in the region of the lower Colorado River (see Ohmart et al. 1988). The continued spread of introduced *R. berlandieri* populations within the historic range of *R. yavapaiensis* also needs to be documented and monitored.

COUCH'S SPADEFOOT
Scaphiopus couchii Baird 1854

Description: A moderate-sized (45.0-82.0 mm SUL), highly variably colored toad with a distinctive, black, cornified, teardrop-shaped spade on each hindfoot (Stebbins 1985). The dorsal color pattern is highly variable; it may be a reticulated (green with black markings), mottled (black, green and yellow, or brown), or solid green pattern with black flecks (Wasserman 1970), often overlain with distinctive cream-colored, hourglass-shaped spots (pers. observ.). Hindlimbs are short, and undersurfaces are cream to dirty white. Constricted pupils have a vertical, fusiform shape and the iris is brown and liberally marked with gold iridophores (pers. observ.).

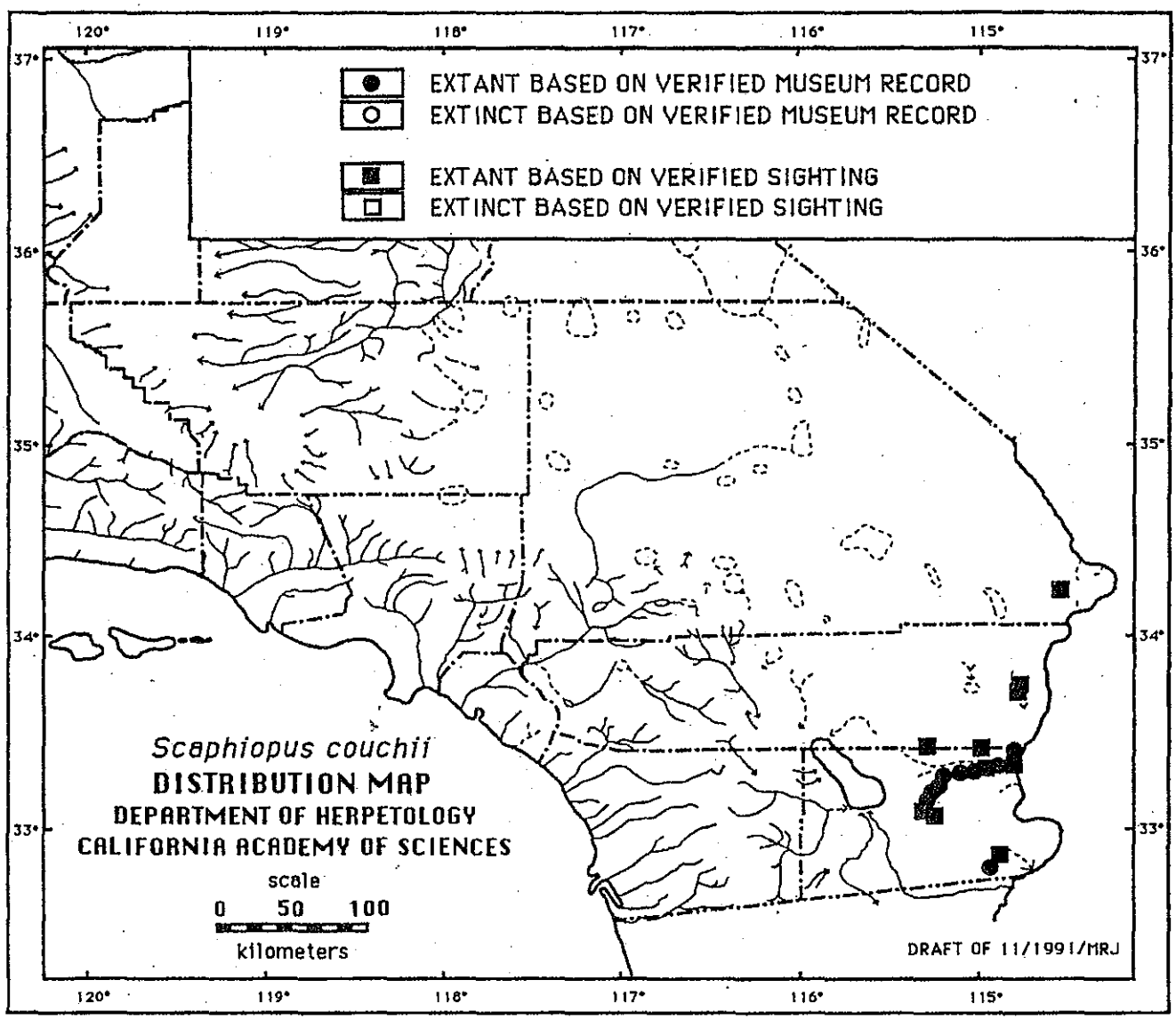

Figure 25. Historic and current distribution of Couch's spadefoot (*Scaphiopus couchii*) in southern California based on 30 locations from 24 museum records and 23 records from other sources.

Taxonomic Remarks: *Scaphiopus couchii* has been considered a distinct species since its description (Baird 1854), and has rarely been confused with other spadefoots. However, it is a wide-ranging, morphologically variable species, and no attempt has been made to identify potentially significant morphological or genetic variation across its geographic range.

Distribution: Couch's spadefoot has a broad geographic range that extends from extreme southeastern California eastward through Arizona, New Mexico, Texas, and Oklahoma, and southward into San Luis Potosí, Nayarit, and the southern tip of Baja California, Mexico (Wasserman 1970, Stebbins 1985). An isolated population cluster occurs in the vicinity of Petrified Forest National Monument, southeast of La Junta, Otero County, Colorado (Hammerson 1982). Its known elevational range extends from near sea level to ca. 1710 m (Stebbins 1985). In California, it is known only from the western side of the Colorado River from Chemehuevi Wash (ca. 9.32 km north of Vidal Junction), San Bernardino County, southward to the vicinity of Ogilby, Imperial County (Mayhew 1962, Tinkham 1962; Figure 25). In California, its known elevation range extends from ca. 210 m (near Palo Verde, Imperial County; pers. observ.) to 335 m (at Imperial Gables, Imperial County: Dimmitt 1977).

Life History: Couch's spadefoot is almost completely terrestrial, entering water only to reproduce (Bentley 1966, Mayhew 1968). A significant portion of current knowledge about the life history of *S. couchii* is based on studies done on Arizona populations. Couch's spadefoots remain dormant for 8-10 months in soil-filled "winter" burrows 20-90 cm deep (Shoemaker et al. 1969, Dimmitt 1975, Dimmitt and Ruibal 1980a). Surface activity is restricted to short periods following warm summer rains, during which Couch's spadefoot may appear suddenly in large numbers (Dimmitt and Ruibal 1980a). Low frequency sound (probably < 100 Hz) caused by falling rain, rather than rain *per se,* has been identified as the primary cue that *S. couchii* use to emerge, although low soil temperatures (≤ 15°C) appear to inhibit emergence notwithstanding a sound cue. Emergence coincides with the initiation of warm, late summer rains; the typical climatic pattern encountered throughout the range of *S. couchii,* but found in California only along the Colorado River. Woodward (1982) found that mating occurs only on the first night following the formation of temporary ponds. Females deposit 300-700 eggs which are attached in small clumps to vegetation or other solid objects (Stebbins 1954b). Couch's spadefoot is well-suited to breeding in the relatively warm, short-lived rainpools that form as a result of these summer rains. Early cleavage embryos have a higher lethal thermal minimum (ca. 15°C) and maximum (34°C) than most anurans known (Hubbs and Armstrong 1961, Ballinger and McKinney 1966, Zweifel 1968), and by Gosner (1960) stage 12, embryos tolerate even higher temperatures (lethal maximum temperature ca. 40°C) until they hatch (Zweifel 1977). Couch's spadefoot displays one of the most rapid rates of development known; at water temperatures > 30°C, it can hatch in considerably less than 1 day (Zweifel 1968) and can attain metamorphosis in as little as 7 days (Mayhew 1965a). Larvae also display high levels of temperature tolerance (39.0-42.5°C), the variation dependent on earlier temperature exposure (Brown 1969). Larvae often maximize their growth by cannibalizing conspecifics (Mayhew 1968). Postmetamorphic growth rates and longevity are unknown, but the unpredictability of the breeding habit may select for longevity.

Scaphiopus couchii displays a suite of features that make it well suited to the lengthy periods it spends in subterranean dormancy (Bentley 1966). During dormancy, it tolerates high water losses and high body fluid solute concentrations (McClanahan 1967, 1972; see also Hillman 1976, 1980), and displays a remarkably low level of oxygen consumption (Seymour 1973). Moreover, S. *couchii* displays a remarkable feeding ability; it can consume up to 55% of its body weight at one feeding (Dimmitt and Ruibal 1980b).

Coupled with a high assimilation efficiency (Dimmitt and Ruibal 1980b), this feeding ability allows it to potentially consume in one night the energy reserves for more than 1 year. Alate termites which constitute the major portion of the diet of *S. couchii* (Whitaker et al. 1977), emerge with the same summer rains that elicit emergence in *S. couchii* (Dimmitt and Ruibal 1980b). Alate termites have the highest lipid content by live weight of > 200 insect species reported in the literature (Past 1964, Basalingappa 1970), and they are more digestible (less sclerotized) than most insects, so they probably represent a significant proportion of the energy intake of *S. couchii.* The movement ecology and potential for colonization of *S. couchii* is unknown.

Habitat: Couch's spadefoot requires temporary desert rainpools with water temperatures ≥ 15°C (Zweifel 1968) in which to breed that last at least 7 days in order to metamorphose successfully (Mayhew 1965a). Subterranean refuge sites (with a loose-enough substrate to permit burial) must occur in the vicinity of rainpool depressions where reproduction takes place. An insect food base that probably includes alate termites must be available, which implies that minimal primary production must be available to sustain this food base.

Status: Special Concern; *S. couchii* has a very small range in California and seems to be declining in other states where it is found (J. Platz, pers. comm.). In fact, ponds created by road maintenance along Hwy 78 in eastern Imperial County have actually created breeding habitat for this toad (Dimmitt 1977). Its apparent tolerance for agricultural habitat modification appears to have allowed it to persist throughout most of its historical range in California. Despite an ability to tolerate certain types of disturbance, its subterranean refuge sites may be susceptible to disturbance from off-road vehicles that create noise similar to rainfall, inducing emergence under highly unfavorable (hot, dry) conditions that would be almost certainly fatal to adults (Brattstrom and Bondello 1979). The breeding sites of this species are potentially vulnerable to disturbance that alters the percolation characteristics of the substrate in a manner that makes pools too short-lived for larvae to attain metamorphosis.

Management Recommendations: Better morphological and genetic characterization of *S. couchii* is needed to determine whether more than one taxon is represented by this species, as well as identifying which taxon may be represented in California. While the energetics of *S. couchii* are reasonably well known, it is not clear at what level trends toward increasing xerification may ultimately affect this species. In particular, it is thought that *S. couchii* may be able to accumulate enough reserves to survive two rainless summers, but how frequently this may occur or how much more depletion of its energy reserves *S. couchii* may be able to tolerate is unknown. Such data and that on its movement ecology and colonization abilities are especially needed to formulate sound management guidelines. Rigorous field testing of the noise effects of off-road vehicles is needed to assess the potential importance of this impact. *Scaphiopus couchii* utilizes a significant number of pools that were created as the result of highway or railroad construction, but many of these pools are subject to washing out, getting leaky because of disturbance of the underlying substrate, or being eliminated by culverts (S. Morey, pers. comm.). Data on the contribution of these artificial pools when compared to natural pools of various sizes (such as at the base of the Algodones Dunes) is significant for the long-term management of this species. The substrate characteristics of pools suitable for this species, particularly with regard to percolation, need study.

WESTERN SPADEFOOT
Scaphiopus hammondii Baird 1859

Description: A moderate-sized (37.0-62.0 mm SUL) greenish, grayish, or brownish toad irregularly marked with dark orange- or reddish-tipped tubercles; having faint hourglass markings on the back consisting of four irregular, light-colored stripes; and possessing a distinctive, black, cornified, teardrop-shaped spade on each hindfoot (Storer 1925, Stebbins 1985). Hindlimbs are short, and undersurfaces are cream to dirty white. Constricted pupils have a vertical, fusiform shape, and the iris is pale gold because of a prominent reticulum of gold iridophores on a brown ground color (pers. observ.).

Taxonomic Remarks: For many years, *Scaphiopus hammondii* were regarded as having a broad geographic range from California to western Texas and Oklahoma with a hiatus across the Colorado River (Storer 1925; Stebbins 1951, 1966). However, Brown (1976) identified morphological, vocalization, and reproductive differences between eastern (Arizona eastward) and western (California) populations, justifying species recognition for each. Since the work of Brown (1976), the name *S. hammondii* has been applied exclusively to California populations. Genetic variation across the range of *S. hammondii* has not been studied.

Distribution: This near endemic to California ranges from the vicinity of Redding, Shasta County, southward into northwestern Baja California, Mexico (Stebbins 1985). Its known elevational range extends from near sea level to 1363 m (Zeiner et al. 1988). In California, the known range of *S. hammondii* is entirely west of the Sierran-desert range axis (Myers 1944; Figure 26).

Life History: *Scaphiopus hammondii* is almost completely terrestrial, entering water only to breed (see Dimmitt and Ruibal 1980a). Western spadefoots become surface active following relatively warm (≥ 10.0-12.8°C) rains in late winter-spring and fall, emerging from burrows in loose soil to a depth of at least 1 m (Stebbins 1972; A. McCready, pers. comm.), but surface activity may occur in any month between October and April if enough rain has fallen (Morey and Guinn 1992; S. Morey, pers. comm.). Amount of rain may be a better predictor of surface activity than temperature (S. Morey, pers. comm.), but the cue or combination of cues that induces emergence in *S. hammondii* remains poorly understood. Western spadefoots can form large (> 1000 individuals), highly vocal, breeding aggregations (pers. observ.), although choruses are often much smaller (A. McCready, pers. comm.). Females deposit eggs in irregular small cylindrical clusters of 10-42 attached to plant stems or pieces of detritus in temporary rain pools, or sometimes pools in ephemeral streamcourses (Storer 1925; Stebbins 1985; pers. observ.). The critical thermal minimum of early embryos is 9°C (Brown 1967), so oviposition does not occur until temperatures permit some warming of rainpools in late winter (pers. observ.). Depending on the temperature regime and annual rainfall, oviposition may occur between late February and late May (Storer 1925, Burgess 1950, Feaver 1971, Stebbins 1985).

Eggs hatch in 0.6-6 days, depending on temperature (Brown 1967), and larval development can be completed in 3-11 weeks (Burgess 1950; Feaver 1971; S. Morey and K. Baldwin, pers. comm.), the variation depending on food resources and temperature. No data are available to indicate how long *S. hammondii* needs to reach sexual maturity, but considering the relatively long period of subterranean dormancy (8-9 months; pers. observ.), individuals probably require at least 2 years to mature. Adults have a moderate stomach capacity (they can eat roughly 11% of their body mass at a single feeding; Dimmitt and Ruibal 1980b) and can probably acquire enough energy to survive the long annual dormancy interval in a few weeks. Known food items taken include crickets (Gryllacrididae), butterflies, beetles, flies, ants, and earthworms (Morey and Gullin 1992).

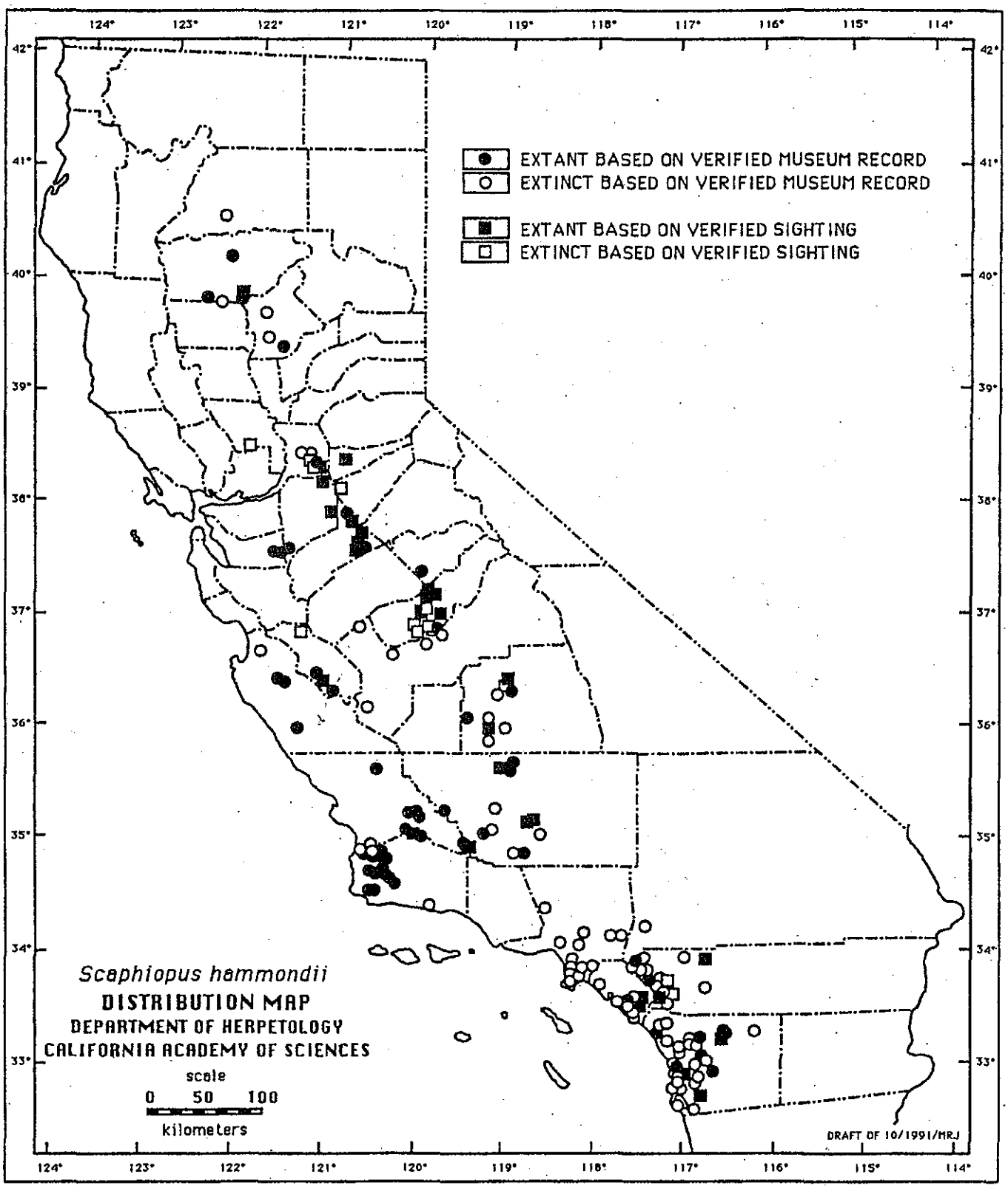

Figure 26. Historic and current distribution of the western spadefoot (*Scaphiopus hammondii*) in California based on 346 locations from 742 museum records and 90 records from other sources.

California tiger salamanders, garter snakes, great blue herons, and raccoons are probably the most important predators of larval and post-metamorphic *S. hammondii* (Childs 1953, Feaver 1971). No data are available on the movement ecology or colonization abilities of *S. hammondii.*

Habitat: Western spadefoots require temporary rainpools with water temperatures of ≥ 9°C and < 30°C (Brown 1966, 1967) in which to reproduce and that last ≥ 3 weeks (Feaver 1971) in order to metamorphose successfully. Rainpools in which western spadefoots reproduce and from which they are able to metamorphose successfully lack fishes, bullfrogs, and crayfishes; many indications exist that S. *hammondii* cannot recruit successfully in the presence of exotic predators, primarily introduced fishes, but also bullfrogs and crayfishes (K. Baldwin, S. Morey, B. Shaffer, pers. comm.; pers. observ.). Soil characteristics of burrow refuge sites that western spadefoots use have not been studied, but if they are similar to those of *S. multiplicatus,* the soil may become fairly compact and hard during the season of summer aestivation (Ruibal et al. 1969).

Status: Threatened; concern over the decline of *S. hammondii* is not new. Nearly 20 years ago, both Robert L. Livezey and Rudolfo Ruibal (in litt. 3 and 7 February 1972 to Leonard Fisk) believed that this taxon had sustained drastic reductions over the previous 15-20 years in the Central Valley and southern California. Current data indicate that in southern California (from the Santa Clara River Valley, Los Angeles and Ventura counties, southward), > 80% of habitat once known to be occupied by S. *hammondii* has been developed or converted to uses that are undoubtedly incompatible with its successful reproduction and recruitment. In northern and central California, loss of habitat has been less severe, but nevertheless significant; it is estimated that > 30% of the habitat once known to be occupied by *S. hammondii* has been developed or converted to uses incompatible with the survival of this taxon. Regions severely affected include the lower two-thirds of the Salinas River system, and much of the areas east of Sacramento, Fresno, and Bakersfield. Moreover, in many ares of the Central Valley, remaining suitable rainpool or vernal pool habitat, which is concentrated on valley terraces along the edges of the Valley Floor, has been disappearing in a fragmented fashion, which may present a significant threat to the metapopulation structure of *S. hammondii.* The continued placement of mosquitofish by mosquito abatement programs in vernal pools threatens some populations (S. Morey, pers. comm.; pers. observ.). Emigration of juvenile and adult bullfrogs into rainpool breeding sites may also pose a threat to some populations (Hayes and Warner 1985; Morey and Gullin 1992; A. McCready and S. Morey, pers. comm.).

Management Recommendations: Effort should be made to protect significant areas of rainpool habitat from alteration. Currently, rainpool habitats that harbor *S. hammondii* are protected in only a handfull of relatively small preserves, mostly under the jurisdiction of The Nature Conservancy (e.g., Santa Rosa Plateau, Riverside County; Pixley Vernal Pools Preserve, Tulare County). The biggest gap in current understanding of S. *hammondii* relates to its population structure and how habitat fragmentation may affect its likely metapopulation structure. Such an understanding is critical to determining the spatial population array that will allow *S. hammondii* to survive long-term. Much of the basic life history of *S. hammondii* remains poorly understood. In particular, variation in postmetamorphic survivorship, longevity, and movements must be understood in order to refine the direction of management. Finally, the features of suitable habitat remain poorly understood. It has often been assumed that *S. hammondii* requires loose soil for subterranean dormancy, but it has also been observed to occupy small mammal burrows (Stebbins 1951). Whether it uses the latter only as temporary refuges during its season of surface activity is unknown, but a better understanding of its pattern of utilization of subterranean refuges will allow refining of our current understanding of suitable habitat. Indications exist that western spadefoots can easily burrow into moist soils that would be

probably impossible to burrow into when they are dry (A. McCready, pers. comm.), but detailed study of the soil texture characteristics that may limit *S. hammondii* is needed for its management.

Plate 7. Adult and larval western spadefoot (*Scaphiopus hammondii*) [from Stebbins 1966].

TURTLES

WESTERN POND TURTLE
Clemmys marmorata (Baird and Girard 1852)

Description: A moderate-sized (120-210 mm CL), drab brown or khaki-colored turtle lacking prominent markings on its carapace (Holland 1991a). At close range, the carapace can frequently be observed to have a fine, vermiform reticulum of light and dark markings (pers. observ.). Males frequently develop a light, unmottled throat and lower facial area as they become sexually mature, markings that become even more prominent (contrasting) with increasing age; females typically retain the mottled or darker-colored throat and facial area juveniles possess into adulthood (Holland 1991a). The belly or plastron is variously marked with varying degrees of dark and light markings; turtles sometimes have an entirely dark or an entirely light plastron (pers. observ.). The iris is straw-colored with a brown eyestripe extending through the eye (D. Holland, pers. comm.).

Taxonomic Remarks: The western pond turtle is a distinct taxon that has not been confused with any other turtle. Seeliger (1945) described northern and southern subspecies that show some morphological differentiation and were envisioned as intergrading over a relatively broad range in central California. The pattern of geographic variation in this turtle, currently the focus of intensive study based on morphological and genetic data, suggests that more than one historical unit may be represented within its range in California (D. Holland, pers. comm.). Distribution of those units corresponds roughly to currently recognized subspecific taxa (Holland 1992).

Distribution: Historically, the western pond turtle had a relatively continuous distribution in most Pacific slope drainages from Klickitat County, Washington along the Columbia River (Slater 1962) to Arroyo Santo Domingo, northern Baja California, Mexico. Western pond turtles were also present at a cluster of nearby localities in Pierce and Thurston counties at the southern end of Puget Sound in Washington State (Slater 1939b). A single specimen reported from the Snake River above Shoshone [Falls] (Jerome County), Idaho (Slater 1962; CAS-SU 8624) is thought to be an error (D. Holland, pers. comm.; unpubl. data). Records also exist for the Carson, Humboldt, and Truckee drainages in Nevada (Cooper 1861, LaRivers 1942, Banta 1963a, Hattori 1982), but whether these records represent historical remnants, recent introductions (see LaRivers 1962, p. 20), or a combination of introductions and historical remnants is not known (D. Holland, pers. comm.). The known elevational range of the western pond turtle extends from near sea level to ca. 1430 m (Jose Basin Creek, Fresno County; D. Holland, pers. comm.). It has been recorded from somewhat higher elevations (e.g., Laurel Lake [2042 m]), but turtles are known to have been introduced at all such sites. In California, it was historically present in most Pacific slope drainages between the Oregon and Mexican borders (Figure 27). *Clemmys marmorata* is known from only two drainages on the desert slope in California: the Mojave River (San Bernardino County: Stebbins 1985) and Andreas Canyon (Riverside County; pers. observ.).

Life History: *Clemmys marmorata* is an aquatic turtle that usually leaves the aquatic site to reproduce, to aestivate, and to overwinter. Recent fieldwork has demonstrated that western pond turtles may overwinter on land or in water, or may remain active in water during the winter season; this pattern may vary considerably with latitude and habitat type, and remains poorly understood (Holland 1985a, 1991a; Rathbun et al. 1993). Western pond turtles markedly increase their level of activity when water temperatures near the surface consistently reach at least 15°C (D. Holland, pers. comm.). Thus, along the central and southern coast of California, western pond turtles may be active year-round (Holland

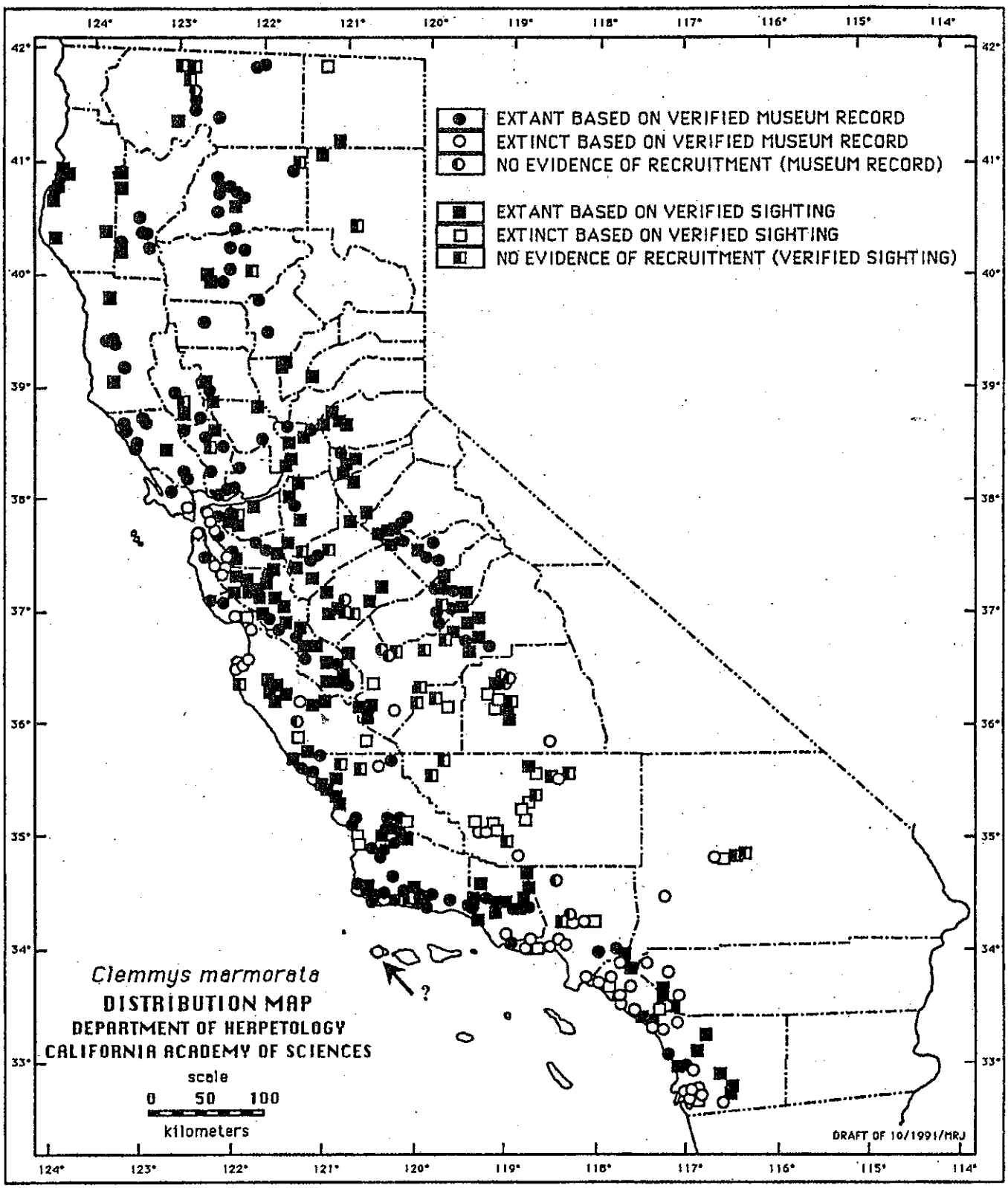

Figure 27. Historic and current distribution of the western pond turtle (*Clemmys marmorata*) in California based on 715 locations from 615 museum records and 322 records from other sources.

1985a, 1991a; Zeiner et al. 1988; Rathbun et al. 1993), whereas at interior localities or at higher latitudes in California, *C. marmorata* typically become active in March or April, and disappear to overwintering sites in October or November (Holland 1991a). The most prominent part of western pond turtle behavior is the activities they perform to thermoregulate, which vary with ambient temperature based on time of day and season. Turtles frequently perform aerial basking on logs or other objects out of the water when water temperatures are low and air temperatures are greater than water temperatures (Bury 1972b, Holland 1985a). Temperature preferenda of western pond turtles are not well understood, but they generally seem to avoid water at temperatures of > 39-40°C (D. Holland, pers. comm.). When air temperatures become too warm and almost invariably when they exceed 40°C, as they may later in the day and later in the season (especially at interior localities), western pond turtles water bask by lying in the warmer surface water layer with their heads out of water (Bury 1972b, Holland 1985a). Mats of submergent vegetation, such as pondweed *(Potamogeton* spp.) and ditch grass *(Ruppia maritima),* are favored water basking locations because these mats trap surface water thus maintaining even higher surface water temperatures, and turtles require less energy to maintain their position in the surface layer when such a vegetation structure is present (Holland 1985a; pers. observ.). Mating, which has been rarely observed, typically occurs in late April or early May, but may occur year-round (Holland 1985a, 1991b). Females emigrate from the aquatic site to an upland location that may be a considerable distance (400 m or more) from the aquatic site to nest, but is often less, and deposit from 1-13 eggs that have a thin, but hard (calcified) outer shell in a shallow (ca. 10-12 cm deep) nest excavated by the female (Holland 1991a; Rathbun et al. 1992, 1993). Females may lay more than one clutch a year (Rathbun et al. 1993). Most oviposition occurs during May and June, although some individuals may deposit eggs as early as late April and as late as early August (Storer 1930; Buskirk 1992; Rathbun et al. 1992, 1993; D. Holland, pers. comm.). The young may hatch and overwinter in the nest because hatchling-sized turtles have almost never been observed in an aquatic site during the fall (Holland 1985a). Only a few records exist of hatchling emergence in the early fall in southern and central California (Buskirk 1992; D. Holland, pers. comm.). Most hatchling turtles are thought to emerge from the nest and move to the aquatic site in the spring (see data in Buskirk 1992). Neonates or hatchlings spend much of their time feeding in shallow water that typically has a relatively dense vegetation of submergents or short emergents (D. Holland, pers. comm.). Nekton, the zooplankton fauna that can occur at high densities in the water column in standing water, are an important food of hatchlings and young juveniles (Holland 1985b, 1991a), and these age groups may not grow as rapidly where this food resource is lacking. Much variation exists in the rates at which western pond turtles grow, with turtles presumably growing more slowly at higher latitudes and altitudes. In most areas, hatchlings (ca. 25 mm CL) typically double their length the first year and grow relatively rapidly over the next 4-5 years (Storer 1930; Holland 1985a; D. Holland, pers. comm.). Age and size at reproductive maturity varies with latitude. In California, reproductive maturity occurs at between 7 and 11 years of age, and approximately 110-120 mm CL, with turtles maturing at a larger size and a more advanced age as one moves north, and males generally maturing at a slightly smaller sizes and younger ages than females (D. Holland, pers. comm.). Data on longevity are lacking, but western pond turtles are thought to be long-lived since the minimum age of a recaptured individual was 42 years from a population studied in northern California (Trinity County: B. Bury and D. Holland, pers. comm.). Western pond turtles are dietary generalists and highly opportunistic (Holland 1991a), and will consume almost anything that they are able to catch and overpower. The relatively slow pursuit of western pond turtles results in their diet being dominated by relatively slow-moving aquatic invertebrates (e.g., the larvae of many aquatic insects) and carrion, although aquatic vegetation may be eaten (Holland 1985a, Bury 1986, Baldwin and Stanford 1987); especially by females having recently laid eggs (D. Holland, pers. comm.). The movement ecology of *C. marmorata* is partly known for only very restricted circumstances. In a pond

situation, movement away from water except to nest was rare (Rathbun et al. 1993). In a stream situation, turtles were highly variable in their movements. Some individuals would nest, aestivate, or overwinter only a few meters away from the watercourse, whereas others move considerable distances (e.g., 350 m) to overwinter (Rathbun et al. 1992, 1993).Turtles will move significant distances (at least 2 km) if the local aquatic habitat changes (e.g., disappears), and adult turtles can tolerate at least 7 days without water (D. Holland, pers. comm.), but dispersal abilities of juveniles and the recolonization potential of western pond turtles following extirpation of a local population are unknown.

Habitat: Western pond turtles require some slack- or slow-water aquatic habitat. Western pond turtles are uncommon in high gradient streams probably because water temperatures, current velocity, food resources, or any combination thereof may limit their local distribution (Holland 1991a). Habitat quality seems to vary with the availability of aerial and aquatic basking sites (Holland 1991a); western pond turtles often reach higher densities where many aerial and aquatic basking sites are available. Hatchlings (i.e. individuals through their first year of activity) require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage (D. Holland, pers. comm.). Such situations probably increase the probability that the nekton hatchlings require will be abundant Western pond turtles also require an upland oviposition site in the vicinity of the aquatic site (Holland 1991b). Suitable oviposition sites must have the proper thermal and hydric environment for incubation of the eggs. The porcelain-thin shelled eggs of *C. marmorata* are suited to development in a dry nest; an excessively moist nest has a high probability of failing (Feldman 1982, Holland 1991b). Nests are typically dug in a substrate with a high clay or silt fraction since the female moistens the site where she will excavate the nest prior to nesting (Holland 1991b). Nests also are typically located on a slope that is unshaded (Rathbun et al. 1993) that may be at least in part south-facing, probably to ensure that substrate temperatures will be high enough to incubate the eggs (pers. observ.). How close the aquatic site is to the nesting site probably depends largely on the availability of suitable nesting sites adjacent to aquatic sites where western pond turtles are known to occur because the array of features that make a nesting site suitable may significantly limit the availability of such sites. The nesting site can be up to 402 m from the aquatic site (Storer 1930), but the majority of nest located to date are within 200 m (D. Holland, pers. comm.). However, at localities with less gradient, soil moisture gradients and soil type may cause nesting sites to be located at a significantly greater distance than where the majority are located. Slope of the nest sites range up to 60°, but most nests are on slopes < 25°.

Status: Endangered from the Salinas River south coastally, and from the Mokelumne River south (inland) in the San Joaquin hydrographic basin; Threatened for the rest of California; the recent report on *C. marmorata* in southern California (Brattstrom and Messer 1988) indicates that few viable populations remain in this region (see also Brattstrom 1988). Even more recent fieldwork indicates that only 6-8 viable populations of *C. marmorata* remain south of the Santa Clara River system (including the desert slope) in California (Holland, 1991a). The situation in most of the Santa Joaquin Valley, Salinas and Pajaro drainages, and a significant number of coastal drainages between San Francisco Bay and the Santa Clara River is only a little better. Four years of drought (1986-1990) have exacerbated the negative effects of habitat alteration accumulated over many years over much of this region from changes in land and water use, and abusive grazing practices (Holland 1991a). In particular, most western pond turtle populations examined in this region appear to show an age (size) structure increasingly biased toward adults, indicating little or no recruitment is taking place. Many localities that harbor turtles populations seem to be affected because the nesting habitat is being impacted or altered during the incubation interval on an annual basis by some type of agriculture or the activity of livestock (D. Holland, pers. comm.; pers. observ.). These impacts probably create annual nesting

failures, leading to the increasingly adult-biased populations. Additionally, some introduced exotic aquatic predators or competitors likely extract a significant toll on turtle populations. Bullfrogs prey on hatchling or juvenile turtles (Moyle 1973; Holland 1991a; H. Basey, P. Lahanas, and S. Wray, pers. comm.), and may be responsible for significant mortality because they occupy shallow-water habitats in which the youngest age groups of turtles are frequently observed (pers. observ.). Bass *(Micropterus* spp.) are also known to prey on the smallest juveniles (Holland 1991a), and sunfishes *(Lepomis* spp.), although they are not large enough to prey on hatchling western pond turtles, probably compete with them for food since they are known to be able to keep available nekton at very low levels, stunting their own growth (see Swingle and Smith 1940). Increases in local raccoon activity because of local human disturbances or translocations by animal control agencies (S. Sweet, pers. comm.), introduced red foxes *(Vulpes vulpes* spp.), and translocated black bear *(Ursus americanus)* populations may have all contributed to increased predation on nests or post-hatching stages over historic background levels (D. Holland, pers. comm.). It also needs mention that historically, western pond turtles were heavily exploited for food in the Central Valley and that numbers of this species represent but a fraction of their historic levels (for example, the number of western pond turtles that existed in the southern San Joaquin Valley has been estimated at 3.35 million; Holland 1991a). The status of western pond turtles north of San Francisco Bay may be somewhat better, but trends similar to those observed in southern California have been noted in most populations examined within this region (D. Holland, pers. comm.). Moreover, the western pond turtle populations in some areas of northern California (e.g., the drainages entering Clear Lake, and portions of the Klamath River system in California) are in equally serious or worse condition than those in southern California (D. Holland, pers. comm.). Recent surveys indicate that western pond turtles are also seriously threatened throughout most of their range outside California. The state of Washington has fewer than six known populations, the most significant of which have been threatened by disease (Holland 1991b; D. Holland, pers. comm.). Recent observations also suggest the potential occurrence of a similar disease syndrome in one northern California population (D. Holland, pers. comm.). In the Willamette Valley in Oregon, western pond turtles appear to have declined to a level that represents roughly 1% of historic levels (Holland 1991a). Surveys in Oregon also indicate that western pond turtles are frequently caught on baited hooks and are subsequently released carrying a hook that can significantly impair or entirely prevent normal feeding (Mader 1988; T. DeLorenzo, pers. comm.; pers. observ.). Based on the weight loss observed in such turtles, a high likelihood exists that most of the individuals caught in this manner ultimately perish if released without removal of the hook. In Baja California, most historic populations have been extirpated and only a few populations remain at remote localities (Holland 1991a).

Management Recommendations: The systematic status of the various historical units that are represented by *C. marmorata* in California must be determined to establish whether different units need to be treated separately. The most significant gaps in current understanding of the ecology of what is currently called *C. marmorata* are variation in nesting location that accompanies variation in habitat, movement responses to habitat change, the pattern of movements in the absence of change, and recolonization ability in structurally different habitats. Current lack of knowledge of the first of these four has led to the recent recommendation that at least 500 m from the aquatic site known to harbor western pond turtles are needed to adequately protect nesting habitat (Rathbun et al. 1992).

Most critical for existing populations where declining trends have some opportunity of being reversed are protection of suitable nesting habitat associated with the sites where those populations exist, and reduction of mortality in the younger age (size) groups of turtles. Since nesting sites are located in areas that have some probability of having had historical use over many years, in order for the former suggestion to be effective, corridors

broad enough not to impede either the movement of adult females to and from the nesting location nor the movement of hatchlings from the nest to the aquatic site should be fenced in a manner to allow turtle movement and to ensure that nests will not be trampled during incubation. For the latter to be effective, every effort should be made to isolate such systems from the exotic aquatic fauna that may prey on or compete with western pond turtles, and in particular, discourage human translocation of such organisms within the state. Efforts should also be made to minimize mortality from terrestrial predators of nests and post-hatching stages. Regulation of fishing with baited hooks in those areas that harbor significant turtle populations should be implemented. Finally, more attention needs to be paid to the appearance of symptoms and mortality linked to upper respiratory disease syndrome, as this may be an unrecognized cause of mortality that may be linked to environmentally immuno-induced suppressive problems (see #5 under Recommendations).

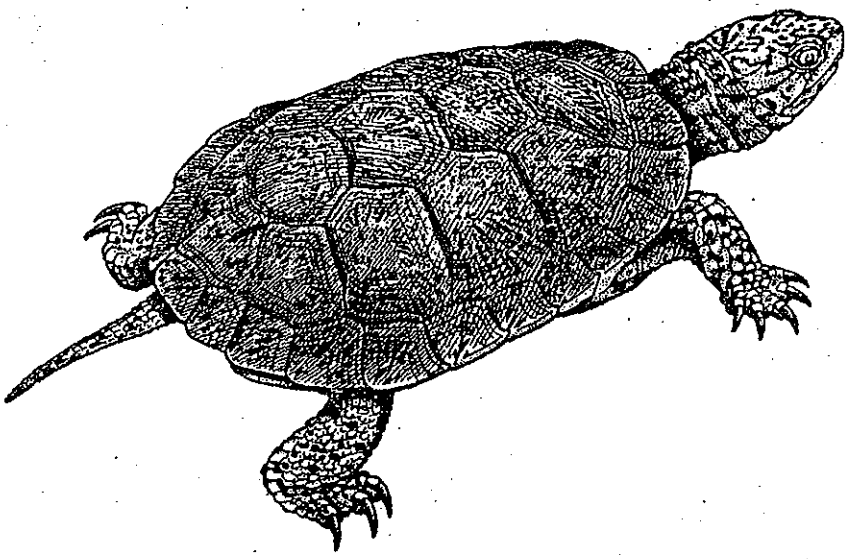

Plate 8. Adult western pond turtle (*Clemmys marmorata*) [from Stebbins 1954b].

SONORAN MUD TURTLE
Kinosternon sonoriense sonoriense (LeConte 1854)

Description: A small to moderate-sized (80-160 mm CL), drab brown or olive-colored turtle with darkly-marked seams on the carapace, webbed feet, a short tail, heavily mottled head, and barbels on the throat (Stebbins 1985). The plastron has well-developed hinges and is yellow to brown in color with darkly-marked seams (Iverson 1976). The iris is dark brown with a black eyestripe extending through the eye (pers. observ.).

Taxonomic Remarks: This taxon has long been recognized as a distinct species (Iverson 1976) within which two subspecies are currently recognized: *Kinosternon sonoriense longifemorale,* restricted to the drainage of the Río Sonoyta (Mexico), and *K. s. sonoriense,* which is distributed throughout the remainder of the range (Iverson 1981). The geographic pattern of genetic variation within *K. sonoriense* has not been examined.

Distribution: Historically, *K. sonoriense* occurred in the lower Colorado system in southeastern California, northward to southern Nevada, eastward through Arizona into New Mexico, and southward into Sonora and western Chihuahua, Mexico (Iverson 1976, 1981). A record from "Utah" attributed to *K. sonoriense* (Yarrow 1882) is based on an incorrectly labeled specimen (Iverson 1978). Its known elevational range extended from 43 m to 2040 m (Iverson 1981). In California, Sonoran mud turtles were historically present along the lower Colorado River from as far as north as the Nevada boundary (Cooper 1870, La Rivers 1942) downstream to past Palo Verde, Riverside County (Van Denburgh 1922b) and the Mexican border (Mearns 1907; Figure 28). Its known elevational range in California extended from 43 m along the Colorado River near Yuma (Imperial County: Iverson 1981) to 155 m along the Colorado River near Fort Mojave at the Nevada boundary (Cooper 1870). Two post-1920 records of Sonoran mud turtles exist from along canals in the Imperial Valley, Imperial County (SDSNH 17897, 33866), these specimens are undoubtedly based on individuals dispersing along human-created waterways.

Life History: Most ecological data on *K. sonoriense* are based on studies conducted in Arizona and New Mexico (Hulse 1976, Rosen 1987). Sonoran mud turtles seem to be active all year, although they may not feed during the colder winter months (Hulse 1982). *Kinosternon sonoriense* are active day and night, and are mostly nocturnal at low elevations during the warmer months (Hulse 1974a, Rosen 1987). Adults are known to mate during March and April, and females lay clutches of 1-10, large (average = 31.0 mm long x 14.3 mm wide) eggs in the interval from May to September (Hulse 1982, Rosen 1987). Where females locate their nests is not known. Females generally produce two or more clutches of eggs between July and September if sufficient food resources are available (Hulse 1982). Males take from 2-6 years and females take 6 years to mature after hatching (Hulse 1976, 1982). Size at sexual maturity is ca. 75 mm CL for males and is primarily age dependent in females, with newly mature females ranging from about 90 mm to over 130 mm CL (Hulse 1982; Rosen pers. comm.). The oldest Sonoran mud turtles that have been reliably aged in Arizona populations were females 12 and 13 years of age (Hulse 1976), so the species may be long-lived.

Juveniles and adults eat mostly mollusks, feeding on other plants and animals opportunistically (Hulse 1974a). Sonoran mud turtles in suboptimal habitat display a more generalized diet, lower growth rates, and smaller clutch sizes, and mature at smaller sizes than individuals that occur in optimal habitats probably because they lack the opportunity to consume more energy-rich benthic invertebrates (Hulse 1976, 1982). *Kinosternon sonoriense* often gives off a peculiar musky odor when it is handled (pers. observ.) whose function is unknown, but may be a deterrent to some predators. Known predators of *K.*

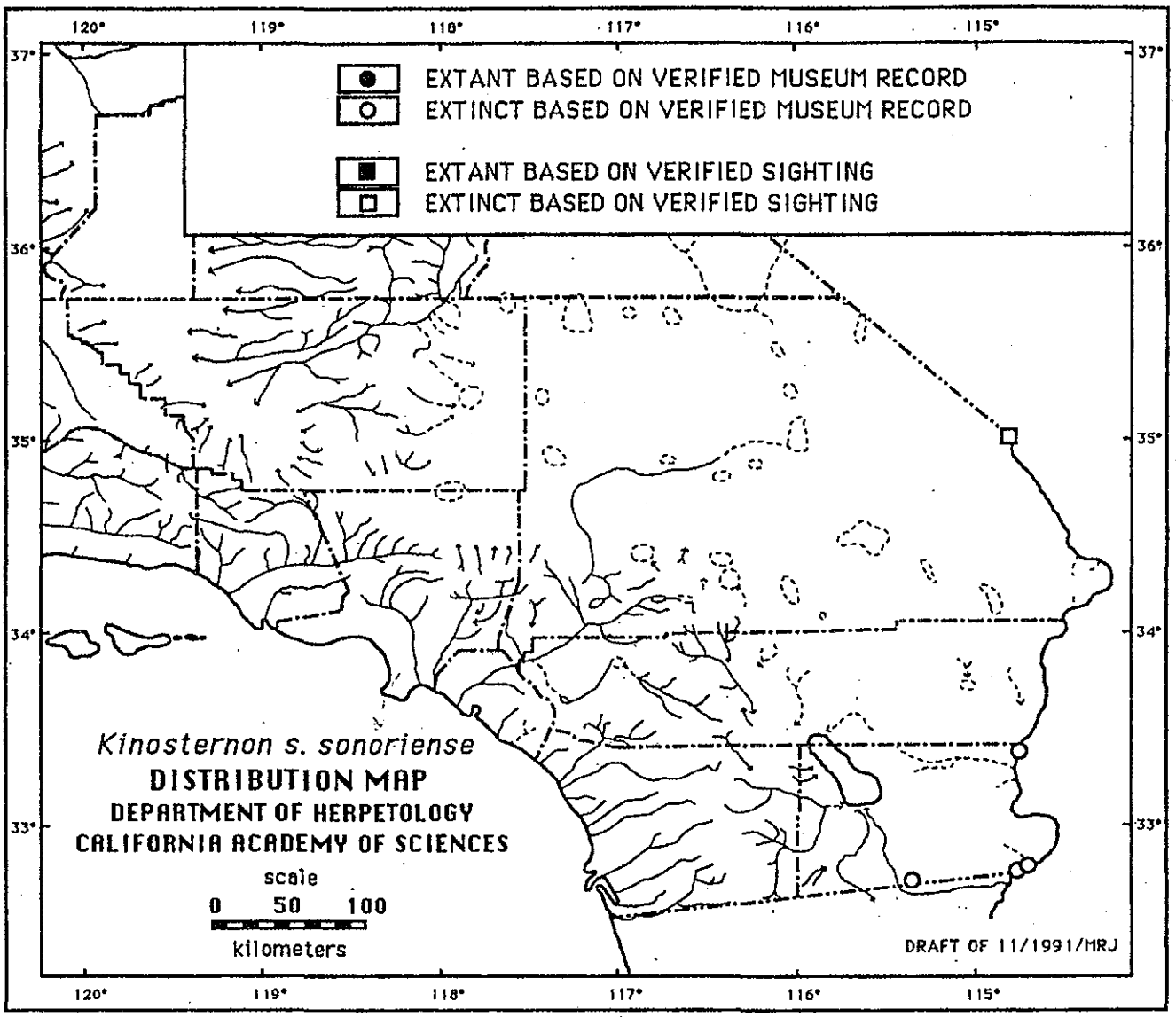

Figure 28. Historic and current distribution of the Sonoran mud turtle (*Kinosternon sonoriense sonoriense*) in southern California based on 5 locations from 4 museum records and 1 record from another source.

sonoriense include bald eagles (*Haliaeetus leucocephalus*), raccoons, humans, and black bears (W. Eakle and A. Hulse, pers. comm.). *Kinosternon sonoriense* also seems to be susceptible to introduced aquatic predators, such as bullfrogs and Louisiana red swamp crayfish (P. Rosen, pers. comm.). Available data suggest that Sonoran mud turtles are sedentary (P. Rosen, pers. comm.). They are very rarely seen moving overland on roads or elsewhere; however, no systematic studies on the movement ecology and colonization abilities of this turtle have been undertaken.

Habitat: *Kinosternon sonoriense* is largely restricted to permanent slackwater habitats along intermittent or perennial streams with abundant submergent vegetation and benthic invertebrates (Hulse 1974a, 1974b, 1976; Iverson, pers. comm.). Although adults in southern Arizona have been observed in open sandy creeks whose flow consists entirely of tertiary-treated wastewater (pers. observ.), Sonoran mud turtles normally occur in ponds and along slow-moving watercourses lined with willows, Fremont's cottonwood, sycamore (*Platanus* sp.), mesquite (*Prosopis* spp.), blue paloverde (*Cercidium floridum*), yellow paloverde *(C. microphyllum),* or other native vegetation (Rosen 1987; see also Jennings 1987b). Optimal habitats are spring runs, quiet pools in streams, or oxbows or other ponds that contain abundant mollusks (J. Iverson and P. Rosen, pers. comm.). In such habitats, population densities can exceed 750-825 turtles/ha (Hulse 1982; P. Rosen, pers. comm.); Sonoran mud turtles are reported at such densities from selected quiet portions of the Salt River (W. Minckley, pers. comm.). Permanent or nearly permanent water must be present to support this taxon (P. Rosen, pers. comm.). Sonoran mud turtles appear to be rare in introduced salt cedar (*Tamarix* spp.)-dominated habitats in some parts of their range (e.g., Ohmart et al. 1988) for reasons that are not clear, but which may be related to available food resources.

Status: Endangered; once presumably common in overflow channels of the lower Colorado River (Van Denburgh 1922b, Dill 1944), this turtle has apparently disappeared with the widespread riparian habitat changes that have occurred along the Colorado River and the introduction of a suite of exotic aquatic predators (Jennings 1983, 1987a; Ohmart et al. 1988). A Sonoran mud turtle observed on 31 March 1962 in a canal about 1.6 km southwest of Laguna Dam on the Arizona side of the Colorado River (Funk 1974) is the last verifiable record known. A search for mud turtles along the Colorado River from 5 April-2 May 1991 with fyke traps revealed no aquatic turtles other than introduced Texas spiny softshells (*Trionyx spiniferus emoryi*; King and Robbins 1991a). The impact that introduced softshell turtles may have had on Sonoran mud turtles is unknown. The Sonoran mud turtle also appears to be undergoing declines over much of its range in Arizona and Mexico (J. Iverson, pers. comm.).

Management Recommendations: Intensive surveys should be coordinated as joint efforts with Arizona agencies and conducted in remaining suitable habitat along the lower Colorado River (such as near Yuma or at the mouth of the Bill Williams River [Topock Marsh]) to determine if the Sonoran mud turtle is still part of the regional herpetofauna If any populations are located, steps need to be taken to protect the riparian and aquatic habitat where they are found from further degradation and life history studies of these populations should be initiated. Additionally, efforts should be made to isolate these populations from the introduced exotic aquatic fauna that may prey on Sonoran mud turtles. Sonoran mud turtles are apparently highly susceptible to habitat loss resulting from the construction of reservoirs, the manipulation of hydrologic regimes, and the widespread invasion of salt cedar, but which of these factors is really detrimental to Sonoran mud turtles and its underlying mechanism is not known. Sonoran mud turtles are easily caught on baited hooks (Dill 1944; pers. observ.); when released by cutting the line, they probably have a low survivorship (see the western pond turtle (*Clemmys marmorata*) account). Human manipulation of daily fluctuations in flows in the main Colorado River seems to have

altered the normal pattern of burrow and crevice use by mud turtles (P. Rosen, pers. comm.) and may alternately flood and dry potential nesting sites. An understanding of the nesting ecology and the seasonal activity patterns of this species is urgently needed to gain insight into how alteration of hydrologic regimes and concomitant habitat change may affect this species.

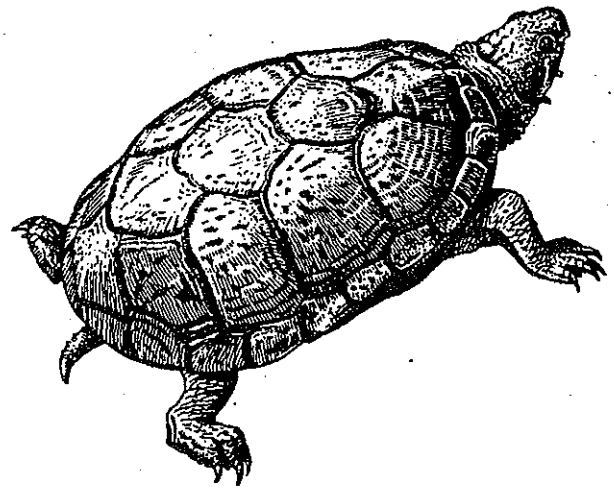

Plate 9. Adult Sonoran mud turtle (*Kinosternon sonoriense*) [from Stebbins 1954b].

LIZARDS

CALIFORNIA LEGLESS LIZARD
Anniella pulchra Gray 1852

Description: A small (95-170 mm SVL), slender limbless lizard with a shovel-shaped snout; a counter-sunk lower jaw; smooth, polished scales; and a blunt tail (Stebbins 1985). Dorsal coloration is highly variable, ranging from metallic silver, to beige, to dark brown, to jet black, with a dark vertebral line and several lateral stripes (Hunt 1983) that decrease in number as individuals mature (pers. observ.). Ventral coloration varies from pale yellow-white to bright yellow (Klauber 1932a; L. Hunt, pers. comm.). The iris is black (Klauber 1940).

Taxonomic Remarks: The name change to *A. nigra* proposed for this species (Hunt 1983) has not been followed because of its destabilizing effect on nomenclature (Murphy and Smith 1985, 1991; Jennings 1987a). Ongoing morphological and genetic studies of this taxon indicate that no evidence exists for its partitioning into subspecies (Hunt 1984; L. Hunt and S. Sweet, pers. comm.) along the lines various authors have proposed (Grinnell and Camp 1917, Miller 1943, Hunt 1983, Bury 1985, Stebbins 1985). However, genetic data that compare 11 populations in central (n = 9) and southern (n = 2) California indicate allozyme and karyotypic differences suggesting more than one species-level taxon may be concealed within what is currently recognized as *A. pulchra* (Bezy and Wright 1971, Bezy et al. 1977; Rainey as cited in Bury 1985). More comprehensive data are needed to characterize the geographic pattern of genetic variation and resolve the systematic status of potential units contained within *A. pulchra.*

Distribution: *Anniella pulchra* is a near-endemic to California, ranging from the vicinity of Antioch (Contra Costa County), California south through the Coast, Transverse, and Peninsular ranges; parts of the San Joaquin Valley; and the western edge of the Sierra Nevada Mountains and Mojave Desert to El Consuelo (Baja California Norte), Mexico (Hunt 1983). This lizard is also known from the East and South Los Coronados and Todos Santos Islands off the coast of Baja California (Stebbins 1985). The known elevational range extends from near sea level on the Monterey Peninsula (Monterey County: Bury 1985) to ca. 1800 m in the Sierra Nevada foothills (Hunt 1983). In California, its range extends from Contra Costa County to the Mexican border (Figure 29). Scattered desert slope records are known from Lancaster in Antelope Valley (Los Angeles County: Mullen 1989), Morongo Valley (San Bernardino County), Whitewater (Riverside County: Stebbins 1985), and in the San Felipe Creek drainage (San Diego County: Klauber 1932a). An old record from Redwood Canyon (Marin County: Rivers 1902, Stebbins 1985) is not verifiable, and may be based on a mislabeled specimen that has since been lost (L. Hunt, pers. comm.). This lizard has been inadvertently introduced into parts of the southern Sierra Nevada foothills through nursery and tree-planting operations (H. Basey, pers. comm.).

Life History: Most ecological and life history data on *A. pulchra* are the result of a field study Miller (1944) conducted during 1939 and 1940 in the dunes of the Monterey Peninsula (Monterey County) and Antioch (Contra Costa County), California. Legless lizards are fossorial animals that construct burrows in loose soil with a high sand fraction (Miller 1944, Stebbins 1954b). Several morphological and physiological traits facilitate efficient burrowing and allow them to live subsurface for extended intervals (Coe and Kunkel 1906, Bury and Balgooyen 1976, Kamel and Gatten 1983, Fusari 1984, Gans et al. 1992). Legless lizards appear to be active mostly during the morning and evening at which time they may rest just beneath the surface of the sunlight-warmed substrate (Miller

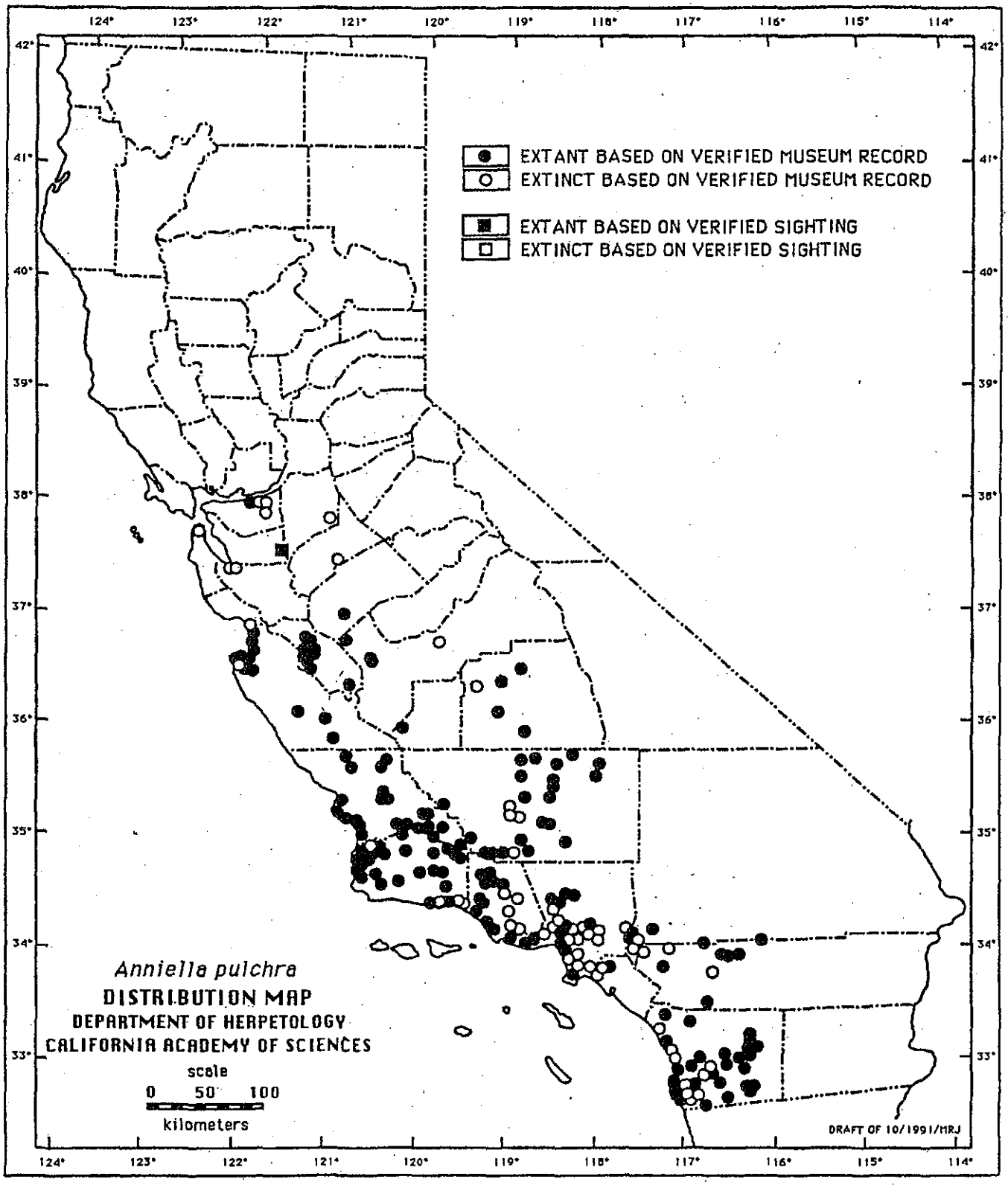

Figure 29. Historic and current distribution of the California legless lizard (*Anniella pulchra*) in California based on 490 locations from 2095 museum records and 7 records from other sources.

1944, Stebbins 1954b, Bury and Balgooyen 1976, Bury 1985), but they have also been observed on the surface at night, especially when substrate temperatures remain warm (probably > 21°C) for extended intervals (Miller 1944, Gorman 1957; pers. observ.). Adult and juvenile lizards are insectivorous and subsist largely on larval insects (especially microlepidopterans and beetles), adult beetles, termites, and spiders (Araneida; L. Hunt, pers. comm.); prey are typically ambushed from a concealed location beneath the leaf litter or substrate (Coe and Kunkel 1906, Miller 1944).

Laboratory experiments have shown that legless lizards have a relatively low thermal preferendum (generally 21-28°C; Bury and Balgooyen 1976) and a relatively low critical thermal maximum (34°C; Brattstrom 1965) when compared to other California lizards. These data are consistent with the range of temperatures at which legless lizards are encountered in the field (7.8-28.3°C, average = 21.0°C; Gorman 1957; Brattstrom 1965; L. Hunt, pers. comm.). The preference for low temperatures allows legless lizards to be active on relatively cool days (Miller 1944), and is consistent with the behavior of fossorial lizards not known to bask directly in sunlight. High ambient and substrate temperatures probably limit the daily pattern of activity of legless lizards in the field (Miller 1944). California legless lizards from coastal areas and the southern portions of its range may display some activity nearly year-round (see Banta and Morafka 1968), whereas lizards from the Sierra Nevada foothills and other inland locations are thought to hibernate during winter months (Zeiner et al. 1988).

Anniella pulchra is a live-bearing species that probably breeds in the interval between early spring and July (Goldberg and Miller 1985). Oviductal eggs are observed in females from July through October (Goldberg and Miller 1985) and litters of 1 to 4 (normally 2) young (ca 50 mm SVL) are born in the interval from September to November (Miller 1944), probably after a gestation period of about 4 months (Goldberg and Miller 1985). Young lizards grow rapidly (2.5-4.4 mm SVL/month) before reaching sexual maturity at ca. 90 mm SVL (males) and 121 mm SVL (females) typically in 2 to 3 years, respectively (Miller 1944, Goldberg and Miller 1985). Once they reach sexual maturity, females may not reproduce every year (Goldberg and Miller 1985), but insufficient data exist to identify biennial reproduction as the typical pattern for this species. Data on the longevity of this taxon in the field are lacking; sexually mature adults have been kept alive under laboratory conditions for almost 6 years (L. Hunt, pers. comm.).

Despite a small litter size, *A. pulchra* can attain high densities where habitat is suitable (S. Sweet, pers. comm.). California legless lizards seem to have high site fidelity, at least over the short term; marked lizards were recaptured < 10 m from their original capture points (average = 2.64 m; n = 10) after a period of 2 months (Miller 1944), but data on the movement ecology of *A. pulchra* are otherwise entirely lacking. The high incidence of tail injuries as indicated from the large percentage of scarred and broken tails seen on lizards found in the field and museum specimens suggests that fighting between adult males and encounters with natural predators are frequent (Bury 1985; pers. observ.); known predators include ringneck snakes *(Diadophis punctatus),* common kingsnakes *(Lampropeltis getulus),* deer mice *(Peromyscus maniculatus),* long-tailed weasels *(Mustela frenata),* domestic cats *(Felis sylvestris),* California thrashers *(Toxostoma redivivum),* American robins, and loggerhead shrikes *(Lanius ludovicianus;* Miller 1944; L. Hunt and S. Sweet, pers. comm.).

Habitat: California legless lizards occur primarily in areas with sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, or pine-oak woodland; or sycamores, cottonwoods, or oaks that grow on stream terraces (Gorman 1957, Cunningham 1959b, Banta and Morafka 1968, Stebbins 1985). The sandy loam soils of stabilized dunes on which bush lupine *(Lupinus arboreus),* mock heather *(Eriogonum*

parvilfolium), mock aster *(Ericameria ericoides),* and other native coastal shrubs occur seems especially favorable habitat (Grinnell and Camp 1917, Miller 1944, Smith 1946, Bury 1985). Legless lizards also occur in desert scrub at the western edge of the Mojave Desert (Klauber 1932a). They are often found under, or in the close vicinity of, surface objects such as logs, rocks, old boards (Miller 1944, Gorman 1957, Banta and Morafka 1968) and the compacted debris of woodrat *(Neotoma* spp.) nests (S. Sweet, pers. comm.). Rocky soils or areas disturbed by agriculture, sand mining, or other human uses apparently lack legless lizards (Miller 1944, Bury 1972a, Hunt 1983, Stebbins 1985).

Soil moisture is essential for legless lizards. Preference for substrates with a higher moisture content has been identified in the laboratory and legless lizards die if they are unable to reach a moist substrate (Burt 1931, Miller 1944, Bury and Balgooyen 1976). Soil moisture is crucial for conserving energy at high temperatures (Fusari 1984) and also allows shedding to occur (Miller 1944). Legless lizards are though to be soil moisture-limited at the edges of portions of their geographic range (Miller 1944, Bury and Balgooyen 1976).

Status: Special Concern; its specialization for a fossorial existence in substrates with a high sand fraction renders *Anniella pulchra* vulnerable. Lack of comparable observational or sample data is the primary difficulty with evaluating the status of this cryptozooic lizard. Although key aspects of its habitat requirements are partly understood, that knowledge is insufficient to allow confident within-habitat evaluation of the distribution of this taxon. Nevertheless, some indications exist that various conditions place this species at risk. High confidence exists that legless lizards cannot survive in urbanized, agricultural, or other areas where a loose substrate in which to burrow has been removed or radically altered (e.g., the substrate severely disturbed by plowing or bulldozing). On this basis, *A. pulchra* has probably disappeared from ca. 20% of the area within its known historic range. A suite of other factors, including livestock grazing, off-road vehicle activities, sand mining, beach erosion, excessive recreational use of coastal dunes, and the introduction of exotic plant species (e.g., ice plants [*Carpobrotus edulis* and *Mesembryanthemum crystallinum*], Marram grass [*Ammophila arenaria*], veldt grass [*Ehrharta calycina*] and eucalyptus trees [*Eucalyptus* spp.]; Bury 1972a, 1985; Vivrette and Muller 1977; L. Hunt, pers. comm.) are likely to alter the substrate so that *A. pulchra* can no longer survive there. These factors decrease soil moisture or alter the conformation of the substrate, each of which may act singly or in concert to limit the food base or make the substrate physically unsuitable for *A. pulchra* to survive in. Exotic plants may be especially insidious because they support only a limited arthropod food base (Nagano et al. 1981) for *A. pulchra,* likely because they replace the native vegetation (Vivrette and Muller 1977, Powell 1978), which supports more significant arthropod populations. Some exotics, like *C. edulis,* also build up the salt concentration in the soil (Kloot 1983) that may create habitat unsuitable for legless lizards (Bury 1985) either because *A. pulchra* has difficulty osmoregulating in such a substrate, or indirectly, by limiting the arthropod food base. Legless lizards may also be susceptible to pesticide poisoning because of their insectivorous diet (Honegger 1975). Some areas in which legless lizards are known to occur are protected within several private and public reserves in central and southern California (e.g., Asilomar State Beach, Camp Joseph H. Pendleton Marine Corps Base, Carrizo Plain Preserve [The Nature Conservancy], Morro Bay State Park, Point Dume State Beach, Vandenberg Air Force Base), but these areas are becoming progressively smaller fragments because of losses of adjoining habitats due to development, road construction, poor land use practices (such as burning or clearing vacant lots), continued erosion of coastal beaches (due to the loss of sand supplies caused by water diversion projects and breakwaters), and the spread of exotic plants. The latter is especially true in State Beaches and other coastal reserves where much of the native vegetation has already been greatly reduced or replaced by exotic species. Over 45 years ago, Miller (1944) suggested that the increased presence of feral

house cats in parks and coastal areas may contribute to reducing legless lizard populations; that suggestion, while likely, has never been evaluated.

Management Recommendations: Detailed life history studies of legless lizards in various parts of California need to be undertaken in order to more precisely determine the habitat requirements of this animal. Information is especially needed on natural fluctuations in numbers and what constitutes a viable population size, as well as dispersion and colonization abilities. Management of this species needs to dovetail with ongoing biochemical studies on the taxonomy of this lizard, to determine if more than one taxon of legless lizard exists in California, so that the protection of each taxon can be individually addressed. Efforts should be made to enhance coastal beach habitat for legless lizards only after more precise ecological data become available on this species. Habitat restoration projects will have to be conducted to minimize impacts to existing legless lizard populations and other taxa that co-exist with them. The effects of removing exotic vegetation and restoring native plant communities in coastal dune habitats harboring legless lizards are in need of controlled experimental studies.

BELDING'S ORANGE-THROATED WHIPTAIL
Cnemidophorus hyperythrus beldingi (Stejneger 1894)

Description: A moderate-sized (50.0-94.0 mm SVL) gray, reddish brown, dark brown, or black lizard with five to seven pale yellow or tan stripes (Walker and Taylor 1968, Stebbins 1985, Rowland 1992). The top of the head has a single, fused frontoparietal scale (Rowland 1992), and is yellow-brown to olive gray. Undersurfaces are yellowish white, often with gray or bluish slate on the belly; adults have varying degrees of red-orange wash (Stebbins 1985) that may occur on all undersurfaces (Rowland 1992). The latter is especially prominent on the throat and chest in breeding males. The iris is brown (pers. observ.). In hatchlings and juveniles, the tail is a highly visible bright blue (Rowland 1992).

Taxonomic Remarks: This taxon is morphologically distinct (Walker and Taylor 1968), and has never been confused with any other taxon. No attempts have been made to characterize genetic variation across the geographic range of *C. h. beldingi.* An understanding of that variation is needed to elucidate potential geographic patterns to genetic variation.

Distribution: *Cnemidophorus h. beldingi* ranges from Corona del Mar (Orange County: LACM 14747) and near Colton (San Bernardino County), California southward to Loreto, Baja California, Mexico (Stebbins 1985). The upper elevational limit of this taxon, which probably occurs in Baja California, is not known, but the lower limit extends down to near sea level (Corona del Mar, Grange County). In California, *C. h. beldingi* ranges from the southern edges of Orange and San Bernardino counties southward to the Mexican border (Figure 30). In California, the known range of *C. h. beldingi* is located on the coastal slope of the Peninsular Ranges-and extends from near sea level to ca. 1040 m (northeast of Aguanga, Riverside County).

Life History: Data on the life history of *C. h. beldingi* are relatively limited. The studies of Bostic (1964, 1965a, 1965b, 1966a, 1966b, 1966c) and Rowland (1992) in California, and Karasov and Anderson (1984) in Mexico, include essentially all the ecological data known for this species. Orange-throated whiptails typically emerge from hibernation in February or March (Rowland 1992), but some lizards may be active in every month of the year whenever it is sufficiently warm (Bostic 1966a; see also Brattstrom 1990 and Rowland 1992). *Cnemidophorus h. beldingi* typically emerges from overwintering sites

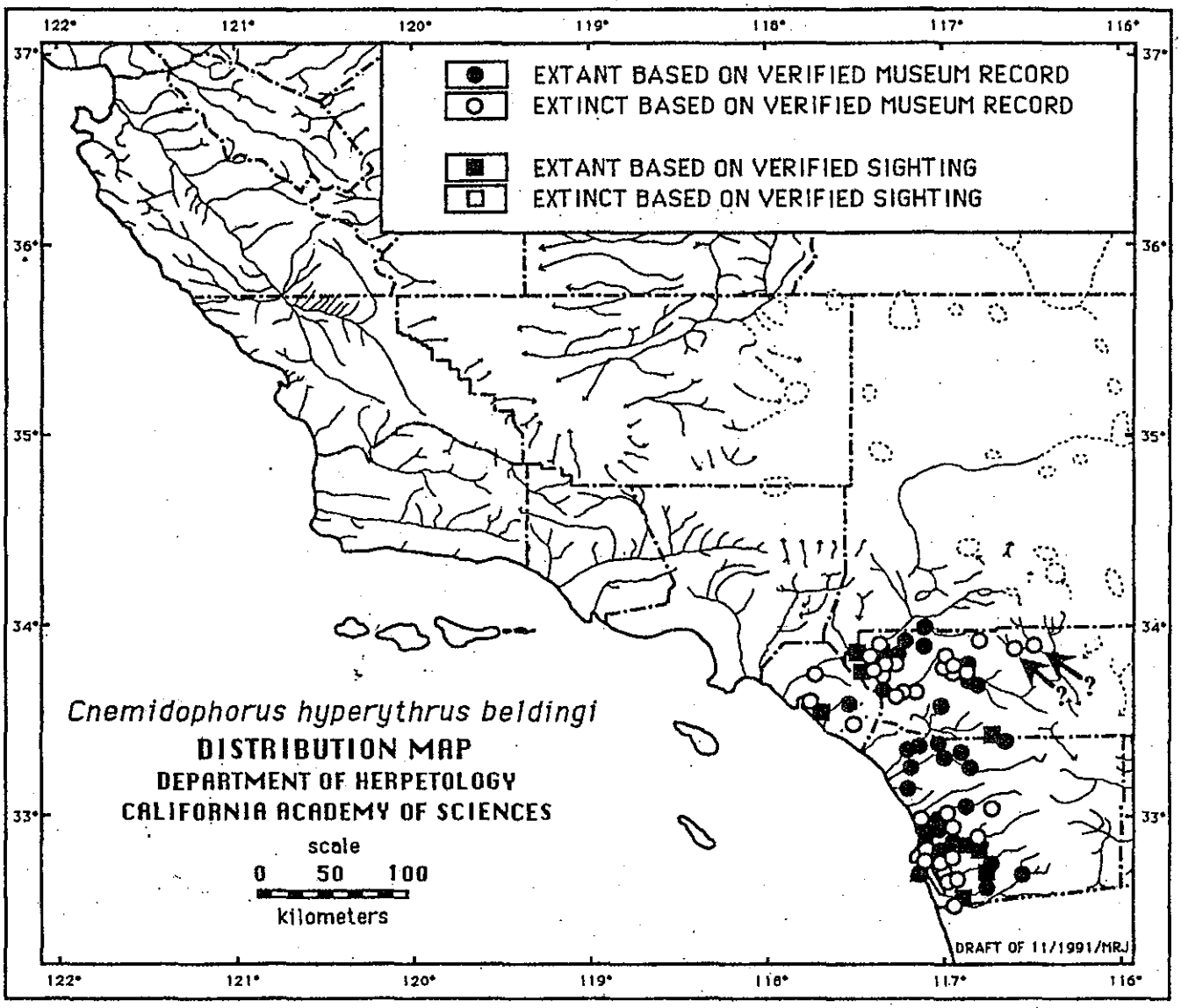

Figure 30. Historic and current distribution of Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*) in southern California based on 131 locations from 389 museum records and 14 records from other sources.

that consist of relatively short (7-30 cm long), J-shaped burrows with a small (3-19 cm^3) terminal chamber on a south-facing slope having open bare ground (Bostic 1964, 1966a). Orange-throated whiptails are typically active across a relatively high temperature range (36.3°C-41.0°C) and usually emerge only after soil temperatures have reached at least 28°C (Bostic 1966b; see also Rowland 1992). The daily activity cycle of this diurnal lizard is largely unimodal early in the season, but shifts to a bimodal pattern as midday near-surface temperatures become unfavorably hot during the summer months (Bostic 1966a, Rowland 1992). May matings are probably typical, although copulation in the field has been observed as late as July (Atsatt 1913). Females deposit two or three moderate-sized, leathery-shelled eggs in June or July in an unknown location (Bostic 1966c). Hatchlings are first observed in the field from the second week of August through the first week of September (Bostic 1966c, Rowland 1992). Orange-throated whiptails can become sexually mature in 1 year, but most individuals, especially females, require 2 years to become sexually mature (Bostic 1964). Longevity of *C. h. beldingi* is unknown. Perhaps the most distinctive aspect of the life history of *Cnemidophorus h. beldingi* is that it appears to be a dietary specialist, most (> 85%) of its prey being comprised of termites, specifically one subterranean species, *Reticulitermes hesperus* (Bostic 1966b); the degree of specialization may vary locally or geographically, because in Baja California, a considerably lesser percentage (ca. 40%) of termites were eaten (Karasov and Anderson 1984). Orange-throated whiptails appear to take other insects (mostly spiders, beetles, and grasshoppers [Orthoptera]) largely during late summer, when their staple prey (termites) migrate downward into the soil, and thus, are largely unavailable (Rowland 1992). Adults disappear into hibernation in the latter part of July through early September, whereas immature lizards begin to hibernate in the latter part of December (Bostic 1966a, Rowland 1992).

Habitat: The habitat characteristics of *C. h. beldingi* are poorly understood, largely because data are sparse. Historically, most populations occurred on the floodplains or terraces along streams (McGurfy 1980). This species appears to be tied to the presence of some perennial plants, probably because its major food resource, termites (Bostic 1966b), requires some kind of a perennial plant as a food base (Rowland 1992). California buckwheat *(Eriogonum fasciculatum),* California sagebrush *(Artemisia californica),* black sage *(Salvia mellifera),* white sage *(Salvia apiana),* and chamise *(Adenostema fasciculatum)*-redshank *(A. sparsifolium)* chaparral apparently fulfill the perennial plant requirement for *C. h. beldingi* (Bostic 1964; pers. observ.; see also Brattstrom 1990). Rowland (1992) found that adult orange-throated whiptails associated with California buckwheat and black sage at frequencies greater than which these species occurred in the habitat. Rowland also observed that all age groups of orange-throated whiptails tended to avoid open areas, but precisely how these aspects of its habitat requirements are linked to its overall life history remain poorly understood. Hibernation sites seem to occur on well-insolated, south-facing slopes (Bostic 1964, 1966a), so open slopes adjacent to terraces with woody perennials may represent the best available habitats. Oviposition sites remain to be discovered, but they probably also occur on well-insolated, south-facing slopes. Home ranges for this taxon have been reported to average between 363.6-445.0 m^2 (range: ca. 150 m^2-1400 m^2) for adults (Bostic 1964, 1965a; Rowland 1992).

Status: Threatened; Cooper et al. (1973) reviewed the status of *C. h. beldingi* in California in the course of an assessment of the Santa Margarita Ecological Reserve and environs, and concluded that this taxon was depleted, based on the definitions the California Department of Fish and Game used at that time. McGurty (1980) reviewed this taxon in California based on data that is now over 10 years old. His mapped data suggest that *C. h. beldingi* had been extirpated from ca. 60% of its historic range at the time of his survey. Based on comparing aerial photographs from roughly the time that McGurty did

his assessment (1980) to current aerials (i.e., 1990), we estimate that ca. 75% of the historic range of *C. h. beldingi* no longer supports this taxon. Most of the suitable habitat for *C. h. beldingi* occurs in floodplains and stream terraces, the most developed areas in southern California. Remaining populations of *C. h. beldingi* are highly fragmented because the lower floodplain of most coastal drainages, where most of the historical habitat for this species existed, has been developed, thus isolating the remaining populations in smaller floodplain and terraces at the higher elevations where this species is known to occur. Most of the latter are probably more susceptible to local extinction with little opportunity of recolonization because historically, the avenue for recolonization was likely via the larger populations on the lower floodplains and terraces. Further, *C. h. beldingi* is something of a habitat specialist that copes poorly with even minor modifications to local environments caused by humans. Furthermore, the four years of severe drought (1986-1990) may have reduced its insect food base, which may directly influence reproduction and have exacerbated the problem of small local populations staving off extinction. Finally, the likelihood that this whiptail is a dietary specialist on termites places it at some risk, particularly if it lacks other foods to switch to to a significant degree.

Management Recommendations: The life history of *C. h. beldingi* needs to be much better understood to refine any management recommendations. Life history data is currently being gathered and surveys are being conducted with state and federal (military) funding on orange-throated whiptails (Brattstrom 1990), but only limited results of these studies are available (see Rowland 1992). In particular, a better understanding is needed of how obligatory the termite diet of this species really is; of the relationship between this whiptail, perennial plants, and termites; of the nature and characteristics of oviposition sites; and of the movement ecology and colonization abilities of this species. Until these data are obtained, sites known to harbor this species should be surveyed on a site-by-site basis to identify the quality of existing populations and to take measures to provide some degree of protection for this species where it occurs in significant numbers. Additionally, Argentine ants *(Iridomyrmex humilis)* are an exotic pest species that displaces many native insects (see species account for the San Diego horned lizard [*Phrynosoma coronatum blainvilli*]), and may be influencing the food base of *C. h. beldingi.* The recommended life history studies of *C. h. beldingi* should be conducted with the idea of gaining an understanding of the potential negative effects of the exotic fauna and flora on this species.

PANAMINT ALLIGATOR LIZARD
Elgaria panamintina (Stebbins 1958)

Description: A large (90-150 mm SVL) alligator lizard with a light yellow or beige dorsum marked with seven or eight, relatively evenly spaced, brown crossbands between the head and the hindlimbs (Stebbins 1958). Crossbands extend onto the tail, but are much more contrasting in juveniles than adults. When unbroken, the tail is nearly twice the body length. Continuous or broken lines occur lengthwise down the center of scale rows on the light-colored venter (Stebbins 1985). The iris is pale yellow (Stebbins 1958).

Taxonomic Remarks: A distinctive alligator lizard that is considered a valid species (Stebbins 1958, Good 1988). Formerly a member of the genus *Gerrhonotus* (e.g., Stebbins 1958, 1985), recently revised alligator lizard systematics places this species in the genus *Elgaria* (Waddick and Smith 1974; Gauthier 1982; Good 1987a, 1987b, 1988). Genetic variation across the geographic range of *E. panamintina* has not been characterized, and genetic data on this species are based on a single individual (see Good 1988). An understanding of genetic variation is needed to determine whether any populations of *E. panamintina* are distinctive genetic units.

Distribution: This California endemic is known only from the vicinity of 15 isolated riparian localities below permanent springs in the Argus, Inyo, Nelson, Panamint, and White mountains of Inyo and Mono counties (Figure 31; see also Macey and Papenfuss 1991b). Its known elevational range extends from ca. 760 m to 2072 m.

Life History: Few data are available on the life history of *E. panamintina.* If similar to other alligator lizards whose life history is known, it probably has a relatively low preferred temperature range (Brattstrom 1965, Cunningham 1966a. Kingsbury 1994), it does not bask (*contra* Macey and Papenfuss 1991b), and it favors very dense cover, a habitat infrequently occupied by the easily observed, frequently abundant, basking lizard species (e.g., *Sceloporus occidentalis, Uta stansburiana).* Depending onelevation, Panamint alligator lizards emerge from hibernation in late winter or early spring, and seem to be active during the day and at dusk (Stebbins 1958, Dixon 1975). Based on pitfall capture dates, *E. panamintina* may be most active in May, June, and September, and less conspicuous due to aestivation or nocturnal activity during very hot periods (typically July-August; Banta 1963b), but these data are difficult to interpret, since the manner in which, and the frequency with which, traps were checked was not reported. A pair of captive Panamint alligator lizards were observed mating on 15 May (Banta and Leviton 1961) and a female obtained on 1 May 1959 contained 12 developing eggs (Banta 1963b), suggesting that the species lay eggs (Stebbins 1985) rather than being live-bearing. If reproduction is similar to that of the related *E. multicarinata,* which occurs nearby (see Macey and Papenfuss 1991b), the anticipated intervals for reproduction and oviposition would be spring and early summer, respectively (see Goldberg 1972), and if second clutches are laid, a second round of oviposition might occur in late summer (see Burrage 1965). Data on incubation time, growth, and feeding habits are lacking for the Panamint alligator lizard, but if similar to the southern alligator lizard, incubation of the eggs may take nearly 3 months (see Atsatt 1952 and Burrage 1965), sexual maturity probably requires at least 2 years (see Goldberg 1972), and terrestrial invertebrates likely dominate the diet (see Cunningham 1956).

No predators of *E. panamintana* are recorded, but several species known to eat other alligator lizards (e.g., coachwhip [*Masticophis flagellum*], striped whipsnake [*M. meniatus*], loggerhead shrike, red-tailed hawk [*Buteo jamaicensis*]: Fitch 1935) occur within the range of the Panamint alligator lizard, and may prey on it. Data on the movement ecology and colonization abilities of *E. panamintina* are lacking.

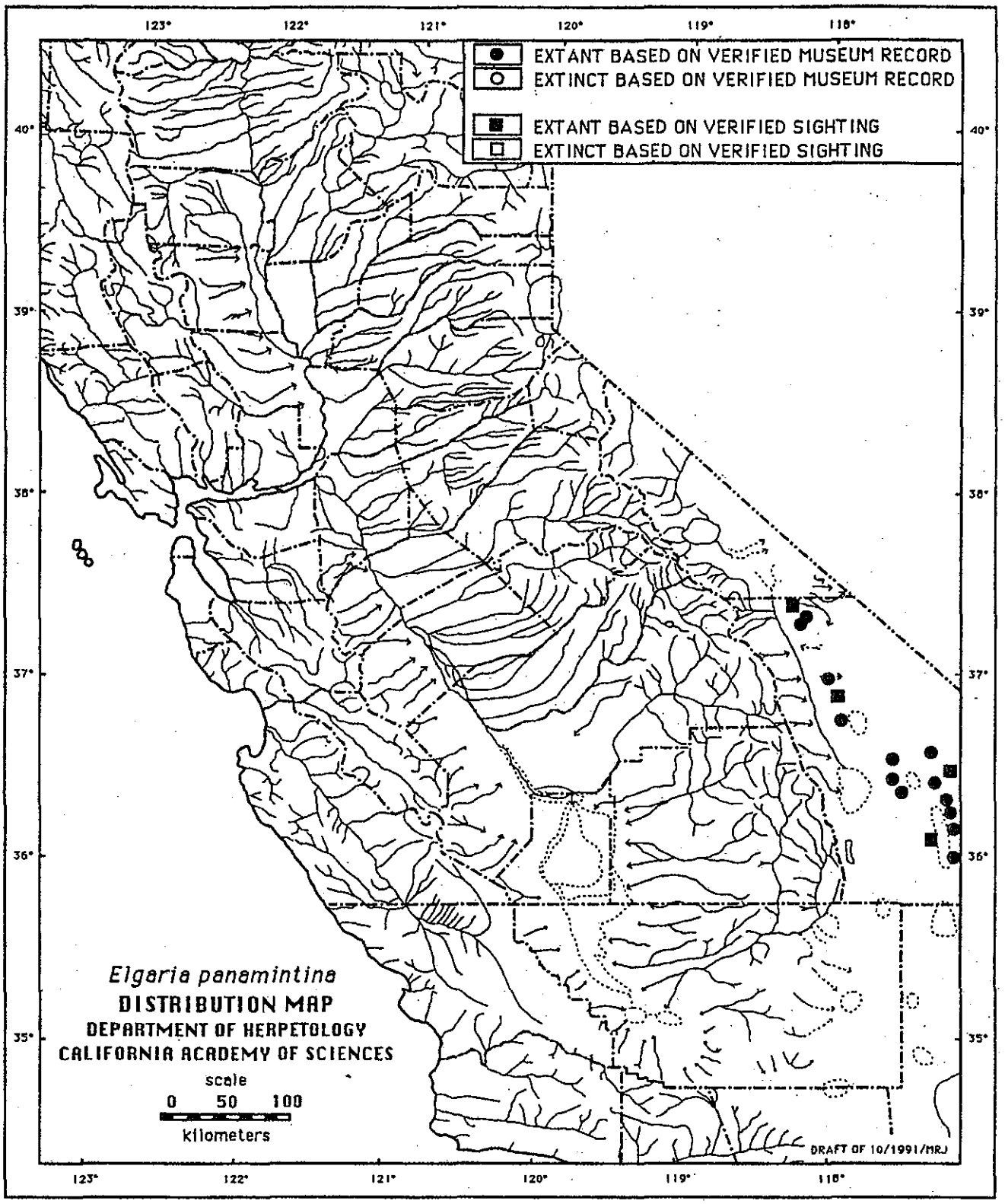

Figure 31. Historic and current distribution of the Panamint alligator lizard (*Elgaria panamintina*) in central California based on 19 locations from 25 museum records and 4 records from other sources.

Habitat: *Elgaria panamintina* is thought to be a relict species that occupies a now restricted habitat representative of a more mesic period (Good 1988). Panamint alligator lizards are confined mostly to narrow riparian strips associated with permanent springs in talus canyons composed of limestone, marble, and other metamorphic rocks (Stebbins 1958). These riparian zones are extremely limited in areal extent, being only a few meters wide and 0.75-3.1 km long and closely confined to canyon bottoms (Stebbins 1958, Banta 1963b). In most places, coyote bush *(Baccharis sergiloides),* virgins bower (*Clematis lugusticifolia),* and wild grape *(Vitis girdiana)* dominate the dense riparian growth (Stebbins 1958, Banta 1963b, Dixon 1975). At the edges of the riparian zones, more xeric-adapted vegetation (e.g., creosote bush [*Larrea divaricata*] and sagebrush [*Artemisia ludoviciana*]) predominates (Stebbins 1958, Banta 1963b). Although Panamint alligator lizards have been commonly observed in or under dense riparian thickets near damp soil (Stebbins 1958), they may forage in, or actually occupy, talus-covered slopes at some distance beyond the immediate influence of the riparian zone, where such areas shelter more mesic subsurface habitat, as suggested by the four specimens trapped in areas adjacent the riparian zone (see Banta 1963b).

Status: Threatened; all except two of the known populations of Panamint alligator lizard occur on private lands and are currently at risk because of habitat loss from mining, both feral and domestic livestock, and off-road vehicle activity in the restricted riparian habitats that shelter this species. Off-road activity in the Panamint-Inyo-White Mountain system has increased significantly over the last 10 years, so impacts to the Panamint alligator lizard are anticipated to increase.

Management Recommendations: A thorough understanding of the specific habitat requirements significant to the survival of this species are an absolute prerequisite to refining management efforts for this species. Until specific habitat data become available, efforts should be directed at protecting the habitat ensemble associated with the springs and other riparian areas where Panamint alligator lizards have been found. Since most known localities are on private land, particular efforts should be made to encourage landowners to manage for habitat preservation. Such guidance may not be well-received, so encouragement should emphasize the positive benefits that landowners would gain in their own operations if they choose to undertake such preservation. Habitat preservation should emphasize avoidance of alterations that might modify the hydrology of these areas. Many of the suggestions made here are similar to those that would help protect *B. campi* (see species account for the Inyo Mountains salamander), although we anticipate that the alligator lizard may be more tolerant of limited alteration. Minimizing mining-, feral livestock-, and off-road vehicle-associated disturbance of the vegetation or substrate in the riparian zones is particularly important. Concerted efforts should be made to search for the Panamint alligator lizard in nearby riparian areas where it has not yet been detected. Where possible, protection of this species would be assisted through initiation of land use restriction measures in the Inyo-Panamint-White Mountain system, which would anticipate future finds of this species outside of its known range.

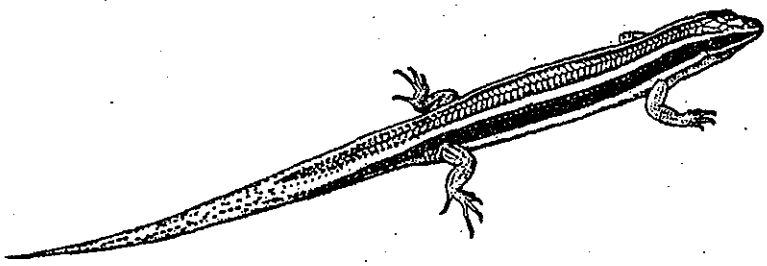

Plate 10. Adult western skink (*Eumeces skiltonianus*) [from Stebbins 1954b].

CORONADO SKINK
Eumeces skiltonianus interparietalis Tanner 1957

Description: A medium-sized (53-83 mm SVL) smooth-scaled lizard with relatively small limbs and four white or beige stripes on a brown dorsum (Stebbins 1985. Tanner 1988). The intervening middorsal and lateral dark stripes extend to or beyond the middle of the tail in adults (Tanner 1957). The tail has at least some blue coloration; the tail color is often brilliant blue in juveniles and adults having unbroken tails. This skink has a small interparietal scale enclosed posteriorly by the parietal scales (Tanner 1957). The iris is dark brown (pers. observ.).

Taxonomic Remarks: The Coronado skink is currently treated as a subspecies of the western skink (Tanner 1988), but the taxonomy of Pacific Coast skinks *(Eumeces skiltonianus-E. gilberti)* needs revision because of inconsistencies in many of the morphological characters used to distinguish taxa. Data on genetic variation across the geographic range of *Eumeces s. interparetalis* are lacking; available genetic data on this taxon are based on a single individual (Murphy et al. 1983). An understanding of that variation is needed to determine whether any populations of the Coronado skink are distinctive genetic units, and to resolve the relationship between the Coronado skink and other western skinks in the *skiltonianus* assemblage.

Distribution: The Coronado skink inhabits the coastal plain and Peninsular Ranges west of the deserts from approximately San Gorgonio Pass (Riverside County) southward to San Quentin (Baja California), Mexico (Tanner 1988). Isolated populations also occur on Santa Catalina, Los Coronados, and Todos Santos islands off the coast of southern California and Baja California (Zweifel 1952a, Stebbins 1985). The known elevational range of *E. s. interparetalis* extends from near sea level to about 2000 m (La Grulla, Baja California). In California, *E. s. interparetalis* ranges from near Banning (Riverside County: Tanner 1957) south to the Mexican border (Figure 32). The known elevational range of the Coronado skink in California extends from near sea level to about 1675 m (Strawberry Valley, Riverside County: Atsatt 1913). *Eumeces s. interparetalis* is described as intergrading with *E. s. skiltonianus* at the northern edge of its range (from near Escondido, San Diego County, north to Mt. San Jacinto, Riverside, County: Tanner 1957, 1988), but conclusive identification of this pattern awaits the systematic resolution of these taxa.

Life History: Few life history data are available for the Coronado skink and the following life history summary is based largely other subspecies of *E. skiltonianus.* Adults and juveniles are diurnal and are typically active from early spring through early fall, although activity is bimodal (early morning and late afternoon) during the summer months (Zweifel 1952a; see Tanner 1943, 1957). Coronado skinks are secretive lizards (pers. observ.), they may have a relatively low activity temperature (28.5°C-31.2°C, n = 2; Zweifel 1952a), and they likely prey upon many small invertebrates in leaf litter or dense vegetation at the edges of rocks and logs, but may selectively avoid ants (see Atsatt 1913, Tanner 1957; pers. observ.). Like other skinks, Coronado skinks are probably facile burrowers and undoubtedly construct similar tunnels under stones or other cover for refuge or use in hibernation or nesting. Breeding for closely related *E. s. skiltonianus* begins soon after spring emergence and females lay 2-6 eggs during June and July in nest chambers constructed in loose, moist soil under rocks, logs, or other cover (see Tanner 1957, Punzo 1982) Females may attend their eggs until they hatch (see Tanner 1943, 1957). Young *E. s. interparetalis* probably hatch in late summer, and sexual maturity may occur at 2 years of age., but most individuals probably do not reproduce until they are 3 years old; longevity of adults is probably 5 or 6 years (see Rodgers and Memmler 1943). Known predators include California mountain kingsnakes *(Lampropeltis zonata;* McGurty

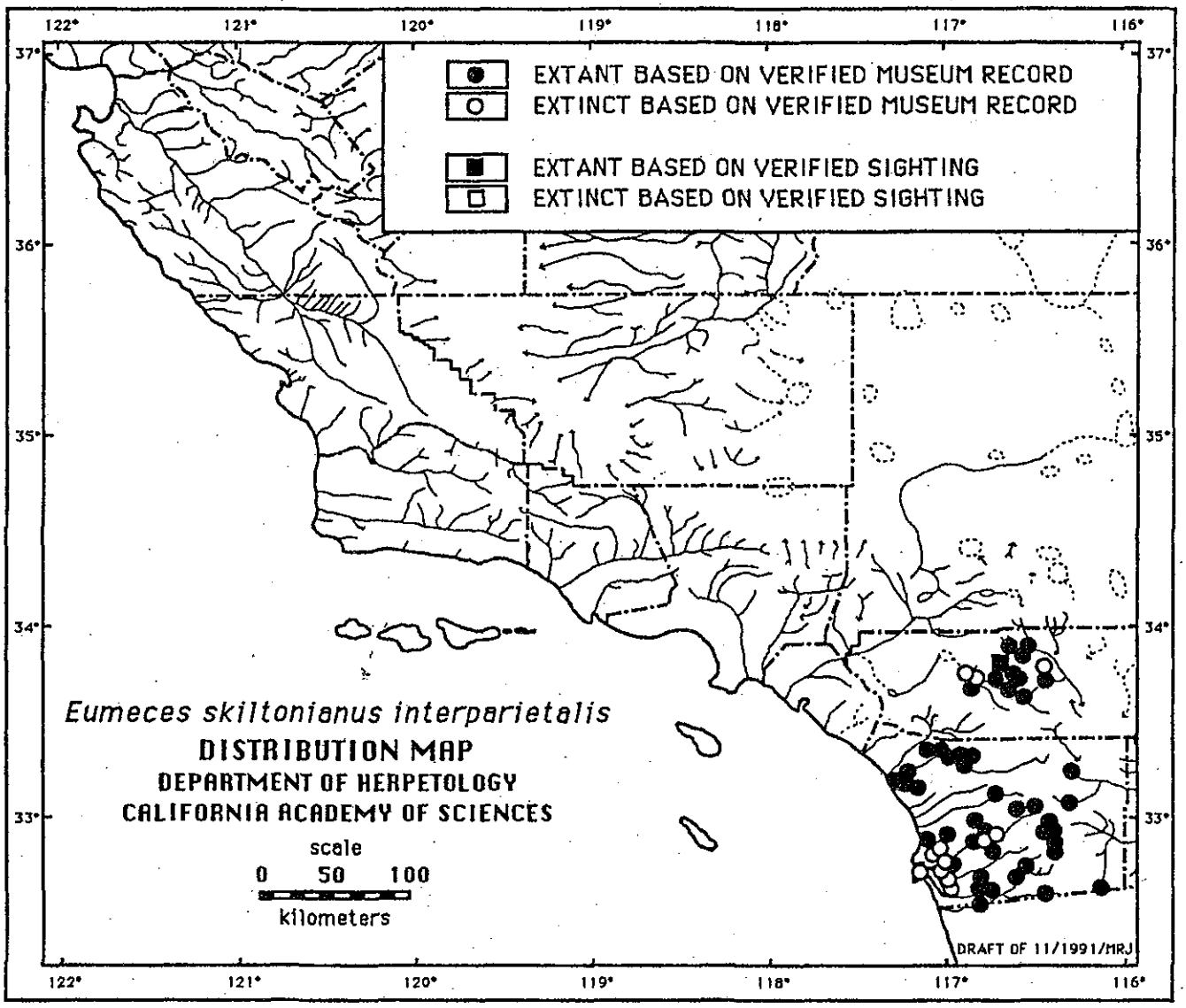

Figure 32. Historic and current distribution of the Coronado skink (*Eumeces skiltonianus interparietalis*) in southern California based on 104 locations from 245 museum records and 1 record from another source.

1988; see also Newton and Smith 1975), and western rattlesnakes *(Crotalus viridis,* Zweifel 1952a), but several birds and mammals probably also prey on Coronado skinks (see Tanner 1957; C. Fagan, pers. comm.). Brightly colored tails are postulated to be both an intraspecific age recognition device and a predator distraction device (Vitt et al. 1977). No data exist on movement ecology or the colonization abilities of *E. s. interparetalis.*

Habitat: The Coronado skink seems generalized in the sense that it occurs in a variety of plant associations ranging from coastal sage, chaparral, oak woodlands, pinon-juniper, and riparian woodlands to pine forests (Stebbins 1985), but within these associations it is often restricted to the more mesic pockets (Tanner 1957; Zeiner et al. 1988; see also Fowlie 1973). The latter often consist of open riparian or subriparian margins, but significant variation exists in the nature of the mesic habitats used (e.g., fog-bound islands; Zweifel 1952a).

Status: Special Concern; although the Coronado skink occurs in a number of vegetative associations, a large portion of the area of southern California with suitable habitat for this taxon has been developed or has undergone land use changes incompatible with its survival (e.g., see Brattstrom 1988). Large areas of habitat have been urbanized or converted into orchard crops (citrus [*Citrus* spp.] and avocado [*Persea americana*]). Although much of the physical habitat structure Coronado skinks require remains in many relatively recently planted steep-slope avocado orchards, the absence of skinks in such habitats suggests that something besides habitat structure may exclude this species; pesticide or herbicide use in orchards and on other agricultural crops may adversely affect this species. Human use of surface and underground water resources has made many of the more mesic pockets within various plant associations become increasingly dry, a situation that likely mitigates against the presence of Coronado skinks.

Management Recommendations: The systematic status of the Coronado skink relative to other western skinks needs clarification and any distinct genetic units need to be identified. A more refined understanding of the habitat requirements of the Coronado skink is especially needed. In particular, knowledge of what constitutes suitable refuge habitat and nest sites, focusing on key habitat parameters, is almost entirely lacking; these data are an absolutely prerequisite to providing sound management recommendations for this species. Also needed are data on local population dispersion, movement ecology, and the recolonization potential of this taxon. The effect of increased xerification on the local distribution of the Coronado skink, a situation likely to be significant in southern California, needs study. Current evaluation of the listing status of the Coronado skink suffers primarily from a generalized lack of data at most levels.

BANDED GILA MONSTER
Heloderma suspectum cinctum Bogert and Martín del Campo 1956

Description: A large (22-35 cm SVL), robust lizard with a short, stout tail and relatively short limbs with strongly curved claws (Stebbins 1985, Campbell and Lamar 1989). The back and sides are covered with beadlike scales colored in an orange, pink, or yellow and black-banded pattern that suggests Indian beadwork (Bogert and Martin del Campo 1956); belly scales are similarly colored, but squarish in shape (Stebbins 1985). The iris is dark brown or black (pers. observ.).

Taxonomic Remarks: *Heloderma suspectum cinctum* was described on the basis of morphological data (Bogert and Martín del Campo 1956); genetic data have never been used to verify this allocation. Moreover, no data exist on genetic variation within this taxon.

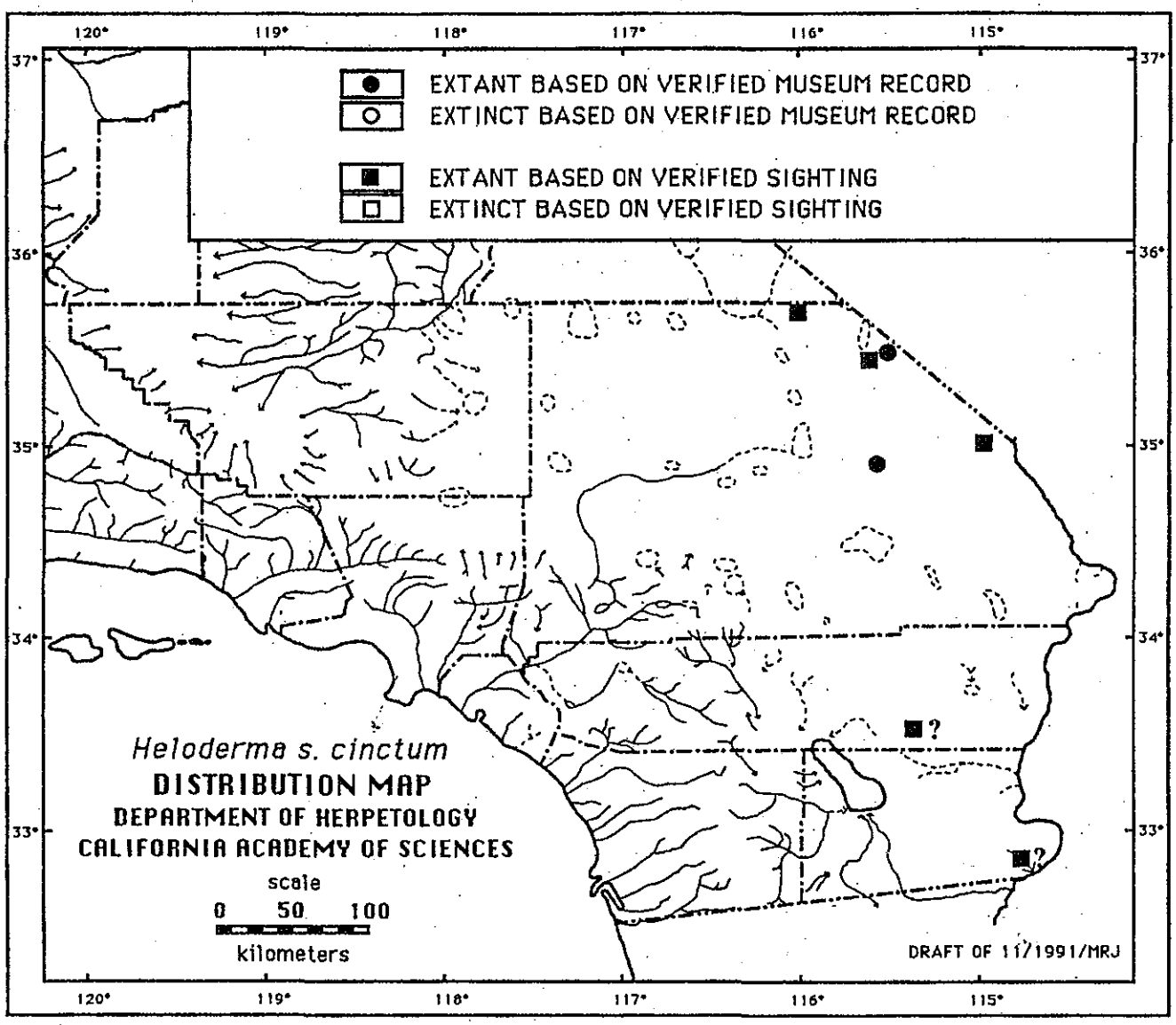

Figure 33. Historic and current distribution of the banded Gila monster (*Heloderma suspectum cinctum*) in southern California based on 9 locations from 3 museum records and 6 records from other sources.

Distribution: *Heloderma s. cinctum* ranges from the Vermillion Cliffs (Washington County), Utah (Woodbury 1931) southward through the lower Colorado River basin, which includes extreme southern Nevada (Bradley and Deacon 1966), southeastern California, and Arizona west of the Central Plateau to Yuma (Yuma County: DeLisle 1985). The known elevational range for *H. s. cinctum* extends from 45 m along lower Colorado River near Yuma to 1124 m at Congress (Yavapai County), Arizona (Bogert and Martín del Campo 1956). In California, *H.* s. *cinctum* is known from isolated records in the Clark, Kingston, Paiute, and Providence mountains of eastern San Bernardino County (DeLisle 1979, 1983, 1985; Ford 1981; Bicket 1982; Stebbins 1985: Figure 33). No specimens or photographs are available to verify other California records (i.e., 15.5 km east of Desert Center in the Chuckwalla Mountains [Riverside County: Tinkham 1971], and the Imperial Dam area [Imperial County: Funk 1966, DeLisle 1985]). In California, the known elevational range of *H. s. cinctum* extends from 45 m along the lower Colorado River to at least 1100 m in the Clark Mountains.

Life History: *Heloderma s. cinctum* is a relatively sedentary, venomous, largely diurnal lizard that often returns to the same overwintering sites year after year (Lowe et al. 1986). No life history studies of banded Gila monsters have been conducted in California. Much of this summary is based on recent work conducted in Utah (Beck 1990). Using it to interpret the behavior of *H. s. cinctum* in California should be done cautiously. *Heloderma s. cinctum* leaves overwintering sites located on elevated, rocky slopes during mid-March when temperatures consistently exceed 22°C and moves up to 1 km into less elevated, adjacent bajadas and valleys, where it occupies large (6-66 ha) home range areas during the spring-fall interval (Beck 1990). The banded Gila monster seems to spend most of its time (> 95%) underground in natural cavities or animal burrows (often not its own), and emerges only during the day, which is when foraging occurs (Jones 1983, Beck 1990). *Heloderma s. cinctum* feeds opportunistically, subsisting largely on eggs of birds (mourning dove [*Zenaida macroura*], Gambel's quail [*Lophortyx gambelii*]) and reptiles (desert tortoise), and rabbit (desert cottontail [*Sylvilagus audubonii*]) and ground squirrel (white-tailed antelope squirrel [*Ammospermophilus leucurus*]) young, which it finds while robbing nests over a broad area (Armberger 1948, Shaw 1948, Hensley 1949, Jones 1983, Vaughan 1987, Beck 1990; see also Barrett and Humphrey 1986). The venom is thought to be used solely for defensive purposes, rather than for subduing or predigesting prey (Lowe et al. 1986, Beck 1990). During the spring, banded Gila monsters may forage over significant distances (up to 1 km/day) to accumulate enough fat reserves (stored largely in the tail) for use during the rest of the year when food resources are scarce (Jones 1983, Beck 1990). Banded Gila monsters spend anywhere from a few minutes to 4-5 hours basking and foraging each day (Porzer 1982). The range of body temperatures at which Gila monsters are usually active is 22-37°C (Lowe et al. 1986, Beck 1990). As midday temperatures become warmer during April and May, surface activity shifts from a single midday interval to a bimodal pattern; most activity occurs during a 3-to-4 hour interval 1-2 hours after sunrise, but a less frequent, often shorter interval occurs in late afternoon (Porzer 1982, Jones 1983). Banded Gila monsters are frequently observed out of their burrows on warm cloudy days, but lizards out after dusk are usually hatchlings, or individuals that are starved, displaced by floods, or incapacitated from recent fights (Lowe et al. 1986). As temperatures cool during September, banded Gila monsters revert to a unimodal pattern of surface activity (Beck 1990). When air temperatures consistently drop below 25°C, lizards return to winter denning sites (Lowe et al. 1986).

In Arizona, banded Gila monsters normally breed from late April through early June (Lowe et al. 1986). Breeding adults can occupy the same burrow at this time and probably mate underground. Males appear to be territorial during the spring and early summer, often fighting rival males in bouts of up to several hours of intermittent combat (Beck 1990). Females lay 2-12 (average = 5), leathery, oblong (average = 59.8 mm long x 30.6 mm

wide), white eggs from mid-July to mid-August (Lowe et al. 1986). Eggs hatch from late April to early June after an incubation period of about 10 months, thus developing young overwinter in the nest. Hatchling *H. s. cinctum* average ca. 120 mm SVL (Bogert and Martín del Campo 1956) and grow rapidly until they attain approximately 260 mm SVL (minimum adult size), after which growth rates probably slow to 7-10 mm SVL/year (see Tinkham 1971). Adults grow more slowly (ca. 4-7 mm/year) until they reach 300 mm SVL, after which growth slows to < 2 mm/year (Beck 1990). Based on captive animals, sexual maturity is probably reached after about 4 years (DeLisle 1985). If the large sizes of adults found in the wild (up to 360 mm SVL) are an indication of extreme age (see Bogart and Martín del Campo 1956), then Gila monsters are extraordinarily long-lived; captives have been maintained in zoos for over 40 years (Jennings 1984b). These lizards have relatively few natural predators because of their large size, secretive habits, and venomous bite, but Harris hawks *(Parabuteo unicinctus)* and coyotes are known to prey on Gila monsters (DeLisle 1985).

Habitat: *Heloderma s. cinctum* occurs in several desert plant associations, but seem most common in the paloverde *(Cercidium* spp.)-saguaro *(Curnegia gigantea)* desertscrub association. However, Gila monsters can also occur in mesquite-grassland, creosote bush, and singleleaf pinyon *(Pinus monophylla)*-western juniper *(Juniperus occidentalis)* vegetation types (Bogert and Martín del Campo 1956, Ford 1981, Lowe et al. 1986, Beck 1990). In Arizona, they are absent in agriculturally-modified habitats and riparian zones (Lowe et al. 1986), but in California, *H. s. cinctum* has been recorded from willow-, mesquite-, salt cedar-, and mulefat-dominated rocky canyons (Bicket 1982), several of which could be construed as "desert riparian". Banded Gila monsters are quite capable of digging (Lowe et al. 1986), but they depend largely on natural crevices, desert pack rat *(Neotoma lepida)* nests, or animal burrows (e.g., desert tortoise burrows) for shelter (Beck 1990). Significant differences exist between winter and summer homesites; banded Gila monsters winter at more elevated locations on rocky slopes, in rocky outcrops or below cliffs (often with other reptiles such as rattlesnakes and desert tortoises), whereas summer ranges are located in adjacent lower valleys or bajadas (Porzer 1982, Beck 1990). Preferred shelters normally face to the east, southeast, or south (Beck 1990). Habitat requirements appear similar for both juveniles and adults (Porzer 1982, Jones 1983). Data on nest sites are lacking.

Status: Special Concern; in California, this lizard is largely restricted to only a few isolated mountain ranges in the Mojave Desert, most of which are owned by the United States Bureau of Land Management or private mining companies. Known areas from which this species is recorded appear to be secure from immediate development. Banded Gila monsters are protected by the California Department of Fish and Game and it is illegal to pursue or possess this lizard without a special permit. However, a black market may exist for this species and some animals are still taken from the wild and sold as pets or for breeding purposes (unpubl. data). Banded Gila monsters are often killed by automobiles (DeLisle 1985) and sometimes by domestic dogs *(Canis familiaris:* Bogert and Martín del Campo 1956).

Management Recommendations: Directed field surveys for this taxon need to be conducted in the Mojave Desert to determine the true extent of its distribution in California. Historical locality records for this lizard in Riverside and Imperial counties need verification. Data regarding the basic biology of this taxon in California are especially needed. Notably, ecological studies to determine essential habitat requirements, namely refuge sites, nesting sites, and home ranges are needed in order to make sensible management recommendations. Telemetry is likely to be necessary to conduct studies of this taxon in California.

SAN DIEGO HORNED LIZARD
Phrynosoma coronatum blainvillii Gray 1839

Description: A large (65-110 mm SVL), dorsoventrally flattened lizard with five (four large, lateral, sometimes curved, and one moderate-sized, median) backwardly projecting head spines; a large shelf above each eye terminating a backwardly projecting, spine-like, scale (postrical); large, convex, smooth scales on the forehead (frontals); and two parallel rows of pointed scales fringing each side the side of the body (Reeve 1952, Jennings 1988c). No stripes radiate from the eyes (Stebbins 1985). The dorsal color is highly variable, but typically gray, tan, reddish-brown, or whitish, and usually resembles the prevailing soil color (Jennings 1988c). The venter is yellow to white with discrete, dark spots. The iris is black (pers. observ.).

Taxonomic Remarks: Wide disagreement has existed as to the allocation of horned lizards in the *coronatum-blainvillii* complex and their associated forms. Van Denburgh (1922a), Klauber (1936), Smith (1946), and Tinkham (1951) recognized two species *(P. blainvillii* and *P. coronatum)* each with several subspecies, while Linsdale (1932), Tevis (1944), Reeve (1952), and Murray (1955) argued for a single species *(P. coronatum)*. Jennings (1988c) followed the latter arrangement based on the evolutionary arguments of Savage (1960, 1967) and Murphy (1983), but felt that *P. c. blainvillii* was a valid taxon. Taxonomy of this difficult group is currently being revised (R. Montanucci, pers. comm.). Genetic data on this taxon are based on only a few individuals from Baja California (Murphy 1983); characterization of genetic variation throughout the geographic range of *P. c. blainvillii* has never been attempted.

Distribution: *Phrynosoma c. blainvillii* was historically distributed from the Transverse Ranges in Kern, Los Angeles, Santa Barbara, and Ventura counties southward throughout the Peninsular Ranges of southern California to Baja California, Mexico as far south as San Vicente (Jennings 1988c). The known elevational range of this taxon is from ca. 10 m at the El Segundo dunes (Los Angeles County: Von Bloeker 1942) to approximately 2130 m at Tahquitz Meadow on Mt. San Jacinto (Riverside County: LACM 19890). In California, this taxon ranges from the Transverse Ranges to the Mexican border west of the deserts, although it occurs at scattered sites along the extreme western desert slope of the Peninsular Ranges (Jennings 1988c: Figure 34). In 1894, an attempted introduction of this taxon at Smugglers (= Pyramid) Cove, San Clemente Island (Los Angeles County: Mearns 1907) failed (Jennings 1988c). *Phrynosoma c. blainvillii* is thought to intergrade with *P. c. frontale* in extreme southern Kern County and northern Santa Barbara, Ventura, and Los Angeles counties (Reeve 1952, Montanucci 1968, Jennings 1988c).

Life History: *Phryosoma c. blainvillii* emerges from hibernation in late March (Pequegnat 1951, Howard 1974) and is surface active mostly during April-July, after which time most adults aestivate (Jennings 1987c, Hager 1992). San Diego horned lizards then reappear again briefly in August disappearing into overwintering sites from late August through early October, the variation depending on elevation (Klauber 1939, Howard 1974, Hager 1992) and perhaps local conditions. *Phrynosoma c. blainvillii* displays a distinctive sequence with regards to its daily diurnal activity. Frequently just before sunrise (when surface temperatures are > 19°C), San Diego horned lizards emerge from their burial sites in the substrate (sometimes with just the head exposed) and later move into a position where the first rays of the sun will allow them to bask (Heath 1965, Hager 1992). As temperatures warm, San Diego horned lizards thermoregulate by either shifting the orientation of their bodies relative to the sun or moving in and out of the shade; ultimately, an optimum body temperature range of 20.8-39.0°C (average = 34.9°C) is reached (Brattstrom 1965, Heath 1965). By late morning, body temperatures are elevated enough to allow the horned lizards to feed or engage in territorial and sexual behavior.

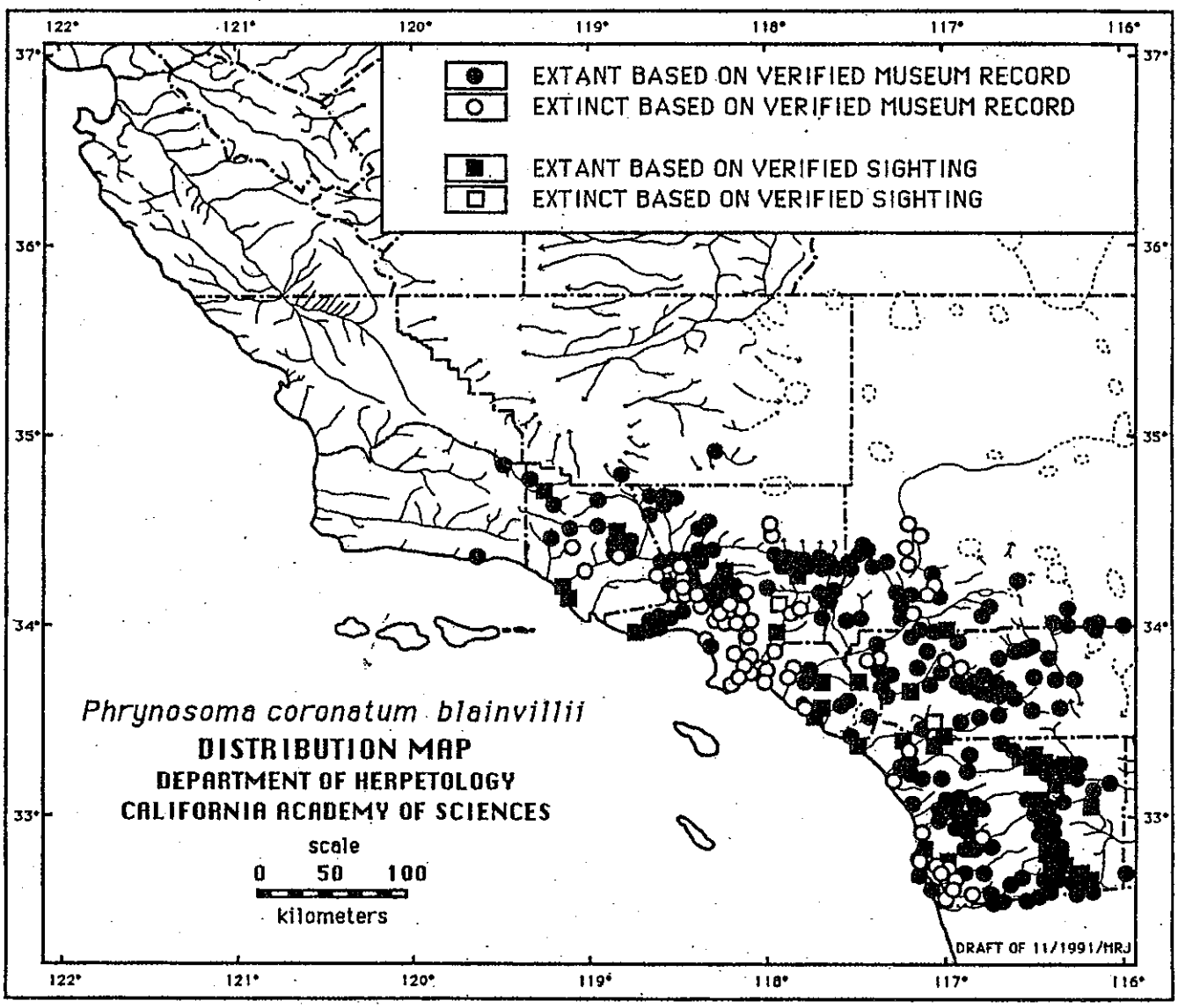

Figure 34. Historic and current distribution of the San Diego horned lizard (*Phrynosoma coronatum blainvillii*) in southern California based on 610 locations from 1054 museum records and 109 records from other sources.

During the warmest part of the day, *P. c. blainvillii* covers itself with loose soil by literally "swimming" into the substrate (Stebbins 1954b). San Diego horned lizards often display high site fidelity because effective temperature regulation requires familiarity with their surroundings (Heath 1965). In the later afternoon, individuals re-emerge from the substrate and resume full activities. The sequence of morning behavior is repeated in reversed order prior to when individuals rebury themselves in the substrate for the night. San Diego horned lizards do not voluntarily expose themselves to temperatures over 40°C for extended periods (Cowles and Bogert 1944, Brattstrom 1965; contra to Hager 1992), the condition that probably limits the distribution of this taxon primarily to areas west of the deserts in southern California (Heath 1965).

San Diego horned lizards are oviparous and lay one clutch of 6-17 (average = 11-12) eggs each year from May through early July (Stebbins 1954b, Howard 1974, Goldberg 1983); no data exist suggesting that this taxon can produce more than one clutch per year. Incubation requires approximately 2 months and hatchlings first appear in late July and early August (Shaw 1952, Howard 1974, Hager 1992). Male and female *P. c. blainvillii* require 2 to 3 years to reach the minimum size for sexual maturity (ca. 73 mm SVL for males, ca. 76 mm SVL for females; Stebbins 1954b, Howard 1974; Pianka and Parker 1975, Goldberg 1983). Data on longevity in the wild are lacking, but adults are thought to be long-lived (> 8 yr: see Baur 1986). No data are available on density or colonization abilities. Hager (1992) presented limited information on the home range and movement ecology for *P. c. blainvillii* in western San Bernardino and Riverside counties, but resightings are so few that home ranges are likely to be severely underestimated and interpretation of the significance of movement patterns is equivocal.

San Diego horned lizards have an insectivorous diet that consists mostly of native harvester ants *(Pogonmyrmex* spp.: Ingles 1929, Pianka and Parker 1975) and do not appear to eat exotic Argentine ants (pers. observ.; see also Montanucci 1989) that have been introduced to the western United States and have replaced native ants over much of central and southern California (Ward 1987). Ants can make up over 90% of the diet items of *P. c. blainvillii* (Pianka and Parker 1975), but the diet of this taxon may vary considerably with locality since it is an opportunistic feeder that will eat other insects (especially termites, beetles, flies, wasps, and grasshoppers) when the latter are abundant (Stebbins 1954b, Miller and Stebbins 1964). Known predators of *P. c. blainvillii* include the Southern Pacific rattlesnake *(Crotalus viridis helleri),* striped racer *(Masticophis lateralis),* burrowing owl *(Athene cunicularia),* greater roadrunner *(Geococcyx californianus),* loggerhead shrike, American kestrel *(Falco sparverius),* prairie falcon *(Falco mexicanus),* badger *(Taxidea taxus),* and gray fox *(Urocyon cinereoargenteus;* Bryant 1916, Von Bloeker 1942, Klauber 1972, Eakle 1984), but a variety of other predators probably take San Diego horned lizards. The defense this taxon typically uses against an approaching predator is to depend on its cryptic appearance by remaining motionless and to make a rapid run for the nearest cover only if disturbed or touched (pers. observ.). Captured lizards will puff themselves up with air, presumably to appear larger and less wieldy to a predator (see Tollestrup 1981), and may squirt blood from a sinus located in the eyelid of each eye if roughly handled (Bryant 1911, Burleson 1942).

Habitat: The San Diego horned lizard is found in a wide variety of habitats including coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest (Grinnell and Grinnell 1907, Klauber 1939, Stebbins 1954b). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge (pers. observ.). Historically, the San Diego horned lizard was most abundant in riparian and coastal sage habitats on the old alluvial fans of the southern California coastal plain (Grinnell and Grinnell 1907, Bryant 1911, Van Denburgh

1922a). In the foothill and mountain habitats covered with dense brush or other vegetation, San Diego horned lizards are largely restricted to areas with pockets of open microhabitat, a habitat structure that can be created by natural events such as fire and floods or human-created disturbances such as livestock grazing, fire breaks, and roads. Juvenile and adult *P. c. blainvillii* utilize the same general habitat, but oviposition and hibernation sites are unknown. This taxon is unable to survive in habitats altered through urbanization, agriculture, off-road vehicle use, or flood control structures (Grinnell and Grinnell 1907, Goldberg 1983, Jennings 1987c; pers. observ.).

Status: Threatened; the relatively specialized diet and habitat requirements, a high degree of site fidelity, and a defensive behavior based on crypsis make the San Diego horned lizard vulnerable. San Diego horned lizards seem to have disappeared from about 45% of its range in southern California; few populations are extant on the coastal plain where it was once common (Stewart in Bury 1972a; Hayes and Guyer 1981). This taxon was heavily exploited for the curio trade at the turn of the century (Tower 1902, Klauber 1939, Jennings 1987c), and later, by biological supply companies and the pet trade before commercial collecting was banned in 1981 (B. Brattstrom, J. Copp, and D. Morafka, pers. comm.). These factors, coupled with extensive habitat loss from agriculture and urbanization, have been the main reasons cited for the decline of this taxon (e.g., Jennings 1987c). Most surviving populations currently inhabit upland sites with limited optimal habitat (S. Goldberg and B. McGurty, pers. comm.). Many such sites occur on U. S. Forest Service lands that are marginally suitable. Under these conditions, populations of the San Diego horned lizard have become increasingly fragmented and have sustained the added stress of a combination of other factors that include fires, off-road vehicles, livestock grazing, pets (especially domestic cats), and various types of development. Perhaps the most insidious threat to the San Diego horned lizard is the progressive elimination of its food base by exotic ants that have invaded upland habitats. Argentine ants build nests in disturbed soils (such as around building foundations, roads, and landfills) and expand into adjacent areas, eliminating native ant colonies (Ward 1987; see also Nagano et al. 1981), as development continues. The defensive behavior of initially remaining immobile rather than fleeing makes San Diego horned lizards particularly vulnerable to capture by humans and domestic pets (Hayes and Guyer 1981), and to being killed by approaching vehicles. San Diego horned lizards do poorly in captivity without special care (Montanucci 1989), so captives have a low survivorship and few individuals, if any, are returned to the wild (B. McGurty, pers. comm.).

Management Recommendations: Comprehensive surveys that identify the best remaining habitat and largest extant populations of this taxon are needed in order to determine which areas should be protected from human disturbance as well as the many other factors that negatively affect San Diego horned lizards. Limited surveys and studies of the San Diego horned lizard are currently underway (Brattstrom 1990), but data are lacking to provide an understanding of the completion level of those surveys or the significance of the results (see Hager 1992). Existing surveys notwithstanding, much more extensivesurveys and studies of this taxon are needed. In particular, a more precise understanding of the negative effects of exotic organisms (especially ants and domestic cats) on horned lizard populations is urgently needed. Additionally, an understanding of the susceptibility of San Diego horned lizards to land-use practices potentially detrimental to its survival, such as livestock grazing, off-road vehicle use, and prescribed burning, is needed for management purposes. Proper management of this taxon also requires detailed studies of its movement ecology and colonization abilities. Although systematic revision of this taxon and its relatives based on morphology is currently underway, parallel studies using novel biochemical techniques are also needed to clarify the systematic status of *P. c. blainvillii.* In the absence of data from such studies, the vulnerability of San Diego horned lizards indicates that maximizing isolation from all aforementioned potentially negative

impacts is the best management option. That approach may be relaxed as new data from these studies becomes available.

CALIFORNIA HORNED LIZARD
Phrynosoma coronatum frontale Van Denburgh 1894

Description: A large (65-105 mm SVL), dorsoventrally flattened lizard with five (four large, lateral, sometimes curved, and one moderate-sized, median) backwardly projecting head spines; a large shelf above each eye terminating a backwardly projecting, spine-like, scale (postrictal); small, pointed rugose scales on the forehead (frontals); and two parallel rows of pointed scales fringing each side the side of the body (Reeve 1952, Jennings 1988c). No stripes radiate from the eyes (Stebbins 1985). The dorsal color is highly variable, but typically gray, tan, reddish-brown, or whitish, and usually resembles the prevailing soil color (Jennings 1988c). The venter is yellow to white with discrete, dark spots. The iris is black (pers. observ.).

Taxonomic Remarks: See taxonomic remarks under the *P. c. blainvillii* account. Characterization of genetic variation throughout the geographic range of *P. c. frontale* has never been attempted, and no other genetic data are available for this taxon.

Distribution: This California endemic originally had a spotty distribution from Kennett (now under Lake Shasta, Shasta County) southward along the edges of the Sacramento Valley into much of the South Coast Ranges, San Joaquin Valley, and Sierra Nevada foothills to northern Los Angeles, Santa Barbara and Ventura counties; California (Jennings 1988c; Figure 35). A disjunct locality at Grasshopper Flat near Medicine Lake (Siskiyou County) has been recorded (Banta 1962) as have several fine-scaled populations in the Shandon-Cuyama Valley region, Santa Barbara and San Luis Obispo counties, which have been mistakenly identified in Stebbins (1985) as *P. platyrhinos calidiarum* (S. Sweet, pers. comm.; pers. observ.). *Phrynosoma c. frontale* intergrades with *P. c. blainvillii* in southern Kern County and much of northern Santa Barbara, Ventura, and Los Angeles counties. The known elevational range for this taxon extends from near sea level at Monterey, Pacific Grove, and Seaside (Monterey County: Reeve 1952) to ca. 1980 m at Breckenridge on Breckenridge Mountain (Kern County: Van Denburgh 1922a).

Life History: Based on limited data, California horned lizards appear to have a life history very similar to the related San Diego horned lizard (see *P. c. blainvillii* account for comparison). *Phrynosoma c. frontale* have been observed to be active between April and October with activity being more conspicuous in April and May (Banta and Morafka 1968, Tollestrup 1981). Captive California horned lizards have been observed to copulate in late April and early May (Banta and Morafka 1968) while courtship activities have been noted in wild California horned lizards during April (Tollestrup 1981). Hatchlings first appear in July and August (Banta and Morafka 1968). Longevity in the wild is unknown, but captive *P. c. frontale* have been-maintained for over 8 years (Baur 1986). California horned lizards are recorded as preying on beetles and ants (Grinnell and Storer 1924), but probably take many other insects which ate seasonally abundant (Stebbins 1954b). Blunt-nosed leopard lizards *(Gambelia silus)* have been observed preying on California horned lizards (Montanucci 1965) at some sites, but not others (Tollestrup 1979). At sites where leopard lizards are not known predators, *P. c. frontale* may display aggressively at the latter and can displace it from basking sites (Tollestrup 1981). As for *P. c. blainvillii,* ejection of blood from its eyes is reported (Bryant 1911, Van Denburgh 1922a), probably as a defensive mechanism against potential predators.

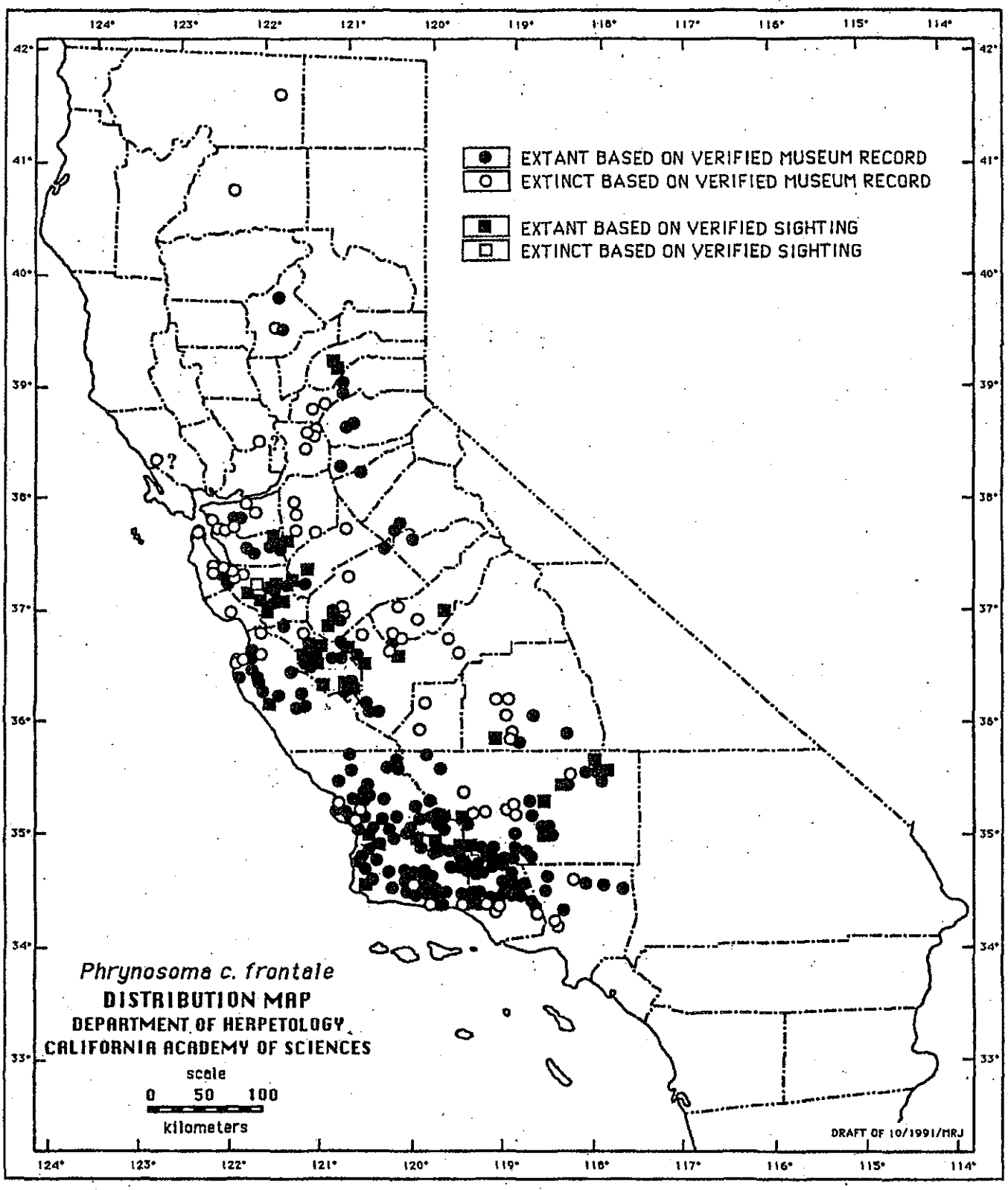

Figure 35. Historic and current distribution of the California horned lizard (*Phrynosoma coronatum frontale*) in California based on 640 locations from 979 museum records and 118 records from other sources.

Habitat: The California horned lizard seems to occur in several habitat types, ranging from areas with an exposed gravelly-sandy substrate containing scattered shrubs (e.g., California buckwheat; pers. observ.), to clearings in riparian woodlands (Stebbins 1954b), to dry uniform chamise chaparral (Banta and Morafka 1968) to annual grassland with scattered perennial seepweed *(Suaeda fruticosa:* Tollestrup 1981) or saltbush *(Atriplex polycarpa:* see Montanucci 1968; Tollestrup 1981) Montanucci (1968) indicates that *P. c. frontale* reaches it maximum abundance in sandy loam areas and on alkali flats, the latter often dominated by iodine bush *(Allenrolfea occidentalis).* The California horned lizard could apparently survive in vineyards, at least in the manner in which these were tended historically, because the typically sandy soil was suitable, the substrate was infrequently disturbed (Montanucci 1968), and probably because horned lizards could take refuge in the areas around the trunks of the perennial vines (see also *P. c. blainvillii* account). However, this is probably not the case today given the manner in which vineyards are currently tended because *P. c. frontale* is virtually never observed under such conditions. Historically, this taxon was identified as most abundant in relict lake sand dunes and old alluvial fans bordering the San Joaquin Valley (Bryant 1911, Van Denburgh 1922a). Zeiner et al. (1988) report that coast horned lizards utilize small mammal burrows or burrowed into loose soils under surface objects during extended periods of inactivity or hibernation, but data on over-wintering sites are fragmentary, and the general characteristics of overwintering sites are not well understood. Data on oviposition sites are unavailable.

Status: Threatened; *P. c. frontale* has disappeared from approximately 35% of its range in central and northern California and extant populations are becoming increasingly fragmented with continued development of the region. In the Central Valley, the conversion of a large percentage of the historical habitat of the California horned lizard from relict lake sand dunes and alluvial fans to agriculture (see Grinnell and Storer 1924), and to a lesser extent other development such as pipelines, canals, and roads, has resulted in the disappearance of this taxon from many areas. This activity continues and has been significantly extended into the surrounding foothills over the last 20 years as technological advances have allowed farmers to cultivate crops such as wheat *(Triticum aestivum),* grapes *(Vitis* spp.), and fruit orchards on increasingly steeper slopes previously only used for livestock grazing. Because the California horned lizard is probably long-lived, individuals may continue to be observed for some years along the fringes of agricultural developments. However, this lizard seems inevitably to disappear after several generations if the edge habitat is altered, or its food resources are reduced due to pesticides or habitat takeover by Argentine ants. Today, *P. c. frontale* remains abundant only in localized areas along the South Coast Ranges (e.g., Pinnacles National Monument, San Benito County), and in isolated sections of natural habitat remaining on the valley floor (e.g., Pixley Vernal Pools Preserve, Tulare County). The California horned lizard continues to be threatened by development in other parts of its range, especially near fast-growing hubs such as Bakersfield, Fresno, Modesto, and Sacramento. As more people move into the Sierra Nevada foothills below 1200 m, a trend that has been more pronounced in the last 15 years as more individuals have attempted to find a rural setting in which to settle, *P. c. frontale,* which has already relatively scattered populations in this region, can be expected to be more impacted there. The negative effects of human disturbance are not limited to the immediate vicinity of land disturbance or human habitation, sometimes effects are manifest at considerable distances (e.g., domestic cats have been observed to eliminate horned lizards within a several km^2 area from a cat's home base [G. Hanley, pers. comm.]).

Management Recommendations: Management recommendations for this taxon are parallel to those for *P. c. blainvillii* (see the previous species account). Comprehensive surveys of historical localities in the northern and Sierran slope portions of the range of this taxon urgently need to be conducted in April and May over several years to determine what

populations are still extant. Greater effort needs to be directed at preservation of remaining native plant community fragments, especially in the San Joaquin drainage basin, that contain habitat that has never undergone significant substrate disturbance.

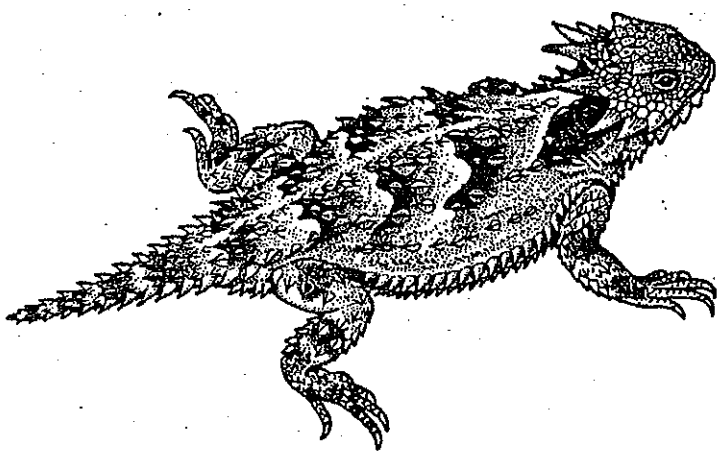

Plate 11. Adult coast horned lizard (*Phrynosoma coronatum*) [from Stebbins 1954b].

FLAT-TAILED HORNED LIZARD
Phrynosoma mcallii (Hallowell 1852)

Description: A moderated-sized (50.0-82.0 mm SVL), gray, tan, reddish-brown, or whitish horned lizard with a narrow middorsal stripe from the head to the base of the tail and a prominently dorsoventrally flattened tail (Funk 1981). The two largest (occipital) head spines are very long (3-4 times longer than their basal width) and do not contact each other at the base. Three shorter, lateral (temporal) spines are present on each side of the head. The undersurfaces are white without any markings or spots whatsoever. The iris color has not been described.

Taxonomic Remarks: The flat-tailed horned lizard is morphologically distinctive, it has not been confused with any other species of horned lizard, and it has not been partitioned infraspecifically (Funk 1981). No attempts have been made to characterize genetic variation across the geographic range of *P. mcallii.* An understanding of that variation is needed to determine whether a geographic pattern to genetic variation exists in this species.

Distribution: *Phrynosoma mcallii* occurs throughout most of the Colorado Desert, it extends from the north end of the Coachella Valley (Riverside County), California southward into northeastern Baja California, Mexico (Klauber 1932b), and eastward through southwestern tip of Arizona into Sonora, Mexico (Funk 1981). Its known elevational range extends from 52 m below sea level at Frink, Imperial County, California to ca. 300 m on Superstition Mountain (Imperial County: Funk 1981). In California, its range extends from central Riverside County southeast through most of Imperial County to the Mexican border (Figure 36). Flat-tailed horned lizards also enter extreme eastern San Diego County (Klauber 1932b).

Life History: *Phrynosoma mcallii* is a distinctive lizard with behavioral, morphological, and physiological features that allow it to survive in hot, dry environments with a sandy substrate. Its concealed tympanum; markedly dorso-ventrally flattened tail; distinctively pointed and sharply keeled scales just below its knees and just above its heels; and pale, reflective coloration are all features that facilitate its existence in hot, dry, sandy environments (Klauber 1939, Norris 1949; see also Stebbins 1944). *Phrynosoma mcallii* adults are obligate hibernators that. overwinter at 2.5-20 cm of depth in loose sand (Cowles 1941, Mayhew 1965b, Muth and Fisher 1992). While overwintering, flat tailed horned lizards have the ability to metabolize at a low rate during intervals when the temperature of the substrate in which they are located is relatively high. This feature of their physiology appears to be the result of overwintering sites often attaining high temperatures, and minimizes the probability that *P. mcallii* will deplete its stored energy reserves before spring emergence (Mayhew 1965b). Adult flat-tailed horned lizards emerge from overwintering sites relatively late in the spring season (April: Howard 1974; but see also Muth and Fisher 1992 who found lizards emerging in February and March in Imperial County); they emerge when substrate temperatures at a depth of 5 cm reach their voluntary minimum, which is relatively high (29.3°C: Cowles and Bogert 1044, Muth and Fisher 1992). Flat-tailed horned lizards display several behavioral and physiological traits that allow them to cope with the high temperatures regularly attained by the sandy substrate in which they live. They voluntarily maintain a higher body temperature when active (average = 37.8°C; n = 473) than most lizards (Mayhew in Pianka and Parker 1975; see also Brattstrom 1965), they orient relative to both the sun and the substrate depending on the temperature variation of each (Cowles and Bogert 1944, Heath 1965), and when sand surface temperatures reach or exceed 41°C, they avoid overheating by submerging themselves into the cooler subsurface sand by wriggling violently (Klauber 1930, Norris 1949). Female flat-tailed horned lizards lay clutches of 3-10 eggs in May (Norris 1949, Stebbins 1954b, Howard 1974), and may deposit a second clutch in favorable years

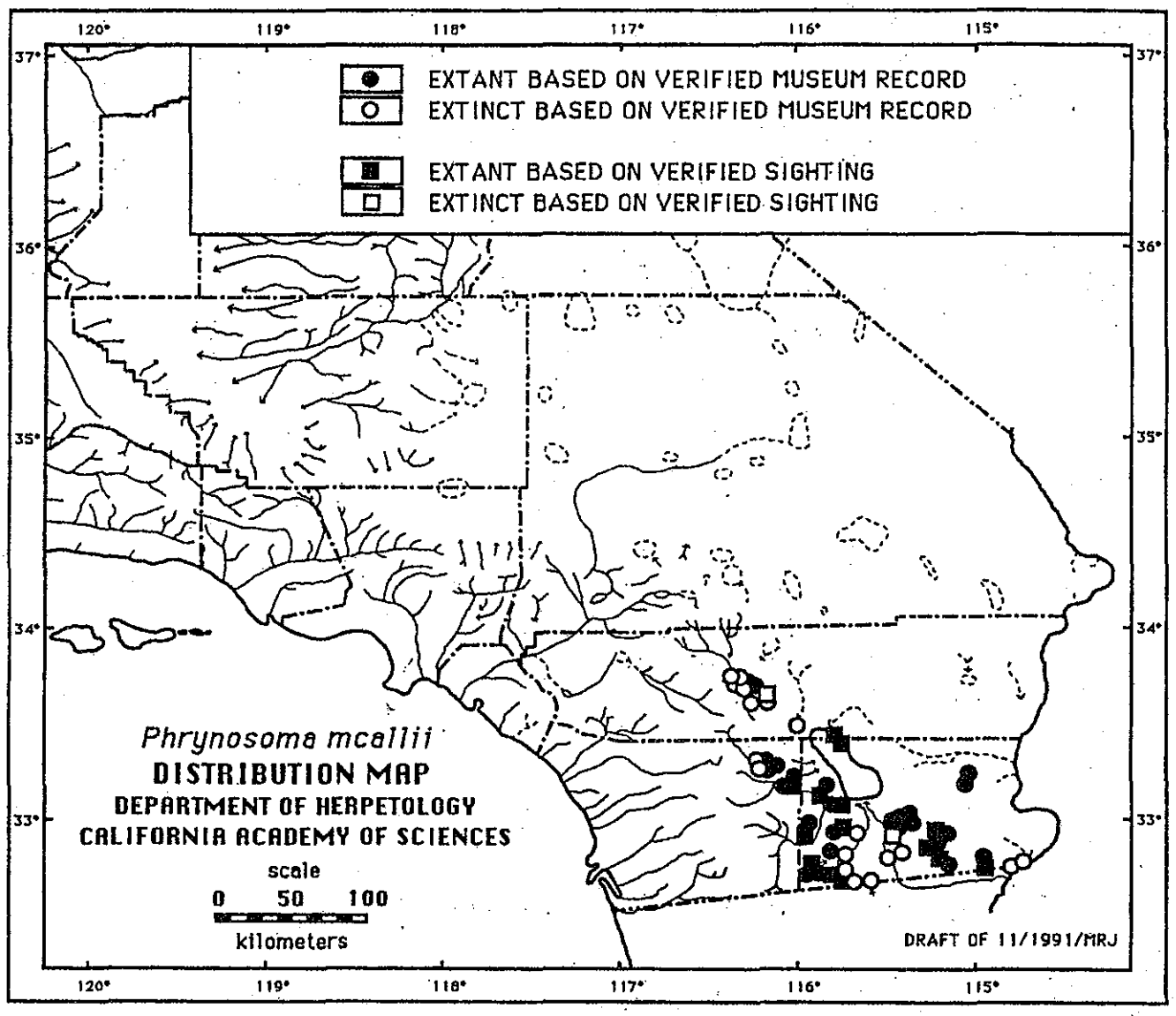

Figure 36. Historic and current distribution of the flat-tailed horned lizard (*Phrynosoma mcallii*) in southern California based on 149 locations from 200 museum records and 38 records from other sources.

(Turner and Medica 1982). Adults do not aestivate (Muth and Fisher 1992); the interpretation that adults aestivate (Howard 1974) was based on a biased sample from museums with no post-July collections of adults. The earliest clutches hatch in July, and hatchlings (34-38 mm SVL) emerge through September (Howard 1974, Turner and Medica 1982, Muth and Fisher 1992). Juveniles from early clutches can grow rapidly, reaching 54-64 mm SVL by October, and may reproduce in their first season after hibernation, where juveniles from late clutches likely have to wait until their second season to reproduce (Howard 1974, Muth and Fisher 1992). Females are probably not sexually mature until around 12 months of age (Muth and Fisher 1992; *contra* the Turner and Medica (1982) finding of 20 months of age). Longevity for the flat-tailed horned lizard is unknown. *Phrynosoma mcallii* is a dietary specialist that consumes mostly ants (Norris. 1949, Pianka and Parker 1975; Turner and Medica 1982). In the one study where ants were identified, the majority (> 80%) of ants consumed were three species of harvesters *(Veromessor pergandei, Pogonomyrmex californicus,* and *P. magnacanthus)* and *Conomyrma* sp. (Turner and Medica 1982). Juveniles of *P. mcallii* are known to be preyed upon by sidewinders *(Crotalus cerastes:* Funk 1965), while all age classes are subject to predation by round-tailed ground squirrels *(Spermophilus tereticaudus),* loggerhead shrikes, American kestrels, common ravens *(Corvus corax),* coyotes, and kit foxes *(Vulpes macrotis:* Muth and Fisher 1992, Duncan et al. 1994). Flat-tailed horned lizards are also killed by off-road vehicles and automobiles on paved roads (Muth and Fisher 1992; pers. observ.). *Phrynosoma mcallii* typically escapes its predators by initially fleeing a short distance, invariably diving into the sand, and subsequently remaining immobile (Klauber 1939, Norris 1949). According to Turner and Medica (1982), adult males occupied home ranges averaging nearly 1,287 m^2, whereas females occupied home ranges averaging less than half that size (509 m2). More recently, estimates obtained with radio telemetry indicate home ranges over an order of magnitude larger (averaging 17,894 m^2 for adult males and 19,703 m^2 for females; Muth and Fisher 1992). The large discrepancy probably results from the fact that the Turner and Medica (1982) data seriously underestimate home range size because of the much lower number of captures.

Habitat: *Phrynosoma mcallii* is a specialized sand-dweller that has not been observed outside of areas with a shifting sand substrate (Norris 1949), areas in which it is known to forage (Turner and Medica 1982), and overwinter (Mayhew 1965b). It requires fine, wind-blown (aeolian) sand deposits and has been recorded in several vegetative associations where such a substrate is present, including those where creosote bush, burro weed *(Franseria dumosa),* bur-sage *(Ambrosia dumosa),* and indigobush *(Psorothamnus emoryi)* are abundant (Norris 1949, Turner and Medica 1982, Muth and Fisher 1992). It seems to be more abundant in associations where plants large enough to form nuclei for sand accumulations are present (Norris 1949), and a strong, positive correlation ($r = 0.93$) between the abundance of *P. mcallii* and the total density of perennial plants has been identified (Turner and Medica 1982). Muth and Fisher (1992) related the preference of flat-tailed horned lizard for bur-sage and indigobush to the fact that both species are low growing, densely branched shrubs with multiple branching at the crown, a growth habit that permits it to accumulate more sand at the base than co-occurring single-stemmed species, and provide more shade than other co-occurring multi-stemmed species (e.g., creosote bush). These relationships may be a function of vegetation being important for oviposition sites, which have never been identified, but are likely to be located next to clumps of vegetation because the vegetation tend to stabilize shifting sand, which may be important to the stability of a nest site. High lizard abundance has also been generally associated with high abundances of harvester ants (Turner and Medica 1982).

Status: Threatened; historically, this lizard was never a common species (Klauber 1939, Norris 1949), but the observations of Wilbur W. Mayhew in the early 1960s first gave rise

to concerns that this species might be declining. Stewart (1971) and others repeating Mayhew's earlier concern regarding the status of *P. mcallii* because of increased use and development of desert areas in Riverside and Imperial counties in the late 1960s and early 1970s led to the Office of Endangered Species (United States Fish and Wildlife Service) designating *P. mcallii* as a species that should be reviewed (Turner et al. 1980; see also Johnson and Spicer 1985). This action ultimately led to the Bureau of Land Management supporting investigations of the status of *P. mcallii* in California (Turner and Medica 1982; see also Turner et al. 1980 and Rado 1981). Based on their surveys, Turner and Medica (1982) concluded that *P. mcallii* was not endangered, but they noted that, "While *P. mcalli[i]* still exists comfortably in parts of its geographic range, it is rapidly disappearing in others. For example, areas developed in Riverside County and in the south-central portion of Imperial County are no longer inhabited by *P. mcalli[i]....Perhaps* the most dramatic change in apparent abundance of *P. mcalli[i]* has occurred along the 11-km stretch of California Highway 78 west of the Algodones Dunes....over 500 *P. mcalli[i]* were captured or observed dead along this road between 1961 and 1964. But our research in 1978 and 1979 showed *P. mcalli[i]* to be uncommon in this area." Turner and Medica (1982) also indicated that an exhaustive analysis of how present and projected land used in southeastern California showed that about 52% of the estimated geographic range of *P. mcallii* in California (ca. 7,000 km^2) was within areas subjected to one or more use-oriented activities (e.g., agriculture; sand and gravel quarries; off-road-vehicle "parks"; approved oil, gas, and geothermal leases). On 20 January 1986, Barbara A. Carlson and Wilbur W. Mayhew submitted a well-supported petition to the California Fish and Game Commission to have *P. mcallii* listed as Endangered (see Carlson and Mayhew 1986). The significant data in that petition consisted of a resampling of sites that Turner and Medica (1982) had discussed; the data presented by Carlson and Mayhew indicate a significant reduction in the relative abundances of *P. mcallii* from the data presented by Turner and Medica (1982). As required by Section 2074.6 of the Fish and Game Code, Betsy C. Bolster and Kimberly A. Nicol (California Fish and Game staff) rewrote the Carlson-Mayhew document as a status report and suggested that *P. mcallii* be listed as Threatened (see Bolster and Nicol 1989). Based on aerial photographs, our current assessment is that about 70% of the range of *P. mcallii* is impacted by one or more of the uses discussed by Rado (1981), and that flat-tailed horned lizards have been eliminated entirely from roughly 30% of this historic range. These data coupled with the trends indicated by the aforementioned reports strongly justify listing this species as Threatened. The defensive behavior of *P. mcallii* making it particular susceptible to injury by off-road vehicles (Muth and Fisher 1992; see also Collins 1988) and the fact that off-road vehicle use continues at high levels over much of the region where this taxon occurs (Bury and Luckenbach 1983, Turner et al. 1984) make *P. mcallii* especially susceptible to mortality from this source, whether it be accidental or the result of clandestine activity. The new home range data of Muth and Fisher (1992) also indicate that *P. mcallii* may be much more susceptible to habitat disturbance than previously thought.

Management Recommendations: While the life history of *P. mcallii* is understood in a general way, understanding of its movement ecology, its recolonization potential, and the variation in its nesting sites are essential to future management recommendations. Current understanding of the population dynamics and recolonization potential of *P. mcallii* is too poor to ignore taking significant action now. Two-year life history studies by Muth and Fisher (1992) have assisted in understanding part of the aforementioned aspects of the life history of *P. mcallii,* but they need to be continued for at least another 10 years to determine long-term trends for this taxon. In addition, surveys discussed by Carlson and Mayhew (1986) on the permanent plots established by Turner and Medica (1982) need to be continued on a yearly basis and their geographic scope extended. The recent petition to list this species as threatened was rejected by the Commission based on insufficient

information (Muth and Fisher 1992). Efforts should be made to regularly collect the data upon which a sufficient-data Commission decision can be based. A more precise understanding of how this species responds to off-road vehicles is especially needed. The dynamics of aeolian sand habitats and adjacent habitats needs to be better understood so that these areas can be appropriately managed to ensure the survival of the flat-tailed horned lizards.

COLORADO DESERT FRINGE-TOED LIZARD
Uma notata notata Baird 1858

Description: A moderate-sized (69.0-121 mm SVL), pale-colored lizard with a dorsal reticulum of black-bordered pale spots with red centers (ocelli: Norris 1958, Stebbins 1985). Ocelli tend to form broken lines that extend the length of the body. Undersurfaces are white except for "chevron-like" diagonal dark lines on the throat, dark bars on the tail, and a single dark spot or bar on each side of the belly (Stebbins 1954b). The side of the belly around each dark spot or bar has a permanent orange or pinkish stripe, colors which may be more vivid during the breeding season (Norris 1958). The iris is black.

Taxonomic Remarks: The taxonomic status of *Uma notata notata* is controversial. Heifetz (1941) differentiated this taxon morphologically from the remaining two of the three members of the genus *Uma* in California *(U. inornata* and *U. scoparia)* based on characters that seem to be variable at a population level (Norris 1958, Mayhew 1964a). These data lent support to the earlier suggestion that all three California taxa represent one species (Stebbins 1954b). Based on behavioral data, Carpenter (1963) regarded two of the three taxa, *U. notata* and *U. inornata,* as subspecies of the former, but accorded *U. scoparia* specific rank. This pattern of allocation creates a historical unit, the *U. notata* and *U. inornata* cluster, that is nonsense (a paraphyletic group) based on genetic data (Adest 1977). The low level of geneticdifferentiation between the three California taxa (Adest 1977) seems to support the suggestion that all three taxa should be considered one species (e.g., Collins 1990). However, the genetic comparison was based on a small number of allozymes and only one sample of each of the three currently recognized members of the genus *Uma* in California. Moreover, morphological and genetic analyses have not been coupled, so it is impossible make a sound systematic determination with such non-parallel data. Comprehensive assessment of genetic variation across the range of *U. notata* and potentially conspecific populations now recognized under other names is needed. Such an assessment should be coupled to a morphological analysis of those same populations. This analysis is of some significance because the potentially conspecific population system currently recognized under the name *U. inornata* is presently listed as being Federally Endangered.

Distribution: This taxon is thought to be distributed from northeast of Borrego Springs (northeast San Diego County) westward to the Colorado River and southward into Baja California (Mexico) at a latitude roughly due west of the mouth of the Colorado River. Heifetz (1941) allocated populations of *Uma* in the Gila drainage (Arizona) to this taxon, but Norris (1958) restricted *U. n. notata* to populations west of the Colorado River. Its known elevational ranges extends from below sea level at -74 m (at the edge of the Salton Sea, Imperial County: Norris 1958) to ca. 180 m (northeast of Borrego Springs, San Diego County). In California, its range extends from northeastern San Diego County through the southern two-thirds of Imperial County to the Colorado River (Pough 1977: Figure 37). We caution that because of the difficulties with this taxon noted above, the distribution we provide here is based entirely on the most recent assessment by previous workers. Verification of the distribution of this taxon will require the systematic analysis we have indicated.

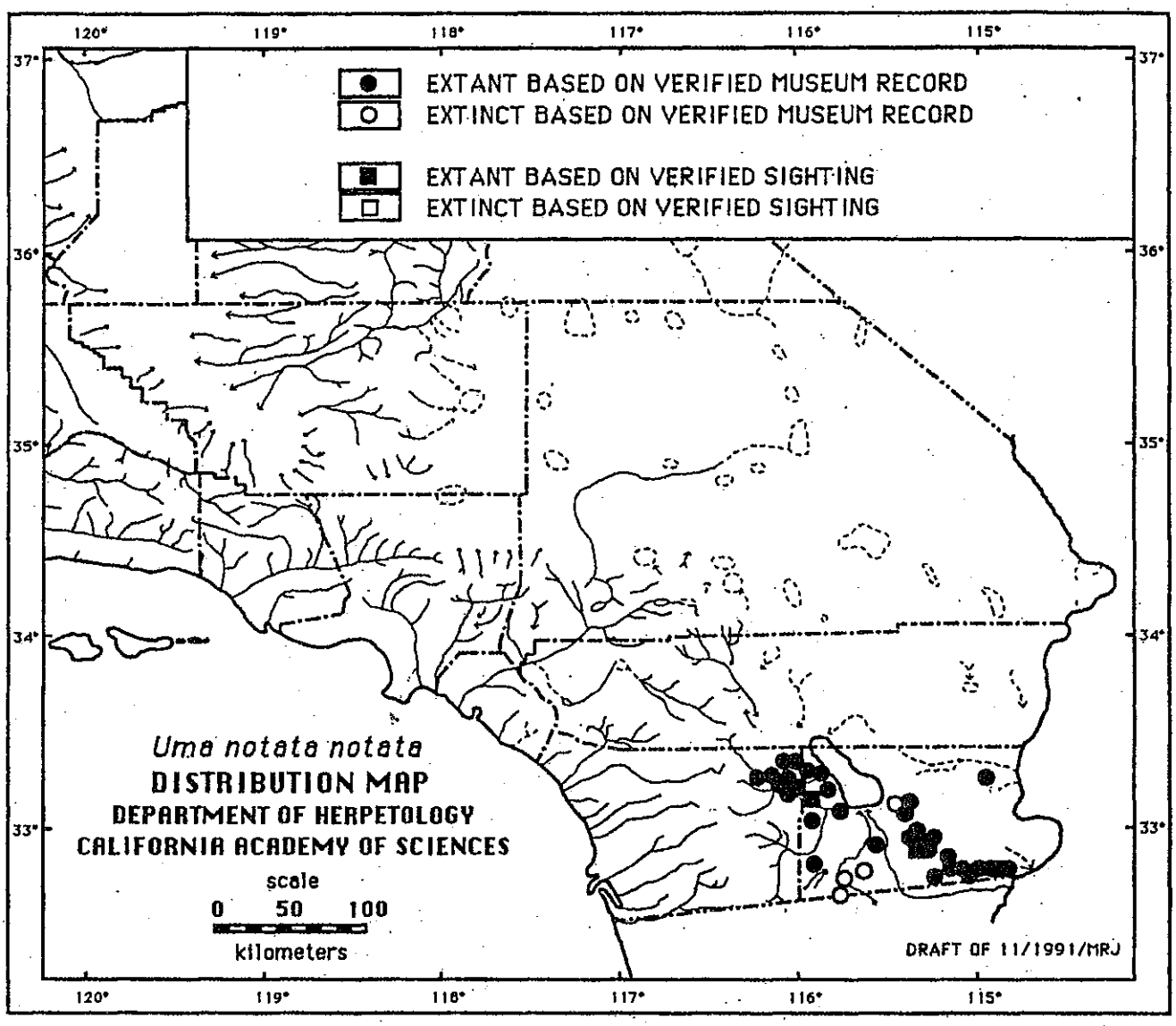

Figure 37. Historic and current distribution of the Colorado Desert fringe-toed lizard (*Uma notata notata*) in southern California based on 143 locations from 451 museum records and 7 records from other sources.

Life History: *Uma n. notata* is a distinctive lizard that is behavioral, morphologically, and physiologically specialized for living in hot, dry, sandy habitats. Its dorso-ventrally flattened body shape, concealed eardrum (tympanum), fringed toes, distinctive pointed and keeled scales below the knee and above the heel, nasal valves, and pale dorsal coloration are all features that facilitate its survival as a sand-dwelling lizard (Stebbins 1944, Norris 1958, Pough 1970; see also Stebbins 1948). Experiments have shown that the fringed toes, the namesake from which the genus to which *Uma* derives its common name, significantly assist movement on shifting sand (Carothers 1986). Adults of *U. n. notata* overwinter at moderate depths (ca. 30 cm) in sand (Cowles 1941), but smaller individuals may remain active throughout the year (Deavers 1972). Colorado Desert fringe-toed lizards do not emerge until substrate temperatures reach at least 26°C (Cowles and Bogert 1944), which typically results in their emerging for overwintering sites in late March or early April. *Uma n. notata* displays several behavioral and physiological traits that allow them to cope with the high temperatures regularly attained by the sandy substrate in which they live. They voluntarily maintain a higher body temperature when active (39.9°C) than most lizards (Deavers 1972); they orient relative to both the sun and the substrate depending on the temperature variation of each (Cowles and Bogert 1944); when sand surface temperatures reach or exceed 43°C, they submerge themselves into the cooler subsurface sand by wriggling violently to avoid overheating (Stebbins 1944, Norris 1958); and they exhibit other physiological features that allow them to cope with this extreme environment (Pough 1969a, Deavers 1972). In addition, *U. n. notata* displays coupled behavioral and morphological features that assist in undersand breathing (Pough 1969b). Adults probably typically mate in May, and females typically deposit clutches containing two eggs from late May to early August (Mayhew 1966). Females may lay more than one clutch per year, but adults are sensitive to food levels and will not reproduce if they do not obtain adequate food (Mayhew 1966). Since insect productivity is directly related to annual rainfall, lizards probably have a significantly depressed reproductive output in years with low rainfall. The known predators of *U. n. notata* are badgers, glossy snakes *(Arizona elegans),* sidewinders, coachwhips, loggerhead shrikes, roadrunners, and coyotes (Stebbins 1944). *Uma n. notata* employs an escape behavior similar to its thermoregulatory behavior, it initially flees from a predator to a reasonably safe distance and then buries itself in the sand (Stebbins 1944).

Habitat: *Uma n. notata* is a habitat specialist that is totally restricted to habitats of aeolian sand (Norris 1958). Aeolian sand in which *U. n. notata* can be found has a grain size typically no coarser than 0.375 mm in diameter (averages 0.205 mm in diameter). As with *U. inornata* (Turner et al. 1984), increased sand penetrability (i.e., how easy the sand is to burrow into), is probably an important factor constraining the local distribution of *U. n. notata* The dominant plant in the associations in which *U. n. notata* is found include the following perennial shrubs: burro weed, creosote bush, croton *(Croton wigginsii),* desert buckwheat *(Eriogonum deserticola),* honey mesquite *(Prosopis glandulosa),* mormon tea *(Ephedra californica),* and the composite *(Helianthus tephrodes),* none of which occur in very high density, giving the habitat an open sparse appearance (Stebbins 1944, Norris 1958, Mayhew 1966). Burrowing in sand on the lee side of desert shrubs has been noted by several authors (Stebbins 1944, Norris 1958), a selection that may be influenced by the differences in penetrability and grain size of the sand in those locations (see Turner et al. 1984). The location of oviposition sites is unknown, but they may be located at the base of perennial plants (see the flat-tailed horned lizard *(Phrynosoma mcallii)* account).

Status: Special Concern; although this species has a reasonably broad range in California, it is vulnerable because of its specialization for fragile sandy habitats that have been heavily impacted by off-road vehicles in the last 20 years (Busack and Bury 1974, Bury and Luckenbach 1983, Luckenbach and Bury 1983, Maes 1990). Although probably not as vulnerable as *P. mcallii,* most of the comments made under the status section for that

species also apply to *U. n. notata.* The escape behavior of *U. n. notata* makes its vulnerable to injury from off-road vehicles, which continue to be used at high levels over the range of *U. n. notata* (Maes 1990, King and Robbins 1991b). As demonstrated for *U. inornata,* the surface stabilization and sand depletion that occur as a result of the placement of windbreaks (e.g., rows of salt cedar: Turner et al. 1984) and probably other structures, an increasing phenomenon over the range of *U. n. notata,* threatens to continue to decrease the amount of habitat available for this taxon.

Management Recommendations: Much of the ecology of *U. n. notata* is reasonably well-known, but several key aspects are not. In particular, the location of oviposition sites and the variation in their location, the movement and recolonization abilities of this taxon, and a better understanding of variation in habitat suitability with the vegetation association and the specific species consumed in the diet. Additionally, regular annual surveys conducted at fixed locations and at identical diel and seasonal intervals are needed to track long-term trends in this species (see Maes 1990). Sweeps surveys to estimate sand lizard track densities (see England and Nelson 1977) need further evaluation as a survey method. Long-term data are particularly important to couple to any measurements of habitat change for management purposes. Emphasis on preservation of large, unobstructed expanses of aeolian sand habitat is needed. The dynamics and variation in the natural maintenance of such habitats is poorly understood, and urgently needs study before definitive management recommendations regarding the size of areas needed for long-term persistence of this taxon.

MOJAVE FRINGE-TOED LIZARD
Uma scoparia Cope 1894

Description: A moderate-sized (69.0-112.0 mm SVL), pale-colored lizard with a dorsal reticulum of black-bordered spots with red centers (ocelli: Norris 1958, Stebbins 1985). Ocelli are irregularly arranged over the back. Undersurfaces are white except for crescent-shaped dark marking on the throat, dark bars on the tail, and a single, prominent dark spot on each side of the belly (Norris 1958). During breeding, a yellow-green ventral wash develops that becomes pink on the side of the body (Stebbins 1985). The iris is black.

Taxonomic Remarks: Remarks made regarding the taxonomic status of *Uma notata notata* generally also apply to *Uma scoparia.* It needs emphasis that determination of the systematic status of *U. scoparia* cannot be made without a comprehensive assessment of genetic variation across its range coupled to a morphological analysis of those same populations.

Distribution: The known distribution of this near-endemic to California extends from extreme southern Inyo County (Norris 1958) through most of San Bernardino County and barely into the northeast comer of Los Angeles County southward and eastward through the eastern half of Riverside County to the vicinity of Blythe (Figure 38). A single record exists for Parker, Yuma County, Arizona (Pough 1974). Its known elevational range extends from below sea level to ca. 1000 m in the vicinity of Kelso (San Bernardino County).

Life History: Many of the generalized comments that apply to the genus made in the *U. n. notata* account also apply to this species. *Uma scoparia* is sand-dwelling specialist that inhabits similar environments utilized by *U. notata* (Stebbins 1944, Norris 1958). Lizards emerge from hibernation sites in late March or early April (Mayhew 1964b). Adults begin to exhibit breeding colors during April and breeding continues through July (Norris 1958). Males actively defend territories against other rival males in addition to courting females. Females also maintain territories, but they do not show any aggression against other individuals (Kauffman 1982). Home ranges for adult males are estimated to average 0.10 ha, while home ranges for adult females averaged 0.034 ha and overlapped the territories of adult males (Kauffman 1982). Females deposit from 2-5 (average = 2-3) eggs in sandy hills or hummocks during the months of May through July (Stebbins 1954b, Kauffman 1982). Some adult females produce more than one clutch of eggs a year. Hatchlings first appear by September (Miller and Stebbins 1964), and grow rapidly over the next 2 years. Most males and females teach sexual maturity (70 mm and 65-70 mm SVL, respectively) two summers after hatching. Juveniles do not defend territories until they become subadults. Juveniles eat largely arthropods and only a small amount of plant material; in contrast, adult *U. scoparia* consumed more plant material than arthropods (Minnich and Shoemaker 1970, 1972). Foods consumed by these opportunistic feeders include dried seeds, grasses, ants, beetles, scorpions (Scorpionida), and occasionally conspecifics (Miller and Stebbins 1964, Minnich and Shoemaker 1970, 1972). Both juveniles and adults have daily activity patterns that are temperature dependent. From April to May, lizards are active during the mid-day. From May to September, they move about in the mornings and late afternoons, but retreat underground when temperatures are high (Miller and Stebbins 1964). Hibernation occurs from November to February (Mayhew 1964b). Known predators are the same animals listed for *U. n. notata* (see previous account), plus the burrowing owl (Miller and Stebbins 1964) and leopard lizard *(Crotaphytus wislizenii:* Gracie and Murphy 1986).

Habitat: The habitat characteristics of *U. scoparia* are essentially identical to those for *U. n. notata* except that some of the vegetation associates will differ because the range of the

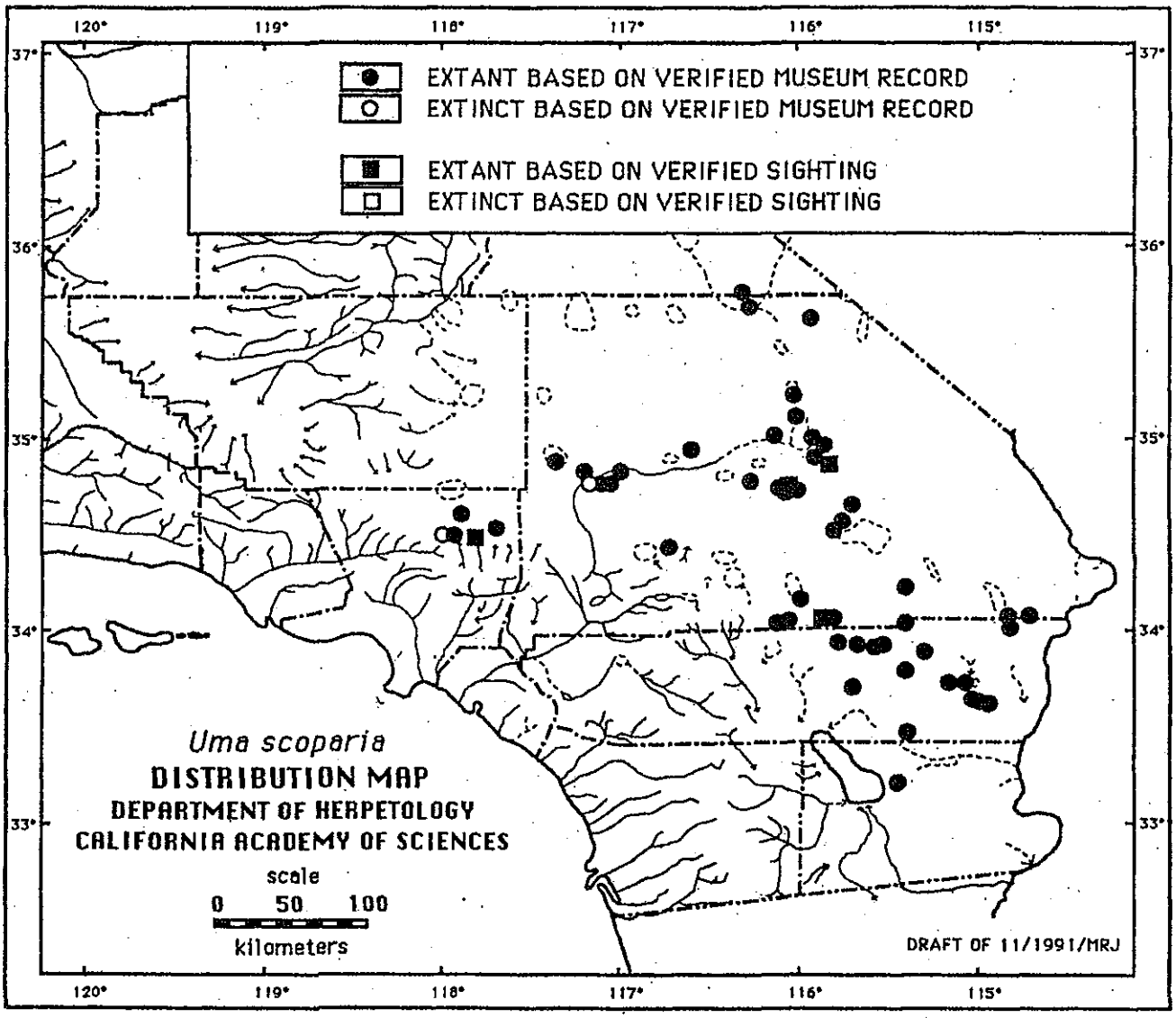

Figure 38. Historic and current distribution of the Mojave Desert fringe-toed lizard (*Uma scoparia*) in southern California based on 140 locations from 599 museum records and 8 records from other sources.

former is largely the Mojave desert region in California. The habitat section of the *U. n. notata* account should be referred to. Throughout most of its range, *U. scoparia* is found in creosote bush scrub (Kauffman 1982).

Status: Special Concern; most of the comments made for *U. n. notata* also apply to this species, although the importance of major impacts differ somewhat. Off-road vehicles seems to be the more important impact over most of the range of *U. scoparia,* whereas the influence of development is currently really significant in the western Mojave desert Several towns in the western Mojave (e.g., Hesperia, Lancaster, Palmdale, and Victorville) have sustained extraordinary levels of growth (up to over an order of magnitude) over the last 15 years. This level of growth has not only fragmented desert habitat, but markedly increased the local use of adjacent desert areas. The increase in landfills associated with such growth has resulted in a marked increase in selected generalized predators (e.g., common ravens; see King and Robbins 1991b and Camp et al. 1993), which are implicated in recruitment declines in other species such as desert tortoises (U.S. Fish and Wildlife Service 1990). Such predators may have similar negative effects on the Mojave fringe-toed lizard (King and Robbins 1991b).

Management Recommendations: Most of the comments made for *U. n. notata,* except that regarding oviposition sites, also apply to this species. The ability of fragments of sandy desert habitat to sustain populations of the Mojave fringe-toed lizard over the long-term needs to be determined. It is unclear what sort of use and what intensity of use desert habitats can sustain and still maintain Mojave fringe-toed lizards; Additionally, it needs to be determined whether the generalized predators currently on the increase have any significant effect on the recruitment or survivorship of Mojave fringe-toed lizards.

SANDSTONE NIGHT LIZARD
Xantusia henshawi gracilis Grismer and Galvan 1986

Description: A medium-sized (50-70 mm SVL), narrow-waisted, soft-skinned lizard with fine, granular scales; a flattened head; an enlarged temporal scale; gular folds; lidless eyes; and vertical elliptical pupils (Grismer and Galvan 1986). The dorsoventrally flattened, slender body is covered with a dense pattern of reduced dark brown spots on a light colored background (Grismer and Galvan 1986). The venter is white with minute amounts of black peppering present only on forepart of the body (Grismer and Galvan 1986). The iris is dark brown with dense iridiophores split by a vertical eye stripe (pers. observ.).

Taxonomic Remarks: This recently described night lizard is considered morphologically (Grismer and Galvan 1986) and biochemically distinct (Bezy and Sites 1987) from the granite night lizard *(X. h. henshawi).* Analysis of genetic variation across its highly restricted known geographic range has not yet been attempted.

Distribution: The known range of this California endemic is confined to the Truckhaven Rocks, a 1.3-km wide x 3-km long outcrop in the eastern part of Anza-Borrego State Park (Figure 39). The known elevational range of the sandstone night lizard extends from 240 m to 305 m.

Life History: Virtually nothing is known of sandstone night lizard life history. The morphology of *X. h. gracilis* is thought to facilitate survival in sandstone and mudstone habitat, a rocky substrate that undergoes constant local erosion (Grismer and Galvan 1986). These authors speculate that it may be excluded by other saxicolous lizards (e.g.

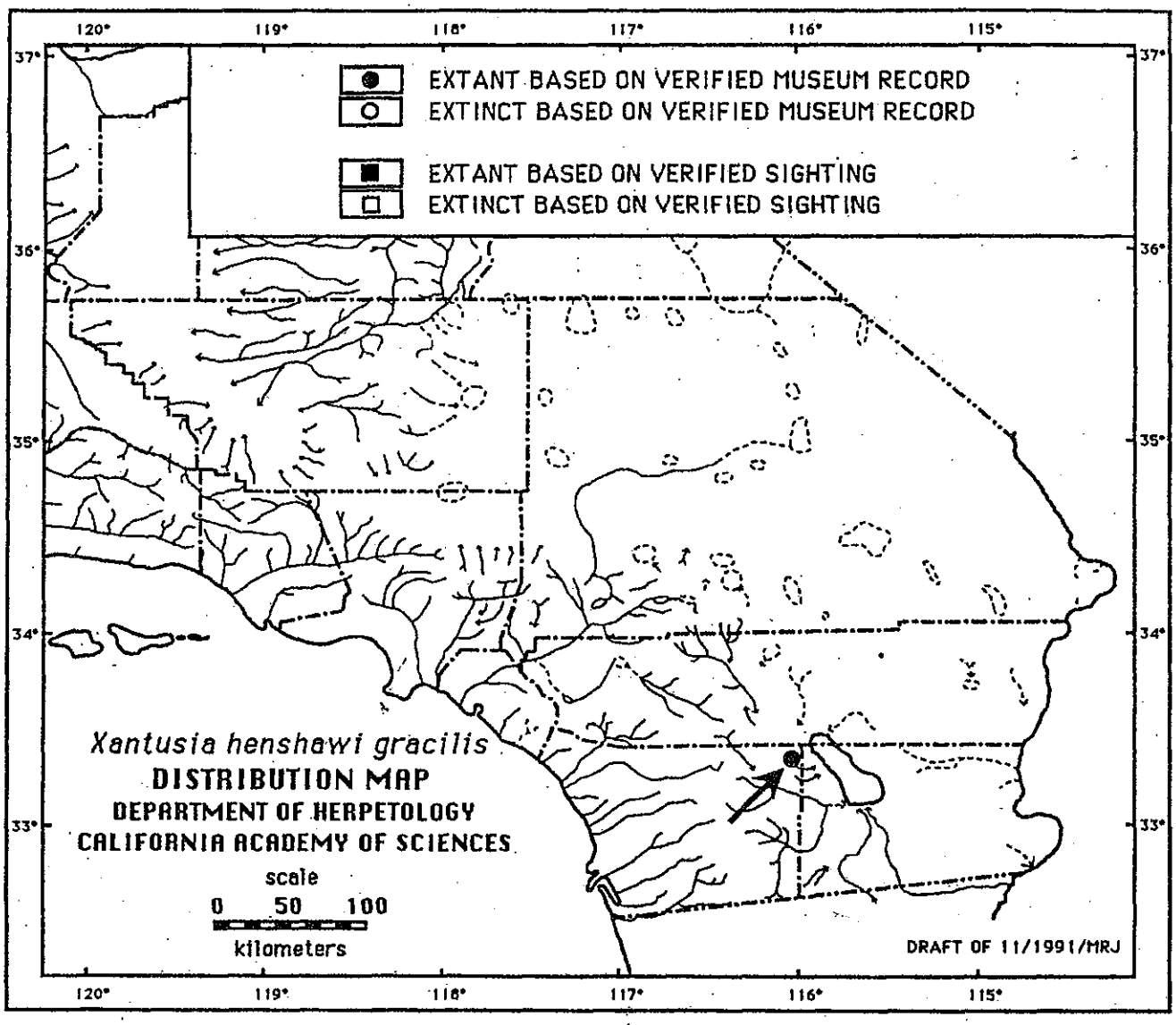

Figure 39. Historic and current distribution of the sandstone night lizard (*Xantusia henshawi gracilis*) in southern California based on 1 location from 28 museum records.

Phyllodactylus xanti) that occur in less erosive, rocky habitats, but the other saxicolous species may simply do poorly in that habitat type whether or not *X. h. gracilis* is present.

If similar in life history to the related granite night lizard *(X. h. henshawi),* it bears one or two live young annually (Brattstrom 1951, Lee 1975), it has a low metabolic rate (Mautz 1979), it is active over a relatively low range of temperatures (Lee 1975), it has an insectivorous diet (Brattstrom 1952), and it is probably relatively sedentary (see summary in Bezy 1988). Based on four captive specimens, *X. h. gracilis* may be more nocturnal than the relatively diurnal or crepuscular *X. h. henshawi* (compare Grismer and Galvan 1986, with Lee 1974, and Mautz and Case 1974).

Habitat: The sandstone night lizard is entirely confined to a substrate of eroded sandstone and mudstone (or siltstone) in Truckhaven Rocks (Grismer and Galvan 1986). It is found in fissures or under slabs of exfoliating sandstone and rodent burrows in compacted sandstone and mudstone. This taxon seems to be locally abundant rather than evenly distributed within its habitat (Grismer and Galvan 1986). The physical characteristics of the refuge sites it prefers have not been examined.

Status: Special Concern; because of its highly restricted geographic range, this taxon is susceptible to local-scale catastrophic effects. Proximity to an access road and the relatively fragile nature of its sandstone or mudstone substrate makes this lizard vulnerable to illegal collection and habitat destruction.

Management Recommendations: Human access to the sandstone habitats where these lizards are found should be restricted. Specifically, the access road to the Truckhaven Rocks and adjacent calcite mine area should be closed and the nearby parking should be relocated further from the habitat this lizard occupies. Limiting access should simplify enforcement for Anza-Borrego State Park personnel. Further, field surveys for other possible populations of this taxon should be conducted in habitat identified as potentially suitable in the southern part of the Santa Rosa Mountains. The basic life history of this taxon needs study.

SIERRA NIGHT LIZARD
Xantusia vigilis sierrae Bezy 1967

Description: A small (40-51 mm SVL), slim velvet-skinned lizard with fine, granular scales; gular folds; lidless eyes; and vertical elliptical pupils (Stebbins 1985). A broad, postorbital light stripe is present on either side of the head; 40 to 44 scale rows are present across the back; the spotting on the back forms an interconnected, dark network; and 10 to 12 femoral pores are present on the hindlimbs (Bezy 1967a, 1967b, 1982). The head tends to be longer and broader than in other desert night lizards in California (Bezy 1967b). The iris is dark brown with fine iridophores split by a vertical eye stripe (pers. observ.).

Taxonomic Remarks: A rock-dwelling night lizard that is morphologically differentiated from *Xantusia v. vigilis* typically found in yucca *(Yucca* spp.) woodlands (Bezy 1967a, 1982).

Distribution: This California endemic is found only on the western edge of the Greenhorn Mountains within a few dozen kilometer radius of Granite Station, Kern County (Figure 40). The known elevational range of this taxon falls between 450 m and 500 m. *Xantusia v. sierrae* may intergrade with *X. v. vigilis* in the Greenhorn Mountains along the eastern edge of its range (Bezy 1967a; B. Bezy, pers. comm.).

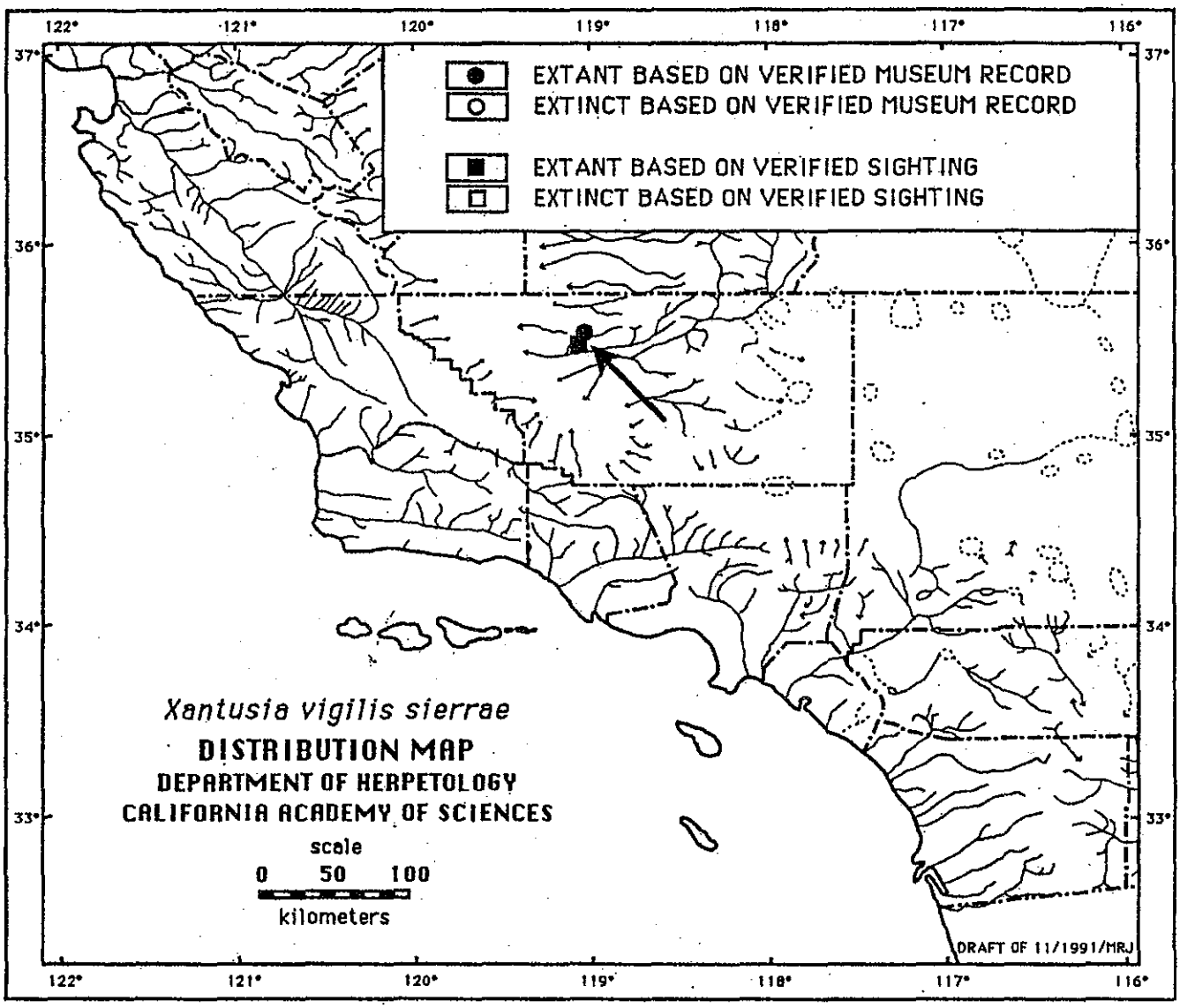

Figure 40. Historic and current distribution of the Sierra night lizard (*Xantusia vigilis sierrae*) in southern California based on 9 locations from 82 museum records and 4 records from other sources.

Life History: *Xantusia v. sierrae* exhibits a morphology somewhat convergent with the granite night lizard, a highly specialized rock-crevice dweller (Bezy 1988), but virtually nothing is known of its life history. If the life history of the Sierra night lizard is similar to that of other night lizards on mainland California; Sierra night lizards are sedentary, they exhibit a low metabolic rate, they are active over a low range of temperatures, they grow slowly for their size (2-3 years to reach sexual maturity), they bear live young, and they are probably long-lived (see Miller 1951; Brattstrom 1951, 1965; Zweifel and Lowe 1966; Bezy 1988; Mautz 1979). If reproduction and diet in the Sierra night lizard is similar to the related *X. v. vigilis,* it likely bears one or two young annually (see Miller 1954, Zweifel and Lowe 1966), and have an ant-dominated insectivorous diet (see Brattstrom 1952). If similar to the granite night lizard in its pattern of activity, the Sierra night lizard is probably largely diurnal and crepuscular (see Mautz and Case 1974; see also Bezy 1988).

Habitat: All Sierra night lizards have been found under exfoliating granite caps and flakes in outcrops of Cretaceous age. *Xantusia v. sierrae* seems to prefer larger (8-15 cm thick, 61-92 cm long) horizontal caps rather than thinner spalls or flakes, which are numerous on vertical surfaces (Bezy 1967a). Outcrops are often represented by small groups of boulders within areas of clay soils having an open grassland or oak woodland vegetation. For reasons that are unclear, but perhaps related to predator access, single boulders or isolated groups of two to three boulders appear to harbor more Sierra night lizards than larger piles of boulders (Bezy 1967a). Woody plant dominants associated with outcrops where Sierra night lizards have been found include blue oak, elderberry *(Sambucus mexicana)* and California buckeye *(Aesculus californica).*

Status: Special Concern; because of its tiny geographic range, this taxon is highly susceptible to even local-scale catastrophic effects. The preferred habitat of the Sierran night lizard is easily destroyed by humans prying off caps or flakes in an effort to obtain the lizards (Zeiner et al. 1988; see also Klauber 1926). Since the natural formation time for caps or flakes is much longer than that needed to destroy them, much of this sort of activity could eliminate the preferred habitat of this taxon rather rapidly. Increased development of the foothill area where this taxon occurs for homes and ranchettes has the potential to seriously negatively impact this species. If the Sierra night lizard is really localized in the smaller, more isolated groups of boulders within a grassland matrix, then existing lizard populations risk becoming increasingly isolated with current patterns of development and thus, are even more susceptible to local-scale catastrophic events.

Management Recommendations: A thorough survey of likely habitat for this lizard needs to be undertaken to determine its current distribution and the amount of suitable habitat still intact. An ecological study of this lizard is also needed to understand its movements and natural population fluctuations. Because the entire range of this taxon is currently under private ownership, efforts should be made to explore the possibility of purchasing and preserving a major portion of the granite rock outcrops in the vicinity of Granite Station for this taxon.

Plate 12. Adult desert night lizard (*Xantusia vigilis*) [from Stebbins 1954b].

SNAKES

BAJA CALIFORNIA RAT SNAKE
Elaphe rosaliae (Mocquard 1899)

Description: A large (85-150 cm TL), slender colubrid snake with a long head, large eyes, and smooth scales, the latter of which each contain two apical pits (Price 1990a, 1990b). The dorsum is uniform olive or reddish brown without dark markings on a cream-colored background (Ottley and Jacobsen 1983). Yellowish or greenish coloration extends from the lower sides of the body to the venter (Price 1990b). The iris is yellow-green (Ottley and Jacobsen 1983).

Taxonomic Remarks: Dowling and Price (1988) have placed this snake in its own genus *(Bogertophis)* based on immunological data, hut complications with the data set and the mode of analysis indicate that it is best to regard this species as a member of the rat snake genus, *Elaphe,* until further data become available (L. Grismer and John Wright, pers. comm.). No attempts have been made to characterize genetic variation across the geographic range of *E. rosaliae.* An understanding of that variation is needed to determine whether genetically differentiated populations exist within *E. rosaliae.* The difficulty with obtaining the requisite material for such a study make it likely that novel techniques, such as extracting DNA from preserved specimens, will he needed to address this problem.

Distribution: The Baja California rat snake ranges from extreme southern Imperial County southward into Baja California to Cabo San Lucas (Price 1990a). Over at least the northern half of its range, it is known from widely disjunct locations (Ottley and Jacobsen 1983, Price 1990b). Its known elevational range extends from near sea level to ca. 300 m. In the United States, *E. rosaliae* is known from only one road-killed specimen [SDSNH 64416] taken 26 May 1984 on Interstate Highway 8, 3.84 km east ofMountain Spring (Imperial County), California (Figure 41). Although Stebbins (1985) and others believe this locality to be genuine (L. Grismer and G. Pregill, pers. comm.), some have questioned the validity of this record (S. Barry, J. Copp. and C. Fagan, pers. comm.).

Life History: The life history of *E. rosaliae* is virtually unknown (Price 1990b). The species seems to be nocturnal or crepuscular and may be surface active during daylight hours under suitable conditions (Ottley and Jacobsen 1983). Nothing is known about reproduction or growth except that clutches with an unspecified number of eggs have been laid in captivity (Price: 1990b). The few data on diet and behavior are based on captive specimens and are difficult to interpret in the absence of data on this snake under field conditions. If similar to other rat snakes, it Climbs easily (Wright and Wright 1957) and adults are probably long-lived (see Bowler 1977). No data on movement, colonization abilities, or the potential predators of this taxon exist.

Habitat: *Elaphe rosdiae* is largely confined to mesic and dry desert habitats (rocky arroyos and washes) in the immediate vicinity of small springs (Ottley and Jacobsen 1983, Stebbins 1985) but individuals have also been observed on hillsides and dry mesas away from water sources (L. Grismer, pers. comm.). The habitat components critical to this snake have not been identified precisely, but it may require some of kind of shrub or tree with a moderately dense crown in which to take refuge because it has been taken in native fan palms *(Washingtonia* spp.), date palms *(Phoenix dactylifera),* mesquite, palo blanco *(Lysiloma candida),* palo verde, and creosote hush associations in the past (Price 1990b). The locations of oviposition sites are unknown.

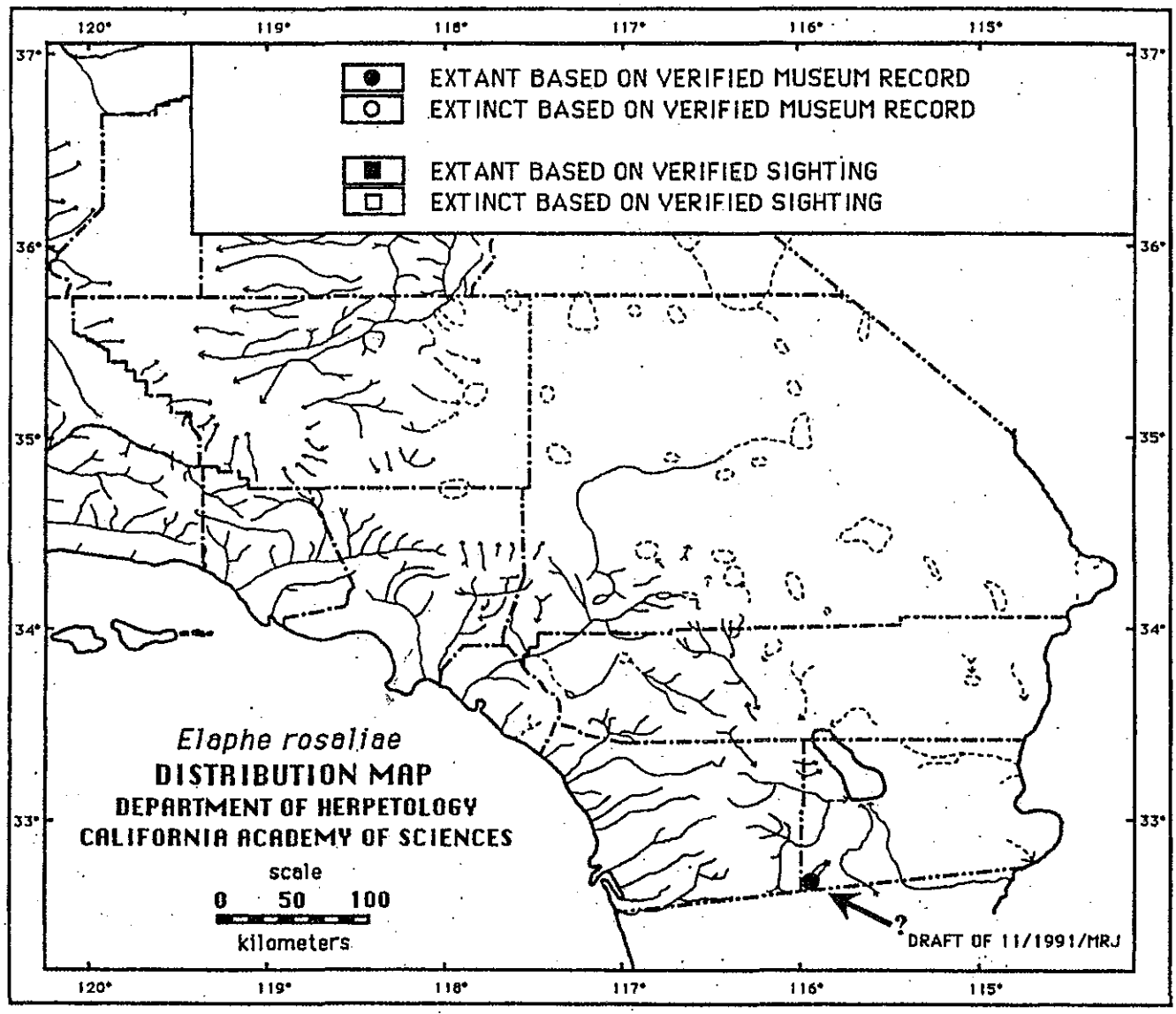

Figure 41. Historic and current distribution of the Baja California rat snake (*Elaphe rosaliae*) in southern California based on 1 location from 1 museum record.

Status: Special Concern; this snake is an infrequently observed species avidly sought after by amateur, scientific, and professional collectors alike. Because of the uncertain status of the single record from California, it should remain protected until further information regarding its distribution within the state becomes available.

Management Recommendations: Intensive surveys of habitats with shrubs or trees having a moderately significant crown in Imperial and San Diego counties are needed to determine whether this snake is really part of the herpetofauna of California. If populations are discovered, the local habitat needs to be protected from modification and potential collecting, and some kind of monitoring for this taxon should be initiated.

RED DIAMOND RATTLESNAKE
Crotalus ruber ruber Cope 1892

Description: A large (75-163 cm), heavy-bodied rattlesnake with a tan, pink, brick-red, or reddish-colored dorsal color, and obscure, usually light-edged brick or pinkish diamond-shaped blotches (Klauber 1937, Gloyd 1940, Stebbins 1985). The tail base is prominently "coontail" marked with broadly spaced, but relatively narrow, distinct black rings contrasting with the rest of the body color (pers. observ.). The belly is white to pale yellow, and the undersurface of the tail is pinkish buff (Wright and Wright 1957; pers. observ.). The iris is brown (Wright and Wright 1957).

Taxonomic Remarks: This morphologically distinctive rattlesnake has rarely been confused since Cope (1892) described it. No attempts have been made to characterize genetic variation across the geographic range of *Crotalus ruber ruber*. An understanding of that variation is needed to determine whether genetically differentiated populations exist within *C. r. ruber*. The difficulty with obtaining the requisite material for such a study makes it likely that novel techniques, such as extracting DNA from preserved material, will be necessary to address this problem.

Distribution: The known range of *Crotalus r. ruber* extends from near Pioneertown and Morongo Valley (San Bernardino County) southward on both sides (coastal and desert slopes) of the Peninsular Ranges (including the Santa Ana Mountains: Peguegnat 1951) to Loreto, Baja California, Mexico (Stebbins 1985). Its known elevational range extends from near sea level to about 1520 m (slopes of Palomar Mountain), although *C. r. ruber* is most frequently encountered below 1200 m (Klauber 1972). In California, the red diamond rattlesnake ranges southward from San Bernardino County to the Mexican border (Figure 42).

Life History: Despite its size and proximity to one of the largest urban sprawls in the world, red diamond rattlesnakes are among the more poorly known species of rattlesnakes. No intensivestudy of the life history of this species has even been undertaken; all of what is known of the life history of this species is based on scattered bits of information from various sources. Behaviorally, *C. r. ruber* is a retiring, secretive species with a reputation for being more docile than other rattlesnake species found in California (Klauber 1972). Sixteen-year census records from San Diego County (Klauber 1939) show that at least some red diamond rattlesnakes are active year-round, although a peak in the numbers of this species observed occurs in April and May, probably because movements associated with mating activities make these snakes more conspicuous at that time. Mating may take place as early as March (Perkins 1938). Females carry developing young for ca. 140-150 days (Wright and Wright 1957). Three to 20 young 300-350 mm TL are born live typically between late July and September (Klauber 1937, Wright and Wright 1957). Nothing is known about the rate of growth or the age at which red diamond rattlesnakes become

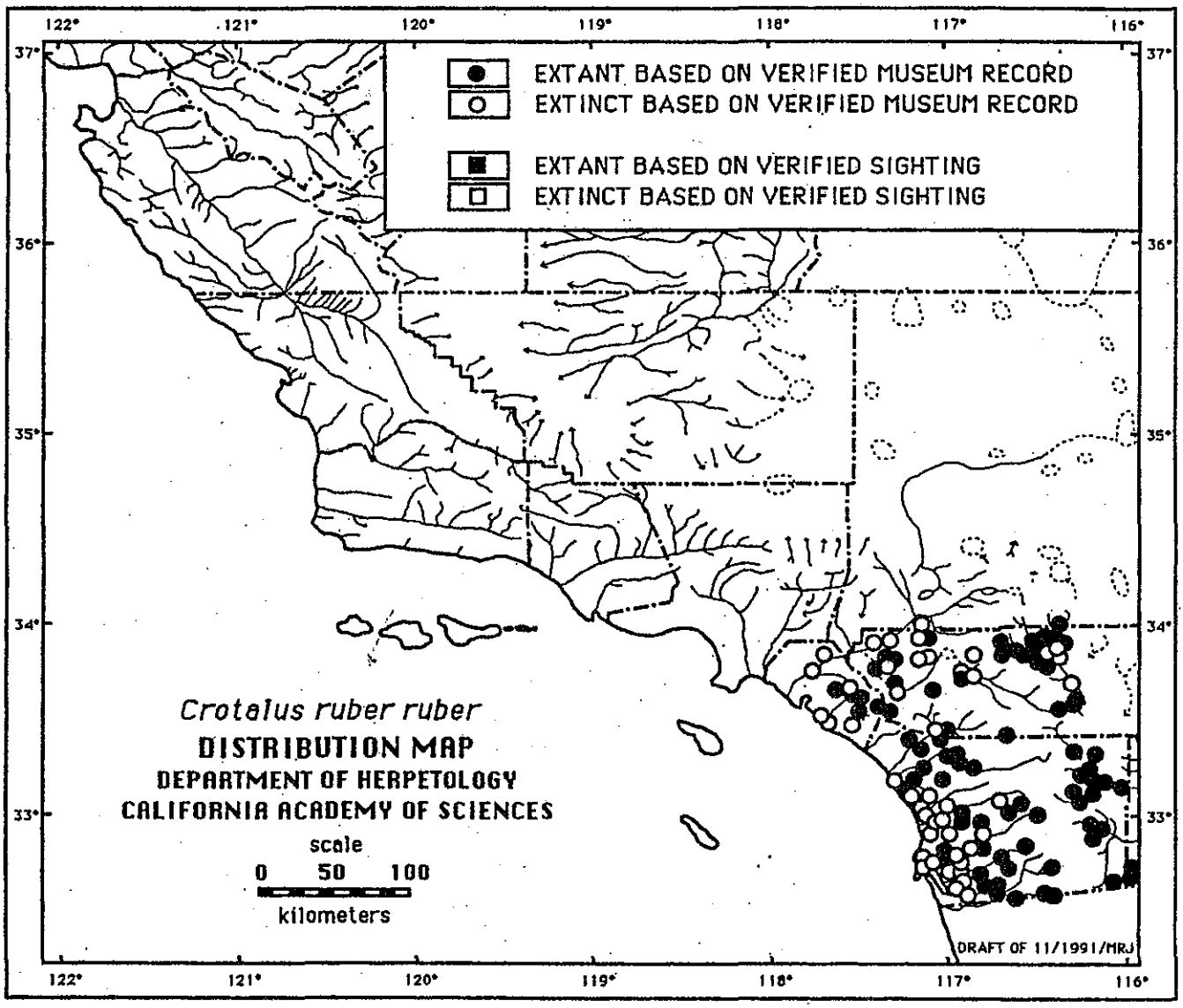

Figure 42. Historic and current distribution of the red-diamond rattlesnake (*Crotalus ruber ruber*) in southern California based on 345 locations from 577 museum records and 18 records from other sources.

sexually mature, but 733 mm TL is the size of the smallest gravid female Klauber (1937) found. Nothing is known about longevity in wild *C. r. ruber*, but a captive lived over 14 years (Bowler 1977), so the species may be relatively long-lived. Red diamond rattlesnakes eat mostly squirrels (e.g., white-tailed antelope ground squirrels, California ground squirrels) and rabbits (e.g., desert cottontails, brush rabbits *[S. bachmani])* as adults, but lizards (e.g., western whiptails *[Cnemidophorus tigris])* are also significant in the diet of juveniles (Tevis 1943, Klauber 1972). Although *C. r. ruber* frequently takes live prey, it may also eat relatively fresh carrion (Cunningham 1959a, Patten and Banta 1980). Red-tailed hawks *(Buteo jamaicensis)* are known predators of red diamond rattlesnakes (Huey in Klauber 1972). No data on the movement ecology or the colonization abilities of *C. r. ruber* exist.

Habitat: Although red diamond rattlesnakes are recorded from a number of vegetative associations, they seem to occur more frequently in habitats with heavy brush associated with large rocks or boulders (Klauber 1972). *Crotalus r. ruber* is frequently observed in chamise- and red shank-dominated associations, probably because these associations best fulfill the aforementioned structural habitat requirements. Such associations likely provide better refuges or food resources for red diamond rattlesnakes than other habitats, but how this is facilitated is not well understood. Red diamond rattlesnakes are also found in coastal sage scrub and desert slope scrub associations.

Status: Special Concern; this taxon has a relatively restricted range in California, and a significant portion of the habitat that was historically prime red diamond rattlesnake habitat has been developed over the last 20 years. Particularly significant has been the rate of development in northern San Diego County and southwestern Riverside County during the 1970s and 1980s. A combination of urban development and the trend toward increasing drip irrigation of orchards, such as avocados, on steeper, rocky slopes has significantly intruded into the habitat that *C. r. ruber* historically used. Systematic evaluation of habitat loss has not been quantified in detail, but we estimate that this snake has lost at least 20% of the suitable habitat within its range due to these types of development. Moreover, the general negative regard humans have for rattlesnakes has probably accelerated the local extirpation of this relatively shy, retiring species where development is occurring, especially since adult snakes over 1.3 m (TL) have become increasingly rare since the early 1960s (J. Copp and D. Morafka, pers. comm.).

Management Recommendations: A better understanding of the life history of this poorly known rattlesnake is needed before more refined management recommendations can be made. It is unlikely that such an understanding will be obtained without resorting to telemetry because field survey efforts without telemetry are likely to be extremely time costly. Especially needed is a better understanding of the habitat parameters critical to red diamond rattlesnakes, and how these are important to its ecology. Until more detailed habitat data become available, shrubby vegetative associations in areas with large rocks or boulders should be routinely surveyed for this taxon at appropriate diel and seasonal intervals and assessments of the quality of the habitat for this species should be done on a case-by-case basis. Efforts to protect and minimize disturbance to areas that are identified as likely containing high densities of this snake should be implemented.

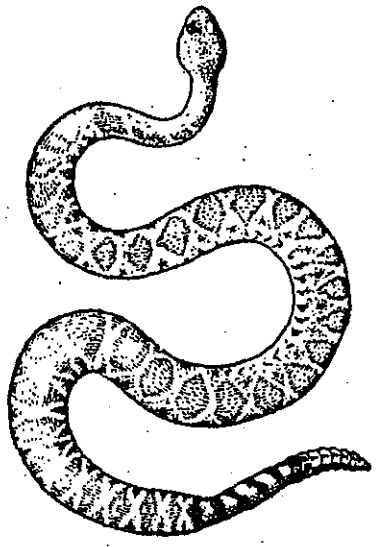

Plate 13. Adult red diamond rattlesnake (*Crotalus ruber ruber*) [from Stebbins 1954b].

SAN BERNARDINO MOUNTAIN KINGSNAKE
Lampropeltis zonata parvirubra Zweifel 1952

Description: A medium-sized (55-111 cm TL) snake with a distinctive sequence of red, black, and white rings (tricolor dyads: Savage and Slowinski 1990; these are similar, but yet different from the triads of Zweifel 1952b) in which relatively narrow white rings are always bordered by black rings, and red coloration, which can occur as rings or bands, borders alternate black rings (Zweifel 1952b; pers. observ.). The number of tricolor dyads on the body (except the tail) ranges from 35 to 48, and between 4% and 100% of the red rings between body dyads are complete (Zweifel 1952b). The snout is jet black and the iris is very dark brown (B. McGurty, pers. comm.).

Taxonomic Remarks: This taxon has not been reexamined since Zweifel (1952b) described the races of *Lampropeltis zonata.* Diagnosis of *L. z. parvirubra* is problematic because allocation of individuals to this taxon requires using a combination of several characters simultaneously that individually overlap considerably in variation with other races of *L. zonata.* Biochemical analyses coupled to more extensive morphological analyses are needed to better understand the systematic status of this taxon. Since individuals of *L. z. parvirubra* are difficult to obtain (captive snakes notwithstanding), novel techniques such as DNA extraction from preserved specimens will almost certainly be needed to help resolve this problem. Interpretation of this taxon as a full species (Collins 1991) is unjustified and awaits the aforementioned analyses.

Distribution: This California endemic is restricted to the San Gabriel, San Bernardino, and San Jacinto mountains of southern California (Figure 43). The known elevational range of this taxon extends from ca. 370 m (Eaton Canyon, Los Angeles County) to ca. 2470 m (Mount San Jacinto, Riverside County: Zweifel 1952b).

Life History: *Lampropeltis z. parvirubra* is an infrequently observed, secretive, cryptozooic snake, the life history of which, as a result, is virtually unknown. Its life history is probably similar to what is known for *L. z. pulchra,* the other race of mountain kingsnake in southern California, and the account for *L. z. pulchra* should be referred to in order to gain a general idea of the life history of this taxon. Cunningham (1959a) reported on a female *L. z. parvirubra* from Skyforest (San Bernardino County) that laid 3 eggs on July 18, and Zweifel (1952b) mentioned that 8 young were hatched from a female *L. z. parvirubra* from Seven Oaks (San Bernardino County) at the San Diego Zoo, but the latter observation did not indicate the original clutch size, so it is unclear whether the latter was the same as the number of young that hatched. The San Bernardino mountain kingsnake may be primarily saurophagous (Newton and Smith 1975); DeLisle in McGurty (1988) indicates that 7 specimens of *L. z. parvirubra* had eaten sagebrush lizards *(Sceloporus graciosus)* and 3 others had taken western skinks (see also Cunningham 1959a). Cunningham (1955) found an individual in the decaying cavity of a black oak, suggesting that this taxon will climb when the appropriate habitat structure is available. No data are available on longevity, but Bowler (1977) reported on a captive individual nearly 12 years old. No data exist on the movement ecology or colonization abilities of this taxon.

Habitat: *Lampropeltis z. parvirubra* occurs in well-illuminated canyons with rocky outcrops or rocky talus in association with bigcone spruce *(Psuedotsuga macrocarpa)* and various canyon chaparral species at lower elevations, and with black oak, incense cedar, Jeffrey pine, and ponderosa pine at higher elevations (Zweifel 1952b, Cunningham 1955, Newton and Smith 1975). The rocky outcrops or talus likely provide hibernation and refuge sites as well as the food resources for this probably largely lizard-eating snake (see *L. z. pulchra* account). Where oviposition sites are generally located is not known, but

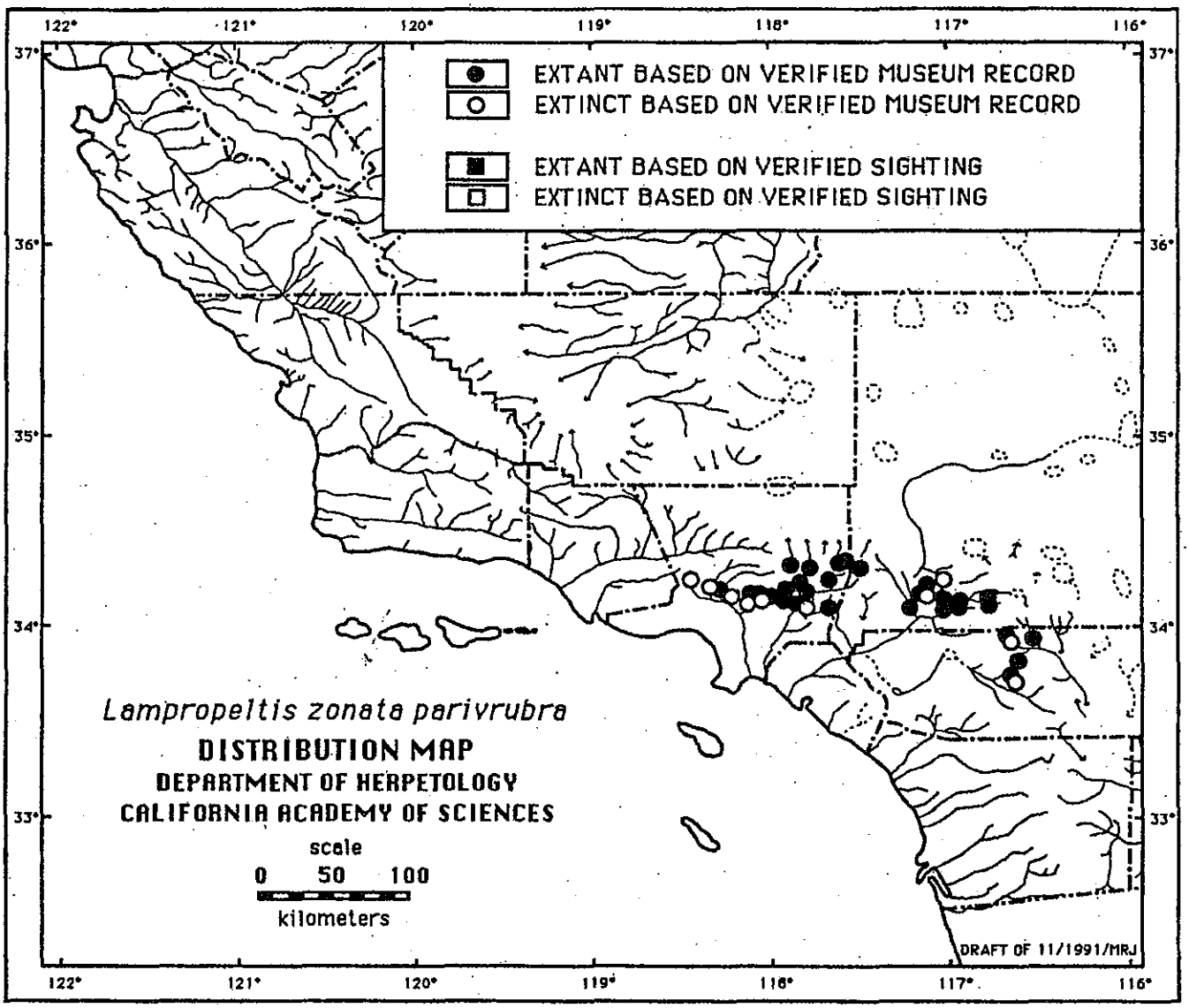

Figure 43. Historic and current distribution of the San Bernardino mountain kingsnake (*Lampropeltis zonata parvirubra*) in southern California based on 88 locations from 131 museum records.

rocky outcrops and talus areas may also provide suitable oviposition sites. Basic understanding of habitat utilization patterns are lacking.

Status: Special Concern; this taxon continues to be highly prized among collectors (S. Barry, R. Fisher, and B. McGurty, pers. comm.), despite regulations limiting collecting and laws preventing the sale of native reptiles in the state (Nicola 1981; California Fish and Game Commission 1990). Over 10 years ago, this taxon brought prices as high as $250.00 a specimen and the current black market trade of this taxon continues with high demand (especially in Europe) bringing much inflated prices (B. McGurty, pers. comm.; see also Newton and Smith 1975). One of the reasons this taxon is in high demand is because collectors are desirous of having examples of each of the various color morphs known from southern California (e.g., the "San Gabriel phase", the "San Jacinto phase", etc.: S. Barry, J. Brode, and John Wright, pers. comm.). Moreover, sharply increased public use levels of the Angeles (San Gabriel Mountains) and San Bernardino (San Bernardino Mountains and Mount San Jacinto) National Forests over the past 25 years have undoubtedly put increased collecting pressure on this species (Newton and Smith 1975).

Management Recommendations: Better systematic characterization of this taxon is needed, an issue that, as suggested previously, will require a considerable investment because novel biochemical techniques will almost certainly be needed. This species is sufficiently cryptozooic and secretive that the best and least costly way to gain some understanding of its life history and habitat utilization patterns is to employ telemetry. Perhaps once telemetry has adequately characterized this species behavior can field surveys be effectively done, but we believe that attempts to field survey this taxon without the assistance of a telemetric study will be very time costly and probably produce only limited data.

SAN DIEGO MOUNTAIN KINGSNAKE
Lampropeltis zonata pulchra Zweifel 1952

Description: A medium-sized (53-108 cm TL) snake with a distinctive sequence of red, black, and white rings (tricolor dyads: Savage and Slowinski 1990; these are similar, but yet different from the triads of Zweifel 1952b) in which relatively narrow white rings are always bordered by black rings, and red coloration, which can occur as rings or bands, borders alternate black rings (Zweifel 1952b; pers. observ.). Occasional aberrant patterns can be found in which rings are lacking (see Figure 2 in McGurty 1988). The number of tricolor dyads on the body (except the tail) ranges from 27 to 38, and between 15% and 100% of the red rings between body dyads are complete (Zweifel 1952b). The snout is jet black and the iris is very dark brown (B. McGurty, pers. comm.).

Taxonomic Remarks: The taxonomic remarks made for *Lampropeltis zonata parvirubra* also apply to this taxon.

Distribution: This California endemic occurs in the Santa Monica Mountains (Los Angeles County); Santa Ana Mountains (Grange and Riverside Counties); Santa Rosa Mountains (Riverside County); and Corte Madera, Cuyamaca, Hot Springs, Laguna, and Palomar Mountains (San Diego County: McGurty 1988;. Figure 44). Its elevation range extends from near sea level to ca. 1800 m (Palomar Mountain, San Diego County). Two early specimens (SDSNH 9930, USNM 13889) and three post-1960 records (B. McGurty, pers. comm.) from western San Diego County suggest the possibility of native populations of this taxon near the coast; However, the latter records have remained unverified and the

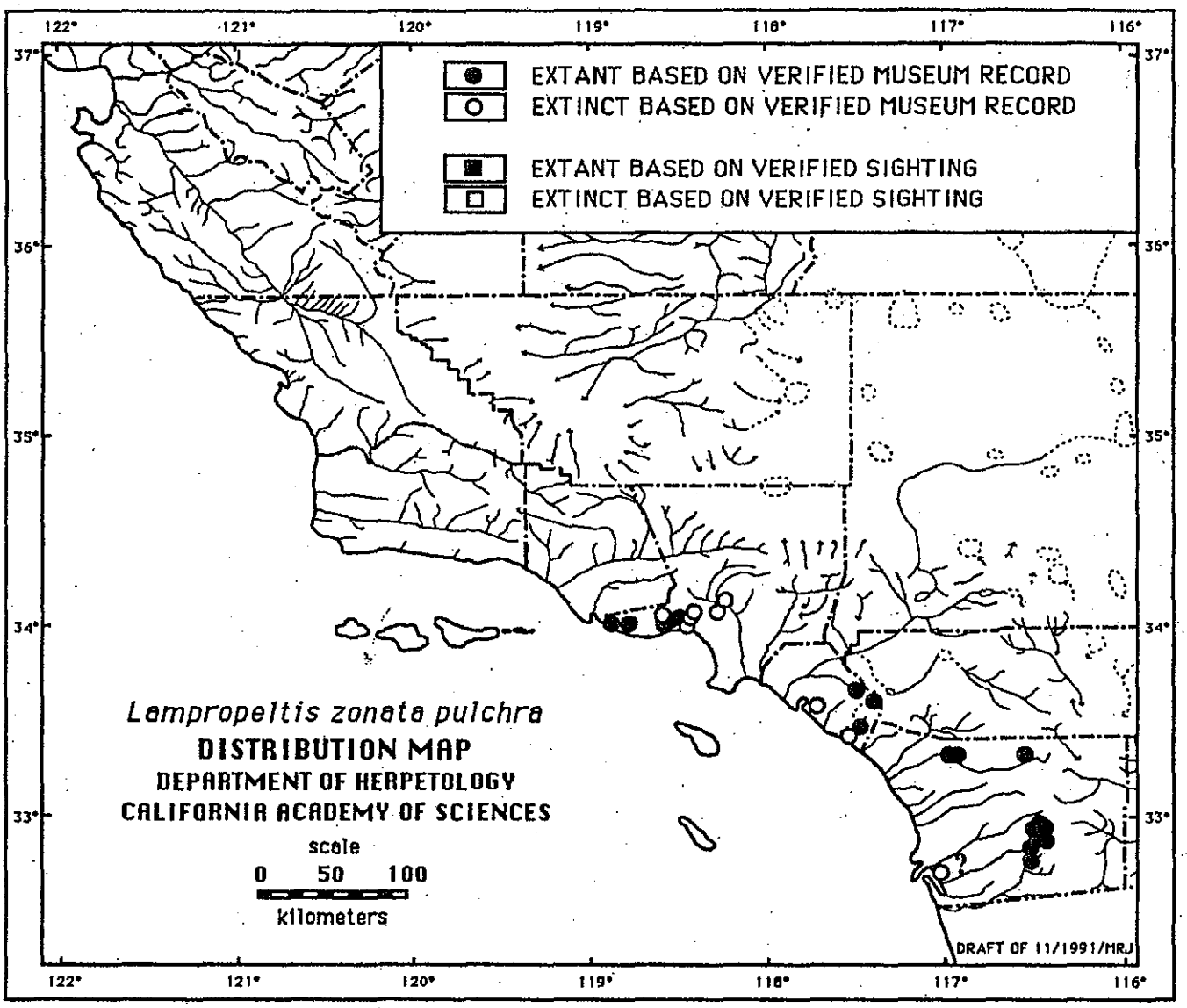

Figure 44. Historic and current distribution of the San Diego mountain kingsnake (*Lampropeltis zonata pulchra*) in southern California based on 48 locations from 73 museum records and 1 record from another source.

former may represent mislabeled specimens or escaped or released pets (B. McGurty, pers. comm.).

Life History: *Lampropeltis z. pulchra* is an infrequently observed, secretive, cryptozooic snake, the life history of which is still only partly understood. The San Diego mountain kingsnake typically emerges from overwintering sites in March and may remain near-surface active through November, but it is particularly conspicuous near the surface from roughly mid-March to mid-May (Klauber 1931, McGurty 1988), during which time it is active during the warmer daylight hours (pers. observ.). Later in the season, it may be active after dark, which is probably related to the fact that, like most snakes, it has a relatively low temperature preferendum and a relatively low critical thermal maximum (42.5°C: data provided for *L. zonata,* subspecies not specified; Brattstrom 1965). Based on wild-caught captive individuals, mating probably takes place in May and eggs are usually laid in June or early July (McGurty 1988; pers. observ.). Females lay 4-9 moderate-sized (averages 36 mm long x 16 mm wide), bone white, leathery-shelled eggs that if similar to eggs incubated in captivity, require at least 2 months to develop before hatching (McGurty 1988). Hatchlings are usually first observed between late August and early October (pers. observ.). The time required to reach reproductive maturity in the field is unknown, but captive *L. z. pulchra* required 4-5 years to reach sexual maturity (McGurty 1988). If captive longevity records for other races of this species are any indication (see Bowler 1977), San Diego mountain kingsnakes may be relatively long-lived. Indications exist that *L. z. pulchra* may be highly philopatric, consistently using local patches of suitable habitat (McGurty 1988), but the movement patterns of this taxon are largely unknown. This taxon is also probably primarily saurophagous, and only western fence lizards and western skinks have been recorded as having been eaten by San Diego mountain kingsnakes, but prey similar to other subspecies of *L. zonata* are probably also taken (Newton and Smith 1975, McGurty 1988).

Habitat: In the interior mountain ranges, *Lampropeltis z. pulchra* occurs primarily in associations of ponderosa, Jeffrey, and Coulter pine, and black oak, and is infrequently found below the coniferous forest associations (Zweifel 1952b, McGurty 1988; pers. observ.). At lower elevations and in coastal ranges, it occurs below the edge of mixed oak-coniferous forest in riparian woodlands, usually in canyon bottoms, that have western sycamore *(Platanus racemosa),* Fremont's cottonwood, coast live oak, willows, wild rose *(Rosa* spp.), and blackberries. It may be found in narrow riparian woodlands in association with chaparral and coastal sage vegetation types (pers. observ.; see McGurty 1988). Rocks or rocky outcrops appear to be an important element of *L. z. pulchra* habitat (McGurty 1988), probably because they provide suitable refuge sites and they harbor the necessary food resources. Such locations may also provide overwintering sites.

Status: Special Concern; this snake continues to be highly prized among collectors (S. Barry, R. Fisher, and B. McGurty, pers. comm.) despite prohibitions on collecting or selling it in California (Nicola 1981, California Fish and Game Commission 1990). The only individuals that can be possessed are those that were in possession of their owners prior to when the prohibition on collection regulations were implemented. Currently, this taxon is mentioned for sale in some reptile fancier lists at $250.00 per snake (pers. observ.); such a demand undoubtedly fuels a black market trade for this taxon among collectors. In addition, McGurty (1988) provided data for a single locality in San Diego County suggesting a local decline in *L. z. pulchra* that he attributes to overcollecting of this taxon. Since no obvious habitat change has occurred at this site (B. McGurty, pers. comm.), the interpretation McGurty provided may be correct. McGurty (1988) also cites the destruction of local habitat by overzealous collectors (the dismantling of outcrops and the shredding of logs and stumps), especially in San Diego County, as reasons for this taxon's decline (see also Newton and Smith 1975). Rock-chipping for this taxon as well

as for selected lizards was a problem that was recognized over 15 years ago, and continues to be a problem in certain local areas despite the fact that altering habitat in this way is prohibited under current regulations by both State and Federal land management and resource agencies. Illegal fuelwood harvesting also adds to the problem of habitat alteration (McGurty 1988).

Management Recommendations: All the comments made under the *L. z. parvirubra* account also apply here. In addition, systematic monitoring of habitat is needed to ensure that clandestine alteration (rock-chipping and removal of wood) is minimized. It is imperative to couple a systematic program of public education to make monitoring effective.

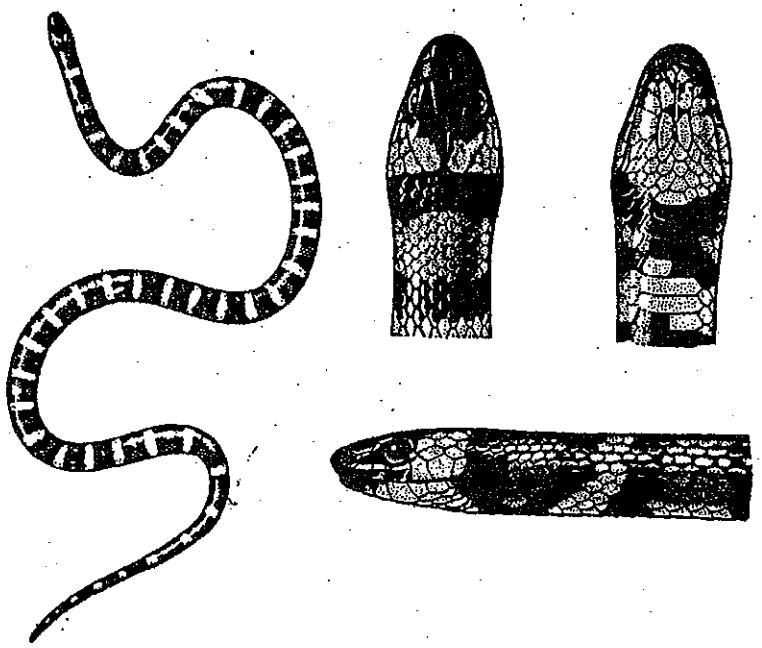

Plate 14. Adult California kingsnake (*Lampropeltis zonata*) [from Stebbins 1954b].

SAN JOAQUIN COACHWHIP
Masticophis flagellum ruddocki Brattstrom and Warren 1953

Description: The San Joaquin coachwhip is a large-sized (90-155 cm SVL), smooth-scaled, large-eyed, slender snake with a buffy citrine, tan-yellow, or olive brown dorsal color without lengthwise stripes (Brattstrom and Warren 1953). The ventral color is straw yellow that acquires a pinkish or orangish cast under the tail and the top of the head is light brown (pers. observ.). The iris color has not been described.

Taxonomic Remarks: Brattstrom and Warren (1953) described this taxon on the basis of the general buffy citrine to olive dorsal color, an absence of dark neck bands, and a lower subcaudal scale count. Verification of the validity of this taxon on any other grounds has never been attempted (see Wilson 1970). Genetic variation within *Masticophis flagellum ruddocki* has not been examined and should be studied to evaluate the distinctiveness of this taxon. The difficulty in obtaining material for such study may require novel techniques, such as extracting DNA from preserved material. *Masticophis f. ruddocki* apparently intergrades with *M. f. piceus* in the lower Kern Canyon-Caliente-Tehachapi region of eastern Kern County (Brattstrom and Warren 1953; R. Hansen, pers. comm.).

Distribution: The known range of this California endemic extends from 13 km west of Arbuckle (Colusa County; SDSNH 26084] in the Sacramento Valley southward to the Grapevine in the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges (Figure 45). An isolated population occurs in the Sutter Buttes (Hayes and Cliff 1982). The known elevational range of the San Joaquin whipsnake extends from near ca. 20 m to around 900 m in the Temblor Range (Kern County: pers. observ.).

Life History: The life history of this taxon is virtually unknown. The summary presented here is based largely on *M. f. piceus* from the nearby desert areas of California. *Masticophis f. ruddcocki* is a swift (see Mosauer 1935), diurnal snake that maintains a high activity level when on the surface (Sullivan 1981). If similar to other *M. flagellum* subspecies, it voluntarily maintains a higher active body temperature than most other snakes (Cowles and Bogert 1944, Brattstrom 1965, Hammerson 1977) and will not emerge from burrow retreats either on a daily or seasonal basis until near-surface temperatures reach ca. 28°C (see discussion in Hammerson 1989). As a result, emergence tends to be relatively late in the season (usually April-early May) and later in the morning (ca. 1000-1100 hr), although some evidence exists that smaller (younger) individuals emerge earlier in the day and the season than larger (older) snakes. Emergence is preceded by a warming interval during which only the head and neck are extruded from the burrow (Hammerson 1977; pers. observ.). *Masticophis f. ruddocki* are typically active during the warmest part of the day; only later during the season (see Banta and Morafka 1968), when midday temperatures become intolerably warm does *M. f. ruddocki* become bimodal in its surface activity. Mating is thought to occur in May and oviposition probably occurs in June or early July. Oviposition sites have not been found, but are probably situated in the wall of a rodent burrow (see Wright and Wright 1957); clutch size probably ranges from 4 to 20 (see Stebbins 1985). Adults may disappear seasonally as early as the first part of August (pers. observ.), perhaps in response to a late-summer decline in food resources. *Masticophis f. ruddocki* seems to primarily eat lizards and rob the nests of birds and mammals, but it may also eat carrion (see Cowles 1946 and Cunningham 1959a); blunt-nosed leopard lizards (Montanucci 1965, Tollestrup 1979), western whiptails (R. Hansen, pers. comm.), side-blotched lizards *(Uta stansburiana:* pers. observ.), San Joaquin antelope ground squirrels *(Ammospermophilus nelsoni:* S. Sweet, pers. comm.) are known prey. Individual *M. f. ruddocki* probably have a relatively large home range (R.

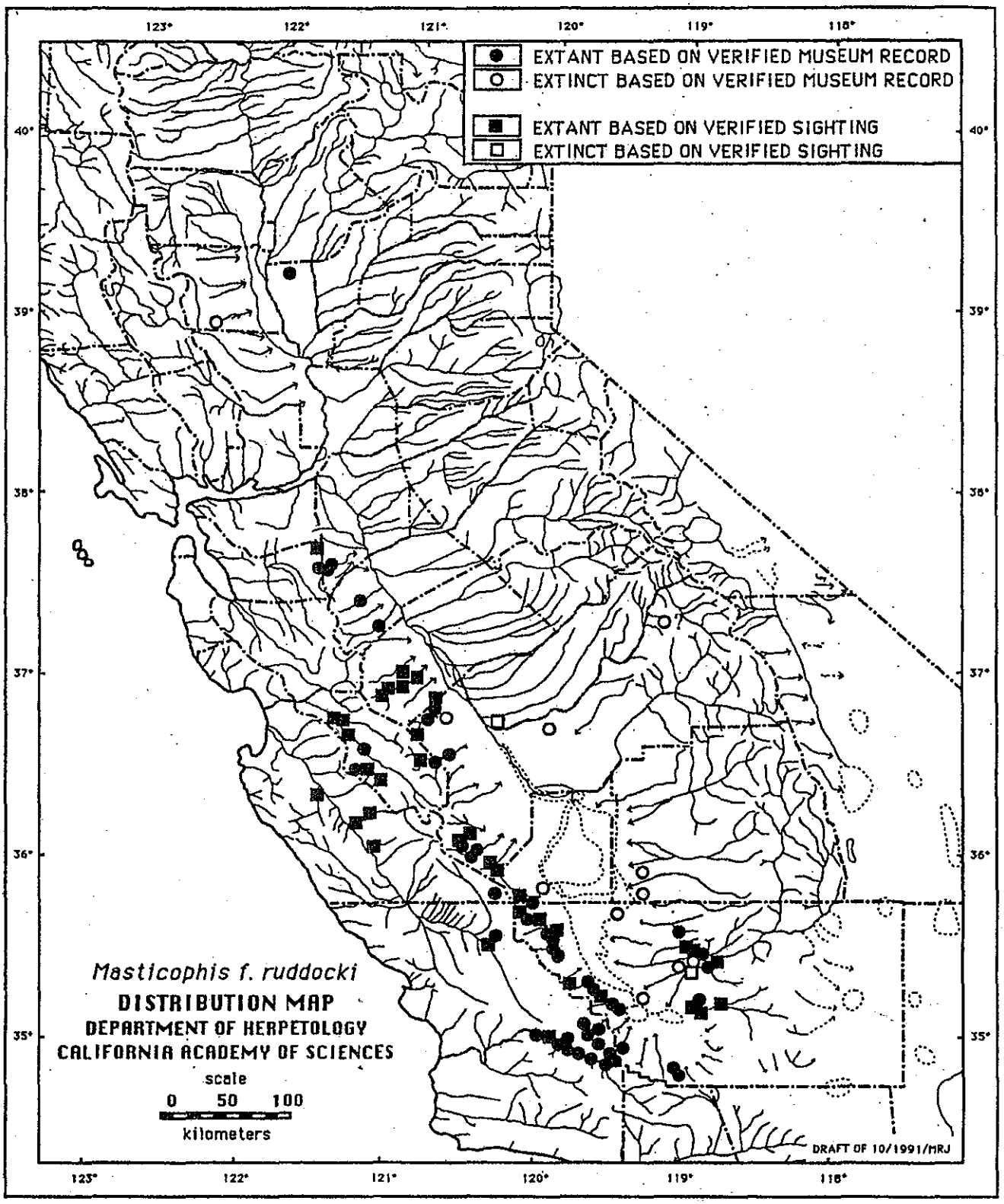

Figure 45. Historic and current distribution of the San Joaquin coachwhip (*Masticophis flagellum ruddocki*) in central and northern California based on 186 locations from 102 museum records and 98 records from other sources.

Hansen, pers. comm.), but movement data for this taxon are lacking. Subterranean overwintering sites are probably located in a burrow system (see Cowles 1941).

Habitat: *Masticophis f. ruddocki* occurs in open, dry, vegetative associations with little or no tree cover (Morafka and Banta 1976). In the western San Joaquin Valley, it occurs in valley grassland and saltbush scrub associations (Montanucci 1965, Banta and Morafka 1968, Tollestrup 1979, Sullivan 1981; pers. observ.) and is known to climb bushes such as *Atriplex* for viewing prey and potential predators (see Cunningham 1955). *Masticophis f. ruddocki* probably requires one or more mammal associates because it uses burrows for refuge and probably for oviposition sites, and may sometimes be dependent on mammals for food. Although this snake probably has a high degree of dependence on mammals, the species it may be dependent upon and the nature of such relationships are vague.

Status: Threatened; beyond simply having a relatively restricted geographic range, much of the area within the historic range of *M. f. ruddocki* has undergone extensive land use changes over the last 15 years. Most significant is the first-time conversion of large areas of valley grassland or shadscale scrub association to row crop agriculture in the San Joaquin Valley, particularly cotton *(Gossypium* sp.), grapes, kiwi fruit *(Actinidia chinensis),* and various vegetables. This type of conversion not only eliminates the food base that *M. f. ruddocki* typically depends upon, but it eliminates the burrow mammal associates that this taxon needs for the creation of refuge sites. Further, urban development has also expanded in selected areas in the inner Coast Ranges where this species was historically common. Land-use conversion coupled with 4 years of drought (1986-1990) that have reduced the available lizard food base for *M. f. ruddocki* in many areas may have also contributed significantly to the depletion and fragmentation of populations of this taxon.

Management Recommendations: The life history of *M. f. ruddocki* needs intensive study to better establish its habitat utilization patterns, its dependence on mammal associates, and the patch sizes of habitat it needs to maintain populations over the long-term. Until the life history is better understood (especially of size of home ranges and long-term patterns of movement), the largest open habitat patches of suitable habitat in valley grassland, saltbush, and shadscale scrub associations should be protected or preserved to ensure this taxon's survival. A few large segments of protected habitat in which *M. f. ruddocki* occurs currently exist (e.g., The Nature Conservancy's Carrizo Plain Preserve), but at the rate that land-use conversion has eliminated this taxon's habitat in the San Joaquin Valley and inner Coast Ranges over the past 15 years, more large segments are needed in order to preserve even a small remnant of the historical habitat for this taxon.

SANTA CRUZ GOPHER SNAKE
Pituophis melanoleucus pumilus Klauber 1946

Description: A medium-sized (70-110 cm), yellow or cream-colored snake with black, brown, or reddish dorsal blotches, and smaller secondary dorsal blotches (Klauber 1946). Undersurfaces are nacreous white or cream often becoming somewhat yellow on the throat and ventral surfaces of the neck and tail with three rows of dark spots along the sides of the body. The iris is dark brown (pers. observ.).

Taxonomic Remarks: *Pituophis melanoleucus pumilus* is a dwarf subspecies of gopher snake that can be distinguished from other subspecies of *P. melanoleucus* in California based on the presence of ≥ 29 dorsal scales rows at the mid-body. It is thought to be most closely related to one of the two adjacent mainland forms, *P. m. annectens* and *P. m. catenifer* (Klauber 1946). Although it is considered a valid taxon (Sweet and Parker 1990),

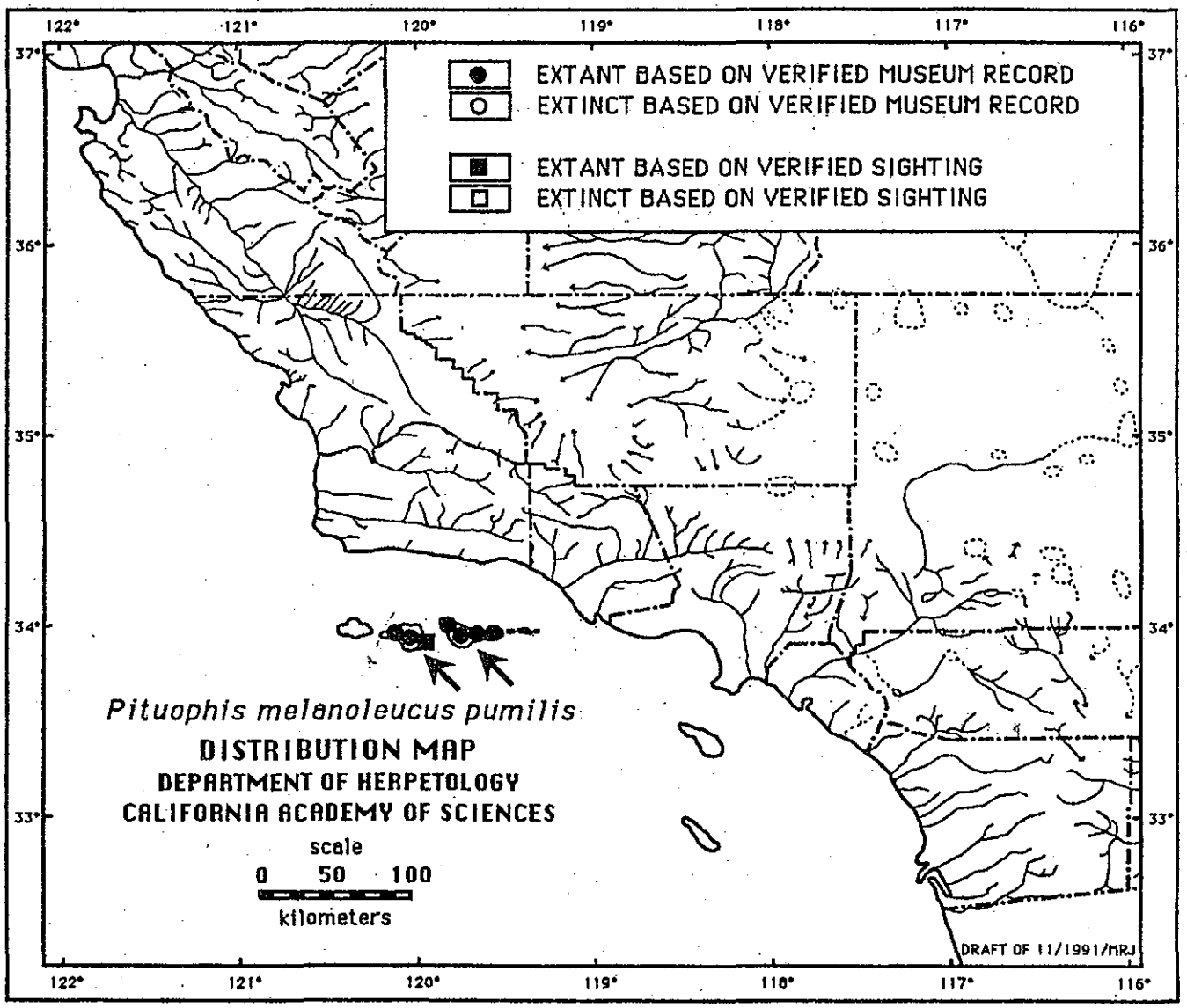

Figure 46. Historic and current distribution of the Santa Cruz gopher snake (*Pituophis melanoleucus pumilis*) in southern California based on 26 locations from 39 museum records and 6 records from other sources.

verification of the validity of this taxon on other than morphological grounds has not been addressed (see Collins, ms). Genetic variation within *P. m. pumilus* has not been examined and should be studied to evaluate its distinctiveness. The scientific name of this taxon is often incorrectly spelled as *"P. m. pumilis"* in the literature (e.g., see Stebbins 1985 and Collins, ms).

Distribution: This California endemic has only been recorded on Santa Cruz and Santa Rosa (Orr 1968) islands off the coast of southern California (Wilcox 1980; Figure 46). The statement by Stebbins (1985) of this taxon occurring on San Miguel Island is based on an unverified sight record (P. Collins, pers. comm.). The known elevational range extends from near sea level to 640 m (on Santa Cruz Island).

Life History: Allowing for its smaller body size and the depauperate island fauna where it occurs (see Wenner and Johnson 1980), this island-dwelling gopher snake has a life history that is anticipated to be similar to gopher snakes found on the adjacent mainland (e.g., see Fitch 1949). In spring, juveniles and adults emerge from rodent burrows or rock fissures, where they hibernate during the colder months of fall and winter (P. Collins, pers. comm.). Adults probably reproduce in May with females depositing clutches from late June through July and hatchlings emerging in September and October (Van Denburgh 1898, Stebbins 1985; P. Collins, pers. comm.); the reproductive ecology of this taxon is currently being studied (R. Fisher, pers. comm.). Santa Cruz gopher snakes are probably surface active during the day whenever temperatures are high enough to elicit movement (see Rüthling 1915). Because the island fauna is depauperate, the prey base available to gopher snakes is limited. Potential prey are limited to southern alligator lizards *(Elgaria multicarinata),* western fence lizards, side-blotched lizards, deer mice *(Peromyscus maniculatus),* western harvest mice *(Reithrodontomys megalotis),* and a variety of land birds (Diamond and Jones 1980, Wenner and Johnson 1980, Laughrin 1982). Of these, adult Santa Cruz gopher snakes probably consume mice, adult lizards, and the eggs or nestlings of the birds that are small enough to eat, whereas juvenile gopher snakes probably take juvenile lizards, mouse pups, and possibly insects (e.g., Jerusalem crickets, *Stenopelmatus* sp.; Laughrin 1982). Island foxes *(Urocyon littoralis:* Laughrin 1977) occasionally eat *Pituophis m. pumilus* as do feral pigs *(Sus scrofa),* red-tailed hawks, and common ravens (Laughrin 1982; P. Collins, pers. comm.). A captive-born snake lived for 16.5 years in captivity (P. Collins, pers. comm.). Data are lacking on the growth or movement ecology of this taxon.

Habitat: *Pituophis m. pumilus,* like its mainland congeners, is a habitat generalist. It can be found in all vegetation associations on the two islands, but it is most common in open areas such as grasslands, dry streambeds, and oak and chaparral woodlands (Laughrin 1982). No data are available on either overwintering or oviposition sites.

Status: Special Concern; introduced ungulates, which destroy and modify the vegetative cover, and feral pigs, which eat snakes, continue to threaten the Santa Cruz gopher snake on both islands on which the latter occurs. Gopher snakes are rare on Santa Rosa Island, yet are still relatively common on Santa Cruz Island for reasons not well-understood (Laughrin 1982; Collins, ms.; P. Collins and R. Fisher, pers. comm.).

Management Recommendations: Exclusion fencing needs to continue as long as feral livestock threatened the native fauna (and flora) on any of the Channel Islands. Particular effort should be made to remove wild pigs from islands on which this taxon occurs because of the greater degree of destruction wild pigs can inflict on snake populations and habitat. Even after threat from the feral fauna has been alleviated, Santa Cruz gopher snake populations need study to gain a better understanding the natural history of these island populations. Emphasis should also be placed on reevaluating its taxonomic status via

genetic and morphometric techniques. Much basic data, including that on distribution, habitat affinities, abundance, reproductive biology, food habits, and factors affecting mortality are needed to improve management guidelines for this taxon.

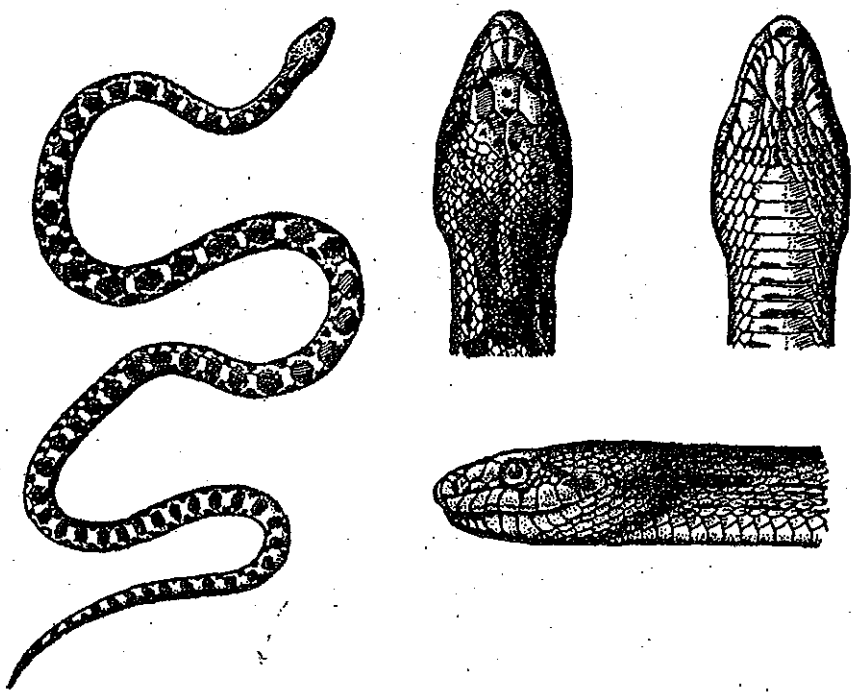

Plate 15. Adult gopher snake (*Pituophis melanoleucus*) [from Stebbins 1954b].

COAST PATCH-NOSED SNAKE
Salvadora hexalepis virgultea Bogert 1935

Description: A medium-sized (55-115 cm TL), slender snake with a yellow or beige, dark-bordered middorsal stripe one full scale row and the two half-scale rows on either side wide; and a broad, patch-like rostral scale (Bogert 1935, 1945; Stebbins 1985). Sides of the body are often dark brown, a color which covers all but the lowermost 1 or 2 dorsal scale rows. Undersurfaces are cream to white, but often washed with pink or orangish on the posterior belly and undersurface of the tail. The iris is black with a buffy-colored ring around the pupil (Wright and Wright 1957).

Taxonomic Remarks: Bogert (1935) defined this form as a subspecies of *Salvadora hexalepis* based on morphology. Alternative data sets have never been examined to affirm the validity of this taxon. Genetic data are needed both to affirm its validity and to identify potential variation across its geographic range. Potential difficulties with obtaining material for such a study, may require considering using novel techniques, such as extracting DNA from preserved material.

Distribution: The known range of this taxon is thought to extend from near Creston (San Luis Obispo County; UCSB 13697), California southward into Baja California (Figure 47). Its known elevation range extends from sea level to around 2130 m.

Life History: The life history of *S. h. virgultea* is among the most poorly known of the regularly surface-active snakes that occur in California. The limited number of records of this species may be largely a function of its bimodal activity period (peak in late morning and secondarily in late afternoon) less frequented by collectors or observers (S. Sweet, pers. comm.) coupled with a relatively cryptic appearance that results from lower light levels during the active period (pers. observ.). During the rest of the daylight hours, *S. h. virgultea* apparently remains immobile on the surface (S. Sweet, pers. comm.). *Salvadora h. virgultea* is an active, relatively swift-moving snake (see Mosauer 1935) that probably maintains a relatively high body temperature (see Brattstrom 1965, Cunningham 1966b, and Jacobson and Whitford 1971). Indications exist that its peak emergence interval corresponds roughly to the emergence interval of what is probably a major prey item, lizards of the genus *Cnemidophorus* (Cunningham 1959a; Jacobson and Whitford 1971; S. Sweet, pers. comm.), The modified rostral scale of this taxon and its congeners is thought to be a modification to aid unearthing reptile egg prey (Bogert 1939, Shaw and Campbell 1974), but whether coast patch-nosed snakes prey extensively on such eggs is not known. *Salvadora h. virgultea* is recorded as emerging from overwintering sites in March and disappearing to overwintering sites in October (Klauber 1939). but these census data probably conceal significant differences in seasonal patterns of activity between juveniles and adults. Additionally, a number of observations exist of juveniles emerging on warm days during the winter months (S. Sweet, pers. comm.). Although this taxon is presumed to lay eggs like other member of its genus, its eggs have never been described (Wright and Wright 1957). Other than the fact that it is a facile climber (Grinnell and Grinnell 1907), its movement ecology is unknown.

Habitat: Several authors have commented on this species association with brushy or shrubby vegetation, such as chaparral (Klauber 1924, Bogert 1935, Perkins 1938). If the assessment that *S. h. virgultea* adjusts its activity around that of its whiptail lizard prey, the link to shrubby associations may simply be a function that being the preferred habitat of its prey. Whatever the link, coast patch-nosed snakes seem to require at least a low shrub structure of minimum density since they are not found in habitats lacking this structural component. Coast patch-nosed snakes are presumed to take refuge and perhaps overwinter

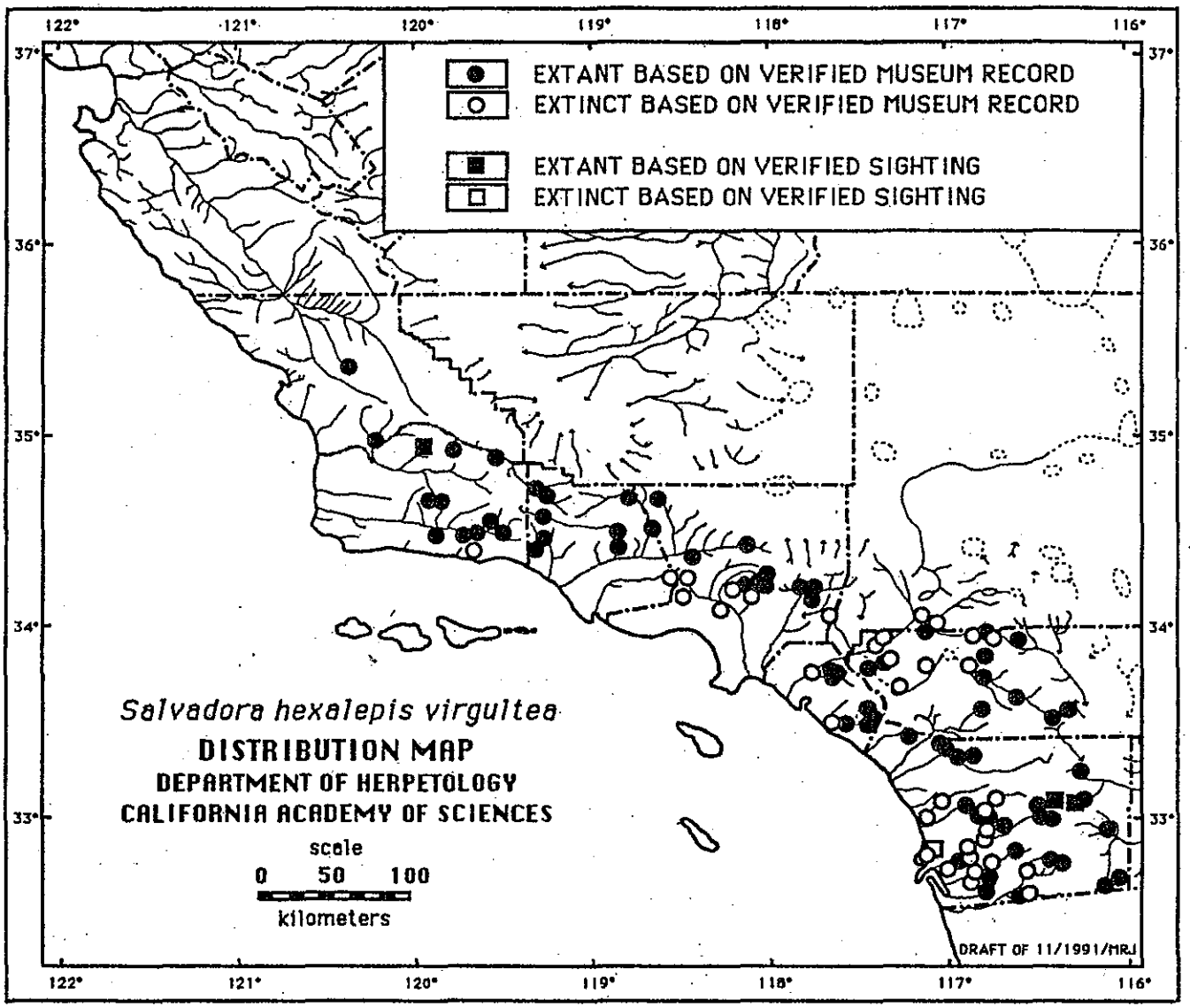

Figure 47. Historic and current distribution of the coast patch-nosed snake (*Salvadora hexalepis virgultea*) in southern California based on 168 locations from 198 museum records and 10 records from other sources.

in burrows or woodrat nests, so the presence of one or more burrow- or refuge-creating mammals may be necessary for this snake to be present.

Status: Special Concern; although available data indicate that the coast patch-nosed snake may have always been an uncommon taxon, the data may be strongly biased because the interval over which time this snake is active is infrequently sampled. Regardless of the bias, extensive areas in coastal southern California with a shrubby habitat structure have been converted through various land uses to habitats largely unsuitable to this species. Extensive conversion of chaparral to grassland began over 30 years ago in coastal southern California, largely to create grazing land for livestock, but later, also for fire control. Beginning at the same time and particularly in the last 20 years, large foothill tracts of shrub-dominated vegetation associations on the coastal slope have been converted to urban development and to a lesser extent, drip-irrigated orchards and row crops. It is conservatively estimated that at least 20% of the habitat historically available to this species is no longer suitable, but the actual figure maybe much higher.

Management Recommendations: Intensive life history study of this snake is needed, especially to better understand its pattern of activity and habitat use, and identify the habitat components that are critical to its survival. Based on the latter, surveys of existing habitat should be made that incorporate ground-truthing against aerial photointerpretation, and existing aerial surveys should be compared with historical aerial photographs to assist estimating the degree of habitat loss and where and how habitat has changed. Until more detailed habitat data become available, shrubby vegetative associations should be routinely surveyed for this taxon at appropriate diel and seasonal intervals and assessments of the quality of the habitat for this species should be done on a site-by-site basis.

TWO-STRIPED GARTER SNAKE
Thamnophis hammondii (Kennicott 1860)

Description: A medium-sized (60-101 cm TL), garter snake with a variable dorsal coloration of olive, brown, or brownish gray, and a single yellow-orange lateral stripe on each side of the body (Fitch 1940, Fox 1951, Larson 1984). These lateral stripes may be lacking on melanistic individuals, which are common in the northern third of the range of this species (Bellemin and Stewart 1977, Larson 1984). A nuchal spot may be present on the back of the neck when the middorsal stripe is absent (Stebbins 1985). The iris is a light tan color (pers. observ.).

Taxonomic Remarks: *Thamnophis hammondii* was recently removed from the *T. couchii* complex (Fox and Dessauer 1965, Rossman 1979, Lawson and Dessauer 1979, Fitch 1984) and elevated to species rank (Rossman and Stewart 1987; but see also Fitch 1940). Field observations indicating that *T. hammondii* is ecologically distinct from coexisting populations of *T. atratus, T. elegans,* and *T. sirtalis* along the central California coast support this conclusion (Fox 1951, Bellemin and Stewart 1977, Rossman and Stewart 1987, Boundy 1990). Some of these taxa have historically been confused with *T. hammondii* (e.g., Larson 1984). Lawson and Dessauer (1979) provide some genetic data on this taxon, but genetic variation across the seven populations sampled cannot be interpreted because the data are lumped. Even if the data had not been lumped, the small sample sizes make it unlikely that one could identify a geographic pattern. Recently, Boundy (1990) suggested that *T. hammondii* be split into two subspecies in California based on his morphometric analyses. This conclusion does not seem justified based on his small sample size of snakes from the northern half of their range. Moreover, the recent conclusions of McGuire and Grismer (1993) from their morphomettic analysis of several newly discovered populations of *T. digueti* indicates that *T. digueti* simply represents *T.*

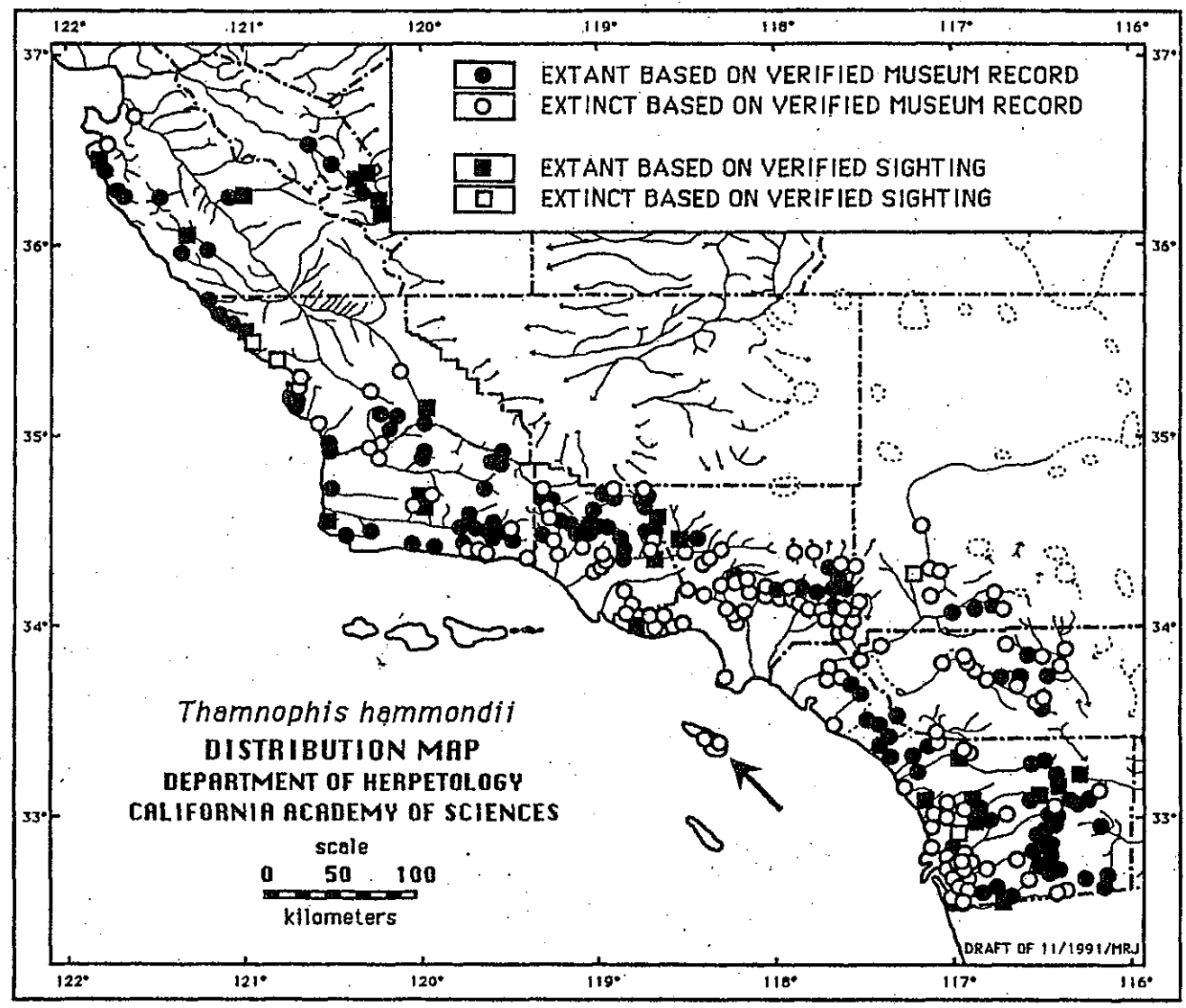

Figure 48. Historic and current distribution of the two-striped garter snake (*Thamnophis hammondii*) in central and southern California based on 509 locations from 1260 museum records and 100 records from other sources.

hammondii in central and southern Baja California, Mexico. More comprehensive genetic and morphometric data are needed to identify potential variation across the geographic range of this taxon.

Distribution: The known range of *T. hammondii* extends through the South Coast and Peninsular ranges west of the San Joaquin Valley and deserts from the vicinity of Salinas (Monterey County: Boundy 1990) and Cantua Creek (Fresno County: Ely 1992), south to La Presa, Baja California, Mexico (McGuire and Grismer 1993). The known elevational range of *T. hammondii* extends from sea level to around 2450 m at Tahquitz Valley on Mt. San Jacinto (Riverside County: Atsatt 1913). In California, *T. hammondii* occurs throughout most of the South Coast and Transverse ranges from Salinas Valley and the southeastern slope of the Diablo Range, south to the Mexican border (Figure 48). This species is also present on Santa Catalina Island (Los Angeles County), California (Brown 1980) and occurs in several perennial, desert slope streams (e.g., Mojave River [San Bernardino County], Whitewater River [Riverside County], and San Felipe Creek [San Diego County]; Perkins 1938, Fitch 1940, Stebbins 1985, Boundy 1990).

Life History: Despite the fact that *T. hammondii* was historically a relatively common snake, its life history is poorly known. In part, this is because this taxon has never been subject to intensive ecological study. *Thamnophis hammondii* is a highly aquatic snake; it is rarely found far from water, which it freely enters to forage or escape predators (Fitch 1940, 1941; Stebbins 1985). Individuals have also been recorded to climb trees or vegetation > 3 m above the surface of the water (Cunningham 1955), but the frequency of this behavior is unknown. Juveniles and adults emerge from hibernation in the spring although they may sometimes be observed foraging on warm winter days (Rüthling 1915, Rathbun et al. 1993). Two-striped garter snakes may have a lower thermal preferendum (18.6-31.8°C [average 22.6°C]: Cunningham 1966b) than measured for other garter snake species (see Brattstrom 1965), but the temperature data are difficult to interpret because the temporal and behavioral context of when temperatures were taken is frequently lacking. *Thamnophis hammondii* is often observed basking during the early morning and afternoon before foraging for prey (pers. observ.). Two-striped garter snakes mate in the spring (March) and bear from 1-25 live young during the fall (Bogert 1930; Cunningham 1959a; G. Stewart, pers. comm.). Neonates have been observed from late August through November (Rathbun et al. 1993). Evidence suggests that females can store sperm for up to 53 months (Stewart 1972), although they probably mate each year. Juveniles and adults feed primarily on fish *(Cottus* sp. and *Eucyclogobius newberryi:* Rathbun et al. 1993; *Gasterosteus aculeatus:* Bell and Haglund 1978, Bell 1982, Rathbun et al. 1993; *Oncorhynchus mykiss:* Fitch 1941), fish eggs (Fitch 1940), and the tadpoles and metamorphs of anurans; *Bufo microscaphus californicus, B. boreas halophilus, Pseudacris cadaverina, P. regilla, Rana aurora draytonii, R. boylii,* and *R. muscosa* have been recorded as prey (Grinnell and Grinnell 1907, Klauber 1931, Fitch 1940, Cunningham 1959a; G. Stewart, pers. comm.; pers. observ.). *Thamnophis hammondii* will prey on bullfrog metamorphs and larvae when other food resources are rare or absent (pers. observ.), which suggests that the life stages of bullfrogs are differentially avoided. Earthworms and larval California newts *(Taricha torosa)* may also be eaten (Fitch 1940, Von Bloeker 1942, Stebbins 1985). The two-striped garter snake probably does not reach sexual maturity until 2 or 3 years of age (pers. observ.). *Thamnophis hammondii* has been maintained in captivity for 7-10 years (Bowler 1977; G. Stewart, pers. comm.), but longevity in the field is unknown. Potential predators include: hawks, shrikes, herons, raccoons, coyotes, and probably introduced exotics such as largemouth bass, catfish, and feral pigs (see Springer 1977 and Schwalbe and Rosen 1988). Bullfrogs are known to eat all life stages of *T. hammondii (S.* Sweet, pers. comm.). Some data are available on the movement ecology of *T. hammondii.* Adult snakes display use of different areas and habitats in summer versus winter (Rathbun et al. 1993). During summer, snakes utilized

streamside sites and had home ranges that varied from approximately 80 m^2 to over 5,000 m^2 (mean = ca. 1500 m^2; n = 7). During winter, they occupied coastal sage scrub and grassland locations in uplands adjacent riparian areas, and had home ranges that varied from approximately 50 m^2 to nearly 9,000 m^2 (mean = ca. 3400 m^2; n = 3). Many aspects of the movement ecology of *T. hammondii,* especially with respect to their colonization abilities, are poorly understood.

Habitat: *Thamnophis hammondii* commonly inhabits perennial and intermittent streams having rocky beds bordered by willow thickets or other dense vegetation (Grinnell and Grinnell 1907; Fitch 1940, Fitch 1941). Two-striped garter snakes also inhabit large sandy riverbeds, such as the Santa Clara River (Ventura County), if a strip of riparian vegetation is present along the stream course (pers. observ.). This taxon also utilizes stock ponds and other artificially-created aquatic habitats (e.g., Lake Hemet [Riverside County]) if a dense riparian border of emergent vegetation and amphibian and fish prey are present. If flooding, overgrazing, burning, or mechanical alteration removes dense riparian vegetation, *T. hammondii* is infrequently found in such habitats (pers. observ.). Limited data indicate that small mammal burrows are used as overwintering sites (Rathbun et al. 1993). Data are lacking on the microhabitats required for bearing young.

Status: Threatened; *T. hammondii* has disappeared from approximately 40% of its historic range on the California mainland during the past century, and most of this has occurred since 1945. It can now be considered common only in eastern San Diego County. Much of this decline is attributed to habitat destruction from urbanization, large reservoirs, and the cement lining of stream channels in southern California for flood control. During the past decade, however, *T. hammondii* has also disappeared from numerous localities in Ventura, Santa Barbara, and San Luis Obispo counties where habitat was once considered to be relatively secure from development (S. Sweet and D. Holland, pers. comm.). The reasons for the rapid decline in the northern part of the range of *T. hammondii* are probably due to a combination of factors, which include: habitat modification resulting from livestock grazing; predation by introduced fishes, bullfrogs, and feral pigs; and loss of the prey food base, particularly amphibians (see accounts on *Rana aurora draytonii, R. boylii,* and *R. muscosa* for pertinent comments, as well as the information presented in Jennings et al. 1992 for *T. elegans)* and fishes, recently exacerbated by the severe drought that occurred over much of southern California between 1986 and 1990. A significant portion of the riparian habitat that still harbors *T. hammondii* is degraded, and could rapidly become unsuitable if present trends towards drier climatic conditions for southern California continue; those conditions are exacerbated by current levels of livestock grazing. Additionally, many areas in the Angeles, Cleveland, Los Padres, and San Bernardino National Forests have sustained significant increases in recreational use since 1970; such trends increase the probability of human contact and the frequency of incidental take contributes to depleting local populations. Hikers, fishermen, and off-road vehicle enthusiasts who mistakenly believe that garter snakes consume large numbers of trout often kill *T. hammondii* (Fitch 1940, Fitch 1941; G. Stewart, pers. comm.; pers. observ.; see also Von Bloeker 1942).

On Santa Catalina Island, individuals from a small melanistic population consisting of < 30 snakes that inhabited a 2.9-km section of stream and a 4-ha reservoir in Cottonwood Canyon has not been seen since 1977 (Brown 1980; G. Stewart, pers. comm.), although a single pregnant female was collected in nearby Middle Canyon on 12 May 1985 (SBMNH 1181). The decline of this isolated population is attributed to the filling of the reservoir with alluvium during the 1982 floods coupled with later drought, predation by feral pigs and introduced bullfrogs, and loss of vegetative cover due to overgrazing. This population of *T. hammondii* should be listed as Endangered.

Management Recommendations: Detailed field surveys to determine the presence of extant populations of *T. hammondii* in southern California are urgently needed to assess the quality of habitat and the numbers of garter snakes remaining in this region. Studies on the ecology of this taxon are especially needed to determine the importance of various food resources for recruitment and reproduction, as well as to indicate the seasonal movements and colonization abilities of garter snakes in natural and human-modified habitats. Land-use managers should consider limiting public access to riparian habitats which harbor significant populations of *T. hammondii.*

SOUTH COAST GARTER SNAKE
Thamnophis sirtalis sp.

Taxonomic Remarks: Recent comparison of *Thamnophis sirtalis* from southern California with individuals from populations north of the Tehachapi Mountains and Carpinteria (Santa Barbara County) indicate that individuals from southern California represent a distinct taxon (J. Boundy and S. Sweet, pers. comm.). Description of this taxon is pending (J. Boundy, pers. comm.).

Distribution: This California endemic is known only from scattered localities along the southern California coastal plain; apparently from the Santa Clara River Valley (Ventura County: SDSNH 4376; UCSB uncat.; S. Sweet, pers. comm.), south to the vicinity of San Pasqual (San Diego County: Klauber 1929; Figure 49). Verified sightings and museum specimens indicate that this taxon historically occurred from near sea level (Ballona Creek and Playa del Rey Marsh, Los Angeles County: Von Bloeker 1942) to ca. 832 m (Lake Henshaw, San Diego County: R. Fisher, pers. comm.).

Life History: Little is known about the life history of this taxon. Because *T. sirtalis* is found over most of North America in a wide variety of habitats except for far northern latitudes and southwestern deserts (Fitch 1981), the 14 known subspecies exhibit a wide variation in habits and life history traits (see Fitch 1965 for a summary). The few data on the South Coast garter snake are interpreted in the context of similarities to other *T. sirtalis* taxa.

The South Coast garter snake is live-bearing, it breeds in the spring and gives birth to 12-20 young during August (Cunningham 1959a), although the birthing interval probably extends from late summer to early fall. If the pattern of growth is similar to other *T. sirtalis,* juvenile snakes typically mature after 2-3 years for males and females, respectively. Other California *T. sirtalis* are known to feed principally on amphibians *(Pseudacris regilla:* Fitch 1941, Cunningham 1959a, White and Kolb 1974; *Bufo boreas:* Fitch 1941; 1949), although fish, small mammals, and insects are also taken (Cunningham 1959a, Fitch 1949, White and Kolb 1974). Thus, the South Coast garter snake may have a similar diet, as small fishes, tadpoles, and insects have been identified as prey items (Grinnell and Grinnell 1907). Snakes are active during the spring through fall (March-October), although occasional individuals can be found abroad during the cold winter months (December-January) on exceptionally warm days (Rüthling 1915). The South Coast garter snake was historically reported as locally common (Grinnell and Grinnell 1907, Bogert 1930, Von Bloeker 1942), but is unknown if overwintering aggregations existed as reported elsewhere (Gregory 1982). *Thamnophis sirtalis* has survived in captivity for over 10 years (Bowler 1977), but longevity of the South Coast garter snake in the field is unknown. Potential predators include kingsnakes, hawks, shrikes, herons, raccoons, coyotes, and probably introduced exotics such as largemouth bass, catfish, and bullfrogs (see Fitch 1965 and Schwalbe and Rosen 1988). Data on movement ecology and colonization abilities are lacking.

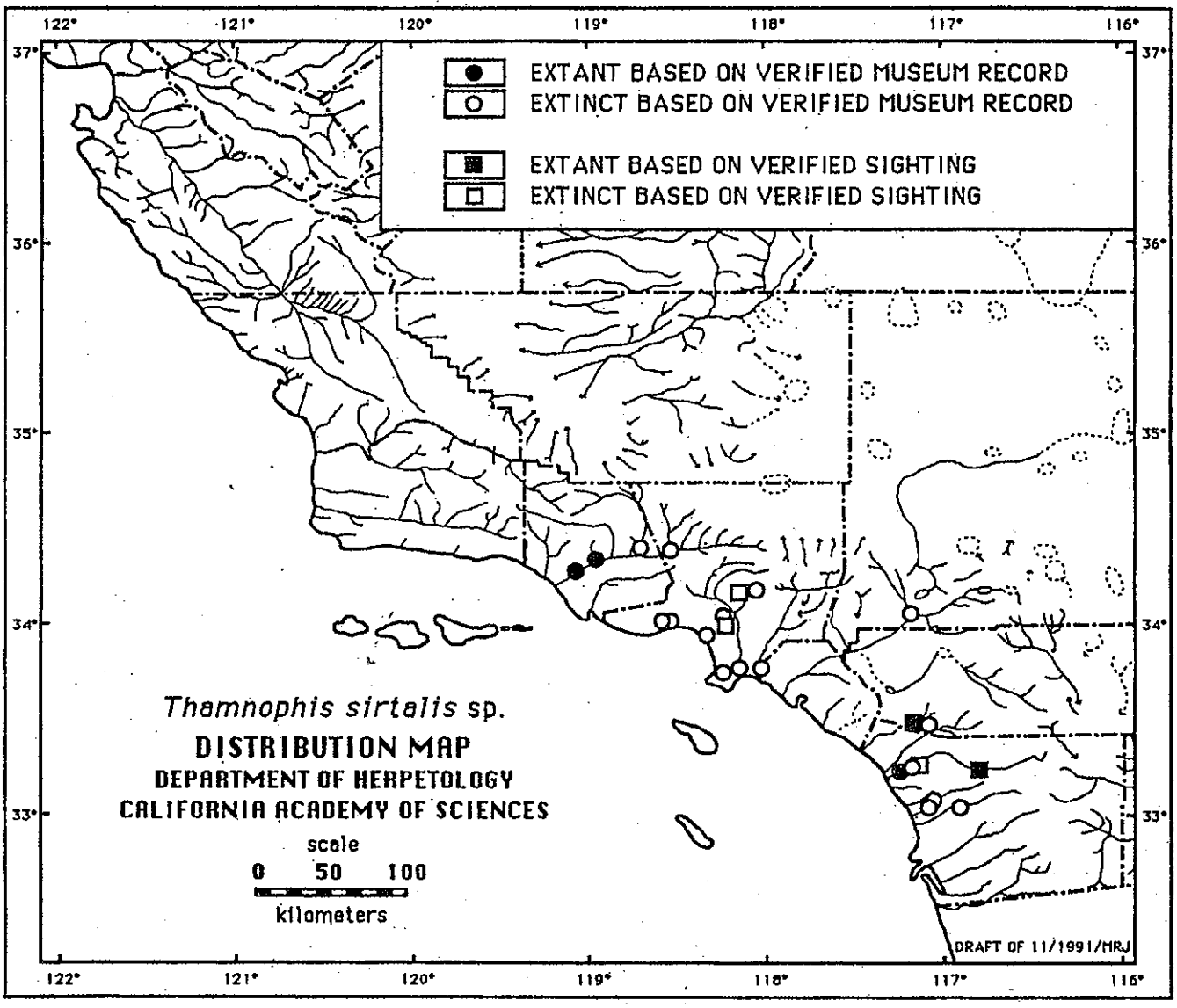

Figure 49. Historic and current distribution of the South Coast garter snake (*Thamnophis sirtalis* sp.) in southern California based on 23 locations from 81 museum records and 7 records from other sources.

Habitat: The South Coast garter snake appears restricted to marsh and upland habitats near permanent water that have good strips of riparian vegetation (Grinnell and Grinnell 1907; S. Sweet, pers. comm.), probably because such sites provide the right combination of prey and refuge sites. Historical records of this taxon also exist for meadow-like habitats adjacent to marshlands (Van Bloeker 1942). Data are lacking on the microhabitats required for bearing young.

Status: Endangered; of the 24 known historic localities for this taxon, 18 (75%) no longer support snakes. Extensive urbanization and flood control projects have destroyed most sites; some more isolated locations, such as in the Santa Monica Mountains, appear to have lost snakes following heavy floods or extended droughts (DeLisle et al. 1986). Habitat loss through agriculture, urbanization, and flood control projects, as well as the presence of many introduced aquatic predators threatens the six remaining localities where this snake still exists. This taxon can be notorious difficult to find in some areas (Klauber 1929; S. Sweet, pers. comm.).

Management Recommendations: Thorough monitoring to determine where this taxon remains in riparian habitats in southern California are urgently needed to evaluate the quality of habitat and the number of snakes that remain. Baseline monitoring should be conducted over several years to ensure that local populations have not been missed, and also extended to identify population trends. Studies on the ecology of this snake are also needed to identify the importance of various prey resources for recruitment and reproduction, and the seasonal movement patterns and the colonization abilities of snakes in remnant habitats.

Discussion

General aspects of the 48 taxa reviewed are summarized in Tables 3, 4, and 5. Of the 48 taxa recommended for state-level status, anurans (frogs and toads) are the numerically best represented group with 14, followed by lizards (12), salamanders (11), snakes (9), and turtles (2). These groups are not equally represented in the California fauna, so the proportion of taxa recommended for listing is a function of the total number taxa in each group in California less the number already listed (at State or Federal levels) provides a better indication of the relative impacts on each group. Based on the latter, turtles have the greatest proportion of taxa being recommended for listing (100%), followed by anurans (70%), salamanders (46%), lizards (35%), and snakes (22%).

An uneven distribution exists in the the number of taxa being recommended for listing at different levels among amphibian and reptile groups (Table 6). In the most critical category (Endangered), anurans and turtles are overrepresented; whereas salamanders, lizards, and snakes are underrepresented (see Table 3). Conversely, in the least critical category (Species of Special Concern), anurans and turtles are underrepresented, whereas salamanders, lizards, and snakes are over-represented (see Table 5). Despite bias because of greater confidence in the data available for the more visible groups (anurans, lizards, and turtles) when compared to the less visible ones (salamanders and snakes), this analysis allows a conclusion that turtles or anurans are more imperilled than lizards, salamanders, or snakes. That conclusion is not likely related to taxonomic group *per se* because some taxa deviate from the modal critical category their taxonomic group exhibits (e.g., *Thamnophis hammondii* among snakes, *Ambystoma californiense* among salamanders).

Partitioning taxa into aquatic and terrestrial categories indicates a more generalized explanation: Taxa with aquatic life stages are more imperilled than those with an exclusively terrestrial life history (Table 6). Among the 20 taxa with at least one aquatic life stage, 13 (60%) are proposed for listing in the most critical category (Endangered), whereas only 2 of the 28 taxa (7%) with a terrestrial life history is proposed for the same category. This comparison may be more extreme than this somewhat arbitrary analysis indicates because one of the two "terrestrial" taxa proposed for Endangered status may be highly dependent on local hydrology for its survival (see species account for the Breckenridge Mountain slender salamander). In contrast, only 6 of the 20 (30%) taxa with at least one aquatic life stage are proposed for allocation to the least critical category (Species of Special Concern), whereas 19 of the 28 taxa (68%) with a terrestrial life history are proposed for that same category. This pattern should not be surprising. Today, most aquatic habitats in California are rarer (i.e., smaller in area) than most terrestrial habitats, a difference often reflected on a scale of one or more orders of magnitude. Overall rarity of aquatic habitats now seen in California is couched in a long history of change in which xerification or loss of aquatic habitat has been and continues to be the dominant pattern (see Anderson and Ohmart 1982, 1985; Anonymous 1991; Brady et al. 1985; L. Bryant 1985; Buckhouse et al. 1985; Ferren and Gevirtz 1990; Harris et al. 1985; Heede 1985; Jones 1988b; Kauffman and Krueger 1984; Kauffman et al. 1983; Marlow and Pogacnik 1985; Ohmart et al. 1988; Szaro and Debano 1985). The large number of critically imperilled taxa associated with aquatic habitats simply underscores the alarming, but long-standing pattern of degradation and reduction of aquatic habitats in California, a pattern that 4 years of recent drought has severely exacerbated.

Degradation and reduction of aquatic habitats in California is a statewide phenomenon, but several regions of the State deserve mention because the current species composition reflects acute degradation and habitat loss. In southern California (south of the Santa Clara River), the aquatic amphibian and reptile fauna is severely depleted; four taxa *(Bufo alvarius, Kinosternon sonoriense, Rana boylii,* and *R. yavapaiensis)* may be extinct and

Table 3. Summary of third category amphibian and reptile species in California for which State listing as Endangered is recommended.

Common Name	Scientific Name	Geographic Range*						Vulnerable Aspects											Current Major Impacts								
		Endemic To California?**	Very Small Range	Small Range	Moderate-Sized Range	Moderately Broad Range	Broad Range	Vernal Pool Habitat Specialist	Breeding Habitat Limited	Refuge Habitat Limited	Habitat Restricted	Old-Growth Specialist	Stream Habitat Specialist	Sandy Habitat Specialist	Dietary Specialist	Seasonal Movements Between Habitats	Large Home Range	Behaviorally Vulnerable	Exotic Predators	Overcollecting Or Black Market Trade	Land Use Conversion	Modification Of Hydrology	Modification Of Seep Hydrology	Removal Of Old-Growth Forest	Removal Of Live Or Dead Oak Tree Material	Off-Road Vehicles	Unidentified, But Causing Widespread Declines
Breckenridge Mtn. slender salamander	*Batrachoseps* sp.	Y	X	--	--	--	--	--	X	X	X	--	--	--	--	--	--	--	--	?	X	--	X	--	X	--	--
Colorado River toad	*Bufo alvarius*	N	--	X	x	--	--	--	?	?	X	--	X	--	--	--	--	--	X	--	X	X	--	--	--	--	--
Yosemite toad	*Bufo canorus*	Y	--	--	X	--	--	--	X	X	X	--	--	--	--	X	--	?	--	--	--	X	--	--	--	--	X
Arroyo toad	*Bufo microscaphus californicus*	N	--	X	x	--	--	--	X	X	X	--	X	--	--	X	--	X	X	--	X	X	--	--	--	X	--
California red-legged frog***	*Rana aurora draytonii*	N	--	x	--	X	--	--	X	X	X	--	--	--	--	--	--	X	X	--	X	X	--	--	--	X	--
Foothill yellow-legged frog***	*Rana boylii*	N	--	--	x	X	--	--	X	--	X	--	X	--	--	--	--	X	X	--	X	X	--	--	--	?	--
Cascade frog***	*Rana cascadae*	N	--	X	--	x	--	--	X	X	X	--	--	--	--	--	--	?	X	--	--	X	--	--	--	--	X
Mountain yellow-legged frog***	*Rana muscosa*	N	--	--	X	--	--	--	X	X	X	--	--	--	--	--	--	?	X	--	--	X	--	--	--	--	X
Northern leopard frog	*Rana pipiens*	N	--	X	--	--	x	--	X	X	X	--	--	--	--	--	?	--	--	--	X	X	--	--	--	--	X
Spotted frog	*Rana pretiosa*	N	--	X	--	--	x	--	X	X	X	--	--	--	--	--	--	X	X	--	X	X	--	--	--	--	--
Lowland leopard frog	*Rana yavapaiensis*	N	--	X	--	x	--	--	X	X	X	--	--	--	--	--	--	--	X	--	X	X	--	--	--	--	--
Western pond turtle***	*Clemmys marmorata*	N	--	--	--	x	X	--	X	X	X	--	--	--	--	?	?	X	X	X	X	X	--	--	--	--	--
Sonoran mud turtle	*Kinosternon sonoriense sonoriense*	N	--	X	--	x	--	--	?	X	X	--	X	--	X	?	?	--	X	--	--	X	--	--	--	--	--
Two-striped garter snake***	*Thamnophis hammondii*	N	--	x	X	--	--	--	--	--	X	--	X	--	X	--	--	--	X	--	X	X	--	--	--	X	--
South Coast garter snake	*Thamnophis sirtalis* sp.	Y	--	X	--	--	--	--	--	X	X	--	--	--	--	--	--	--	X	--	X	X	--	--	--	X	--

*A lower case "x" identifies the size of the geographic range of the taxon outside California.
**Y = Yes; N = No.
***This taxon has also been proposed for Threatened or Special Concern status in parts of its geographic range (see Tables 4 and 5).

Table 4. Summary of third category amphibian and reptile species in California for which State listing as Threatened is recommended

Common Name	Scientific Name	Geographic Range*						Vulnerable Aspects											Current Major Impacts								
		Endemic To California?**	Very Small Range	Small Range	Moderate-Sized Range	Moderately Broad Range	Broad Range	Vernal Pool Habitat Specialist	Breeding Habitat Limited	Refuge Habitat Limited	Habitat Restricted	Old-Growth Specialist	Stream Habitat Specialist	Sandy Habitat Specialist	Dietary Specialist	Seasonal Movements Between Habitats	Large Home Range	Behaviorally Vulnerable	Exotic Predators	Overcollecting Or Black Market Trade	Land Use Conversion	Modification Of Hydrology	Modification Of Seep Hydrology	Removal Of Old-Growth Forest	Removal Of Live Or Dead Oak Tree Material	Off-Road Vehicles	Unidentified, But Causing Widespread Declines
California tiger salamander	*Ambystoma californiense*	Y	--	--	X	--	--	X	X	X	X	--	--	--	--	X	--	X	X	--	X	X	--	--	--	--	--
Inyo Mountains salamander	*Batrachoseps campi*	Y	--	X	--	--	--	--	X	X	X	--	--	--	--	--	--	--	--	--	--	X	X	--	--	?	--
Southern seep salamander	*Rhyacotriton variegatus*	N	--	--	B	--	--	--	X	X	X	X	--	--	--	--	--	?	--	--	--	X	X	X	--	--	--
Tailed frog***	*Ascaphus truei*	N	--	--	X	x	--	--	X	?	X	X	X	--	--	?	--	X	--	--	--	X	--	X	--	--	--
California red-legged frog***	*Rana aurora draytonii*	N	--	x	--	X	--	--	X	X	X	--	--	--	--	--	--	X	X	--	X	X	--	--	--	X	--
Foothill yellow-legged frog***	*Rana boylii*	N	--	--	x	X	--	--	X	--	X	--	X	--	--	--	--	X	X	--	X	X	--	--	--	?	--
Mountain yellow-legged frog***	*Rana muscosa*	N	x	--	X	--	--	--	X	X	X	--	--	--	--	--	--	?	X	--	--	X	--	--	--	--	X
Western spadefoot	*Scaphiopus hammondii*	N	--	x	--	X	--	X	X	X	X	--	--	--	--	X	--	X	X	--	X	X	--	--	--	--	--
Western pond turtle***	*Clemmys marmorata*	N	--	--	--	x	X	--	X	X	X	--	--	--	--	?	?	X	X	X	X	X	--	--	--	--	--
Belding's orange-throated whiptail	*Cnemidophorus hyperythrus beldingi*	N	--	--	X	x	--	--	?	--	X	--	--	--	X	--	--	--	--	--	X	--	--	--	--	?	--
Panamint alligator lizard	*Elgaria panamintina*	Y	--	X	--	--	--	--	X	X	X	--	X	--	--	--	--	--	--	--	--	X	X	--	--	?	--
San Diego horned lizard	*Phrynosoma coronatum blainvillii*	N	--	x	X	--	--	--	--	--	--	--	--	--	X	--	?	X	X	--	X	--	--	--	--	X	--
California horned lizard	*Phrynosoma coronatum frontale*	Y	--	--	X	--	--	--	--	--	--	--	--	--	X	--	?	X	X	--	X	--	--	--	--	X	--
Flat-tailed horned lizard	*Phrynosoma mcallii*	N	--	X	x	--	--	--	?	--	X	--	--	X	X	--	X	X	--	--	X	--	--	--	--	X	--
San Joaquin coachwhip	*Masticophis flagellum ruddocki*	Y	--	--	X	--	--	--	--	--	X	--	--	--	--	--	?	--	--	--	X	--	--	--	--	X	--
Two-striped garter snake***	*Thamnophis hammondii*	N	--	x	X	--	--	--	--	--	X	--	X	--	X	--	--	--	X	--	X	X	--	--	--	X	--

*A lower case "x" identifies the size of the geographic range of the taxon outside California; a "B" is used where the size of the geographic range inside California is subequal to that outside California.
**Y = Yes; N = No.
***This taxon has also been proposed for Special Concern or Endangered status in parts of its geographic range (see Tables 3 and 5).

Table 5. Summary of third category amphibian and reptile species in California for which Special Concern status is recommended.

Common Name	Scientific Name	Geographic Range*						Vulnerable Aspects											Current Major Impacts								
		Endemic To California?**	Very Small Range	Small Range	Moderate-Sized Range	Moderately Broad Range	Broad Range	Vernal Pool Habitat Specialist	Breeding Habitat Limited	Refuge Habitat Limited	Habitat Restricted	Old-Growth Specialist	Stream Habitat Specialist	Sandy Habitat Specialist	Dietary Specialist	Seasonal Movements Between Habitats	Large Home Range	Behaviorally Vulnerable	Exotic Predators	Overcollecting Or Black Market Trade	Land Use Conversion	Modification Of Hydrology	Modification Of Seep Hydrology	Removal Of Old-Growth Forest	Removal Of Live Or Dead Oak Tree Material	Off-Road Vehicles	Unidentified, But Causing Widespread Declines
Relictual slender salamander	*Batrachoseps relictus*	Y	--	X	--	--	--	--	--	--	?	--	--	--	--	--	--	--	--	--	--	--	X	--	X	--	--
Yellow-blotched salamander	*Ensatina eschscholtzii croceater*	Y	--	X	--	--	--	--	--	?	?	--	--	--	--	--	--	--	--	--	?	--	--	--	X	--	--
Large-blotched salamander	*Ensatina eschscholtzii klauberi*	Y	--	X	--	--	--	--	--	?	?	--	--	--	--	--	--	--	--	--	X	--	--	--	X	--	--
Mount Lyell salamander	*Hydromantes platycephalus*	Y	--	--	X	--	--	--	--	?	?	--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--
Owens Valley web-toed salamander	*Hydromantes* sp.	Y	--	X	--	--	--	--	--	?	?	--	--	--	--	--	--	--	--	--	--	--	X	--	--	--	--
Del Norte salamander	*Plethodon elongatus elongatus*	N	--	X	x	--	--	--	--	?	--	X	--	--	--	--	--	--	--	--	--	--	--	X	--	--	--
Coast Range newt***	*Taricha torosa torosa*	Y	--	--	X	--	--	--	?	--	--	--	--	--	--	--	--	--	--	?	X	X	--	--	--	--	--
Tailed frog****	*Ascaphus truei*	N	--	X	x	--	--	--	X	?	X	X	X	--	--	?	--	X	--	--	--	X	--	X	--	--	--
Northern red-legged frog	*Rana aurora aurora*	N	--	--	X	--	x	--	X	X	X	--	--	--	--	--	--	X	X	--	X	X	--	--	--	--	--
Foothill yellow-legged frog****	*Rana boylii*	N	--	--	x	X	--	--	X	--	X	--	X	--	--	--	--	X	X	--	X	X	--	--	--	?	--
Cascade frog****	*Rana cascadae*	N	--	X	--	x	--	--	X	X	X	--	--	--	--	--	--	?	X	--	--	X	--	--	--	--	X
Couch's spadefoot	*Scaphiopus couchii*	N	X	--	--	--	x	X	X	--	--	--	--	--	?	--	--	X	--	--	?	--	--	--	--	X	--
California legless lizard	*Anniella pulchra*	N	--	--	X	x	--	--	?	X	X	--	--	--	--	--	--	--	X	--	X	--	--	--	--	?	--
Coronado skink	*Eumeces skiltonianus interparietalis*	N	--	B	--	--	--	--	?	?	X	--	--	--	--	--	--	--	?	--	X	--	--	--	X	--	--
Banded Gila monster	*Heloderma suspectum cinctum*	N	--	X	--	x	--	--	--	--	--	--	--	--	--	X	X	--	--	X	X	--	--	--	--	?	--

*A lower case "x" identifies the size of the geographic range of the taxon outside California; a "B" is used where the size of the geographic range within California is subequal to that outside California.
**Y = Yes; N = No.
***Only for a portion of its geographic range (see species accounts for details).
****This taxon has also been proposed for Threatened or Endangered status in parts of its geographic range (see Tables 3 and 4).

Table 5. Summary of third category amphibian and reptile species in California for which Special Concern status is recommended (continued).

Common Name	Scientific Name	Geographic Range*						Vulnerable Aspects											Current Major Impacts								
		Endemic To California?**	Very Small Range	Small Range	Moderate-Sized Range	Moderately Broad Range	Broad Range	Vernal Pool Habitat Specialist	Breeding Habitat Limited	Refuge Habitat Limited	Habitat Restricted	Old Growth Specialist	Stream Habitat Specialist	Sandy Habitat Specialist	Dietary Specialist	Seasonal Movements Between Habitats	Large Home Range	Behaviorally Vulnerable	Exotic Predators	Overcollecting Or Black Market Trade	Land Use Conversion	Modification Of Hydrology	Modification Of Seep Hydrology	Removal Of Old-Growth Forest	Removal Of Live Or Dead Oak Tree Material	Off-Road Vehicles	Unidentified, But Causing Widespread Declines
Colorado Desert fringe-toed lizard	*Uma notata notata*	N	--	X	x	--	--	--	--	--	X	--	--	X	--	--	--	?	--	--	X	--	--	--	--	X	--
Mojave fringe-toed lizard	*Uma scoparia*	N	x	X	--	--	--	--	--	--	X	--	--	X	--	--	--	?	--	--	X	--	--	--	--	X	--
Sandstone night lizard	*Xantusia henshawi gracilis*	Y	X	--	--	--	--	--	X	X	X	--	--	--	--	--	--	--	--	?	--	--	--	--	--	--	--
Sierra night lizard	*Xantusia vigilis sierrae*	Y	X	--	--	--	--	--	X	X	X	--	--	--	--	--	--	--	--	?	?	--	--	--	--	--	--
Baja California rat snake	*Elaphe rosaliae*	N	X	--	--	x	--	--	--	--	X	--	--	--	--	--	?	--	--	X	--	--	--	--	--	--	--
Red diamond rattlesnake	*Crotalus ruber ruber*	N	--	X	x	--	--	--	--	--	X	--	--	--	--	--	?	--	--	--	X	--	--	--	--	--	--
San Bernardino mountain kingsnake	*Lampropeltis zonata parvirubra*	Y	--	X	--	--	--	--	--	X	X	--	--	--	--	--	--	--	--	X	X	--	--	--	X	--	--
San Diego mountain kingsnake	*Lampropeltis zonata pulchra*	Y	--	X	--	--	--	--	--	X	X	--	--	--	--	--	--	--	--	X	X	--	--	--	X	--	--
Santa Cruz gopher snake	*Pituophis melanoleucus pumilus*	Y	X	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	X	--	--	--	--	--	--	--	--
Coast patch-nosed snake	*Salvadora hexalepis virgultea*	N	--	x	X	--	--	--	--	--	?	--	--	--	?	--	--	X	--	--	X	--	--	--	--	--	--

*A lower case "x" identifies the size of the geographic range of the taxon outside California.
**Y = Yes; N = No.

Table 6. Taxonomic and ecological groupings of amphibian and reptile taxa across recommended listing categories.

Group	Total[a] (N)	Endangered (E) (N_e)	%E (N_e/N) x 100	Threatened (T) (N_t)	%T (N_t/N) x 100	Special Concern (SC) (N_{sc})	%SC (N_{sc}/N) x 100
Amphibians	25	11	44	8	32	11	44
Anurans	14	10	71	5	36	4	40
Salamanders	11	1	9	3	27	7	63
Reptiles	23	3	13	8	35	13	57
Lizards	12	0	0	5	42	7	58
Snakes	9	2	22	2	22	6	67
Turtles	2	2	100	1	50	0	0
Aquatic Taxa[b]	20	13	65	9	45	6	30
Terrestrial Taxa[b]	28	2	7	7	25	19	68

[a] Total indicated the total number of taxa recommended for listing in the indicated group. The sum of the totals for each listing category sometimes do not match the total in each group because some taxa are listed in more than one category.

[b] Taxa were placed in the aquatic grouping if one or more life stages of that taxon was dependent on significant accumulations of free water. Thus, all anurans, the two turtles, *Ambystoma californiense*, *Rhyacotriton variegatus*, *Taricha torosa*, and *Thamnophis hammondii* were placed in the aquatic group, and all plethodontid salamanders, lizards, and snakes were placed in the terrestrial group.

fragmented populations are all that remain of seven others *(B. microscaphus californicus, Clemmys marmorata, R. aurora draytonii, R. muscosa, Scaphiopus hammondii, Thamnophis hammondii,* and *T. sirtalis sp.).* Even taxa that were generally historically abundant (e.g., *Taricha torosa torosa)* are now observed in limited numbers. In the San Joaquin Valley, three aquatic taxa *(C. marmorata; R. a. draytonii,* and *R. boylii)* have highly fragmented distributions restricted to segments of the bordering foothills, and two others *(Ambystoma californiense* and *S. hammondii)* remain largely in the less-disturbed rainpool habitats that have become increasingly isolated along the edges of the valley. In northeastern California, two frogs *(R. pipiens* and *R. pretiosa),* if present, are extremely rare. Finally, aquatic taxa from high elevations along the Cascade-Sierra axis *(B. canorus, R. cascadae,* and *R. muscosa)* have displayed apparent widespread reductions in geographic range that are especially alarming.

Aquatic habitats in California dominate the picture of species in severe decline, but several taxa associated with specialized and often rather fragile terrestrial or terrestrial-aquatic interface habitats also deserve special mention. Four taxa often, and, for some, uniformly, associated with deposits of wind-blown sand *(Anniella pulchra, Phrynosoma mcallii, Uma notata notata,* and *U. scoparia)* are at varying degrees of risk because of alterations to this habitat type. Three taxa *(Ascaphus truei, Plethodon elongatus,* and *Rhyacotriton variegatus)* closely associated with old-growth coniferous forests are increasingly at risk due to the removal of this habitat type at rates faster than it can renew itself. Finally, two taxa often associated with saltbush scrub or annual grassland associations *(Masticophis flagellum ruddocki* and *P. coronatum frontale)* are at risk because these habitat types are now greatly reduced and fragmented.

Recommendations

Patterns revealed in this analysis led to making the following recommendations. The facts that such a large number of amphibian and reptile taxa (48) deserve some kind of listing, and that proposed listings are exclusively upgrades (no downgrades[3]) is reflective of a grave situation with far-reaching environmental consequences. Because issues raised in the proposed listing of many taxa are complex and linked, ranking the recommendations associated with such listings was difficult. Nevertheless, some recommendations are more encompassing; these (hereafter "primary") are provided first. Linkage between primary and most subsequent recommendations is complex enough to prevent logically ranking recommendations in a more refined way. As a consequence, grouped primary and secondary recommendations are numbered solely because presentation must be sequential. This numbering should not be interpreted as an importance ranking. Finally, some of the recommendations made here have appeared in individual species accounts in a taxon-specific context; these recommendations reappear here in a generalized context since they may apply not only to more than one taxon, but to other taxa not discussed here in future situations.

Primary Recommendations:

1) Funding - As treated here, funding refers to any monies available to address amphibian and reptile taxa that are listed, candidates or potential candidates for listing, or the problems associated with such taxa. Current levels of funding are conservatively

[3]At this writing, no data addressing any of the taxa the State of California lists as Endangered or Threatened has indicated that a downgrade in status was justified. Such evaluations were outside the purview of this report (see page 8).

estimated at two orders of magnitude or more below the level needed to reverse existing trends. As a consequence, two issues are evident: a) existing agency machinery is highly unlikely to be able to generate funding at the level needed to reverse existing trends; and b) because of the great cost, generation of funding levels necessary to reverse existing trends must be broad-based, and thus draw on agency-, public-, and private-sector funding. The latter result is unlikely to be achieved without radical changes in current attitudes towards land use and land ownership. In particular, private ownership of land now allows landowners enough latitude to engage in short- or long-term abuse of land incompatible with the survival of most amphibians and reptiles. Moreover, the full realization of changes to achieve this kind of funding base are unlikely to be implemented without a significant transitory period, especially in the context of the current weak economic situation. Details of the pertinent arguments related to the current funding base are addressed in Appendix I.

2) Education - Education of the public at all levels as to the significance of amphibians and reptiles is essential for several interrelated reasons. First, recognition that the failure of selected amphibians and reptiles to maintain populations is not simply a detriment to those species, it is indicative of a decline in environmental quality that increasingly affects humans in a negative manner, so humans should recognize it as such. Second, amphibians and reptiles are an essential part of the natural heritage of California, having evolved in tandem with the diverse physical and biotic environments found in the state. Nonetheless, a remarkable amount of disinformation exists about the native California herpetofauna. This is in part a consequence of the fact that some exotics are so well established (e.g., bullfrogs) that many people perceive those species to be native and are ignorant of the problems exotics create. Third, understanding of the significance of amphibians and reptiles must be broad-based if the funding needed to maintain programs addressing their study, their survival, and education of the public about them is to continue (see also Gibbons 1988 for pertinent comments). Broad-based means that concerted educational efforts should provide age-appropriate information to individuals ranging from pre-school to adults. Scattered evidence indicates that serious deficiencies in the latter area are a major reason that much of the public is ignorant regarding amphibians and reptiles. The connection between declines among amphibians and reptiles and various aspects of environmental quality are not perceived or poorly understood by many people. Thus, the public is refractory to providing or supporting the funding needed to address these species. Education must provide the primary vehicle for changes in attitude in land use from one of ownership incompatible with sensitive taxon survival to one of stewardship compatible with sensitive taxon survival. Fourth, education related to sensitive taxa has tended to have a narrow focus, addressing mostly biological assessments to which technological solutions most strongly influenced by economic concerns are applied (see especially Kellert 1985). Aesthetic, educational, historical, and recreational values of sensitive species are often ignored (Kellert 1985, Rolston 1981). Education should provide exposure to the full range of values these taxa provide.

Secondary Recommendations:

1) Protection of aquatic systems - The gravity of the situation facing the aquatic species treated here indicates that a much more concerted effort should be directed at aquatic systems. Especially needed are efforts in the areas of: a) modification of aquatic habitat structure, b) water quality, and c) exotic biota. To be effective, these efforts must be integrated, not independent.

Perhaps the most pervasive problem concerning aquatic systems is their continued modification with still only limited attention to the natural or historical dynamics of these systems with regard to sediment distribution and vegetation structure (see Harris et al.

1985, Heede 1985, Platts et al. 1985, Schultze and Wilcox 1985, Stabler 1985). Future engineering solutions should focus on integrating into existing hydrological patterns without significantly modifying them or working towards restoring the historicalpatterns, rather than attempting solutions that force changes upon existing patterns. Further, the inability of many aquatic systems to support the imperilled aquatic amphibians and reptiles we discuss is often testimony either to the inadequacy of current local, regional, and state water quality standards; or their enforcement; or both. Finally, exotic biota that threaten, or that are suspected of threatening much of the native aquatic biota continue to expand their range in California. Limiting the expansion of exotics requires efforts on several fronts including: a) development of species-specific control measures that will not affect non-target species; b) education that emphasizes the overwhelming discrepancy between the many disadvantages exotics have versus the very limited advantages, if any, they provide; and c) reducing the translocation and future importation of exotics into California to the maximum extent possible. Special attention should be devoted to bullfrogs, which are one of the foremost among problem exotics that influence amphibians and reptiles (see Schwalbe and Rosen 1988). Bullfrogs should be deleted from the CDFG list of game species, the bag limits on them should be removed, and programs directed at the selective removal and elimination of bullfrogs should be encouraged. The latter measures should be coupled to a broad-based education program that details bullfrog identification procedures and life history characteristics and contrasts them to those of the native frogs. Equal effort should be devoted to the eliminating the translocation of exotic fishes, regardless of their game species status. Particularly, efforts should be made to reduce or even eliminate the translocation of mosquitofish, which continues to occur for claimed public health reasons that frequently lack a scientific basis. Studies are needed to determine the level at which mosquitofish exert their negative effects. Alternatives to using exotics should be developed in conjunction with agencies that have historically promoted the translocation of exotic fishes.

Perhaps most significantly, special efforts should be directed at the protection of entire hydrographic basins or drainages, or at measures that will ultimately lead to protection of entire drainages. Failure to at least initiate measures that will lead to protection of entire drainages guarantees that the current patterns of degradation will eliminate most of the remaining populations of imperilled aquatic species within the next two decades.

2) Systematic studies - Many of the taxa discussed herein lack systematic study on them adequate to understand the historical units that may be contained within them. Several currently recognized taxa (e.g., California newt) almost undoubtedly represent more than one taxon. For taxa such as the fringe-toed lizards *(Uma* spp.), systematic study is imperative because it remains vague whether the Federally listed *U. inornata* is conspecific with the two *Uma* taxa we discuss. For fringe-toed lizards as with other taxa, understanding precisely what populations comprise discrete taxonomic units is tantamount to listing or otherwise addressing imperilled populations. If the taxonomic units that may be imperilled are not precisely defined, what populations require protection or directed management efforts will remain vague.

3) Movement studies - The species accounts cumulatively reflect the fact that movement ecology is the least understood aspect of life histories (see the life history section of the respective accounts). As treated here, movement ecology is a broad heading that encompasses the diel, seasonal, inter-seasonal, and inter-generational movements that individuals or populations of a species makes. They include, but are not limited to, movements between foraging and refuge sites, overwintering and summering sites, and breeding and non-breeding sites. Movement data are sparse largely because they are time costly to obtain. Ironically, movement data are among the most crucial to obtain to formulate management recommendations because they allow precise identification of

habitats that a species uses, sometimes only temporarily, but which are essential to its survival. The thorough telemetry study of Muth and Fisher (1992) that showed that the home ranges of *Phrynosoma mcallii* were up to over an order of magnitude larger than had been identified in previous studies elegantly demonstrates that the quality of movement data obtained is related to the effort expended. Perhapsthe most significant finding of the latter study was that the number of points needed to confidently establish the size of the home range is several times as many as was previously believed to be adequate. This study alone makes the quality of existing movement data on most species suspect (e.g., the recent studies of Hager (1992) and Rowland (1992), and older studies of Bostic (1964), Kauffman (1982), and Turner and Medica (1982)). Inter-seasonal *(fide* Muth and Fisher 1992) and inter-generational movement data are lacking for all taxa we discuss, and even rudimentary movement data are available for only a few taxa. Efforts to obtain significant movement data on all taxa treated here should be a primary focus of future work

4) Treatment of taxa potentially extirpated within the state - Several of the taxa reviewed here have some probability of having been extirpated within California (e.g., Colorado River toad, lowland leopard frog, and Sonoran mud turtle). It needs emphasis, however, that no taxon for which this condition is suspect has been surveyed enough to be confident of this assertion. Assertions of extirpation are necessarily based on negative evidence. The accumulation of such evidence only increases confidence in the assertion that extirpation has occurred. As a consequence, concluding that extirpation has occurred should be treated conservatively in the extreme. Guidelines need to be established to determine just how extirpation should be evaluated, if at all. Because extirpation is based on negative evidence, it absolutely should not be used as the basis for delisting taxa.

5) Attention to complex, synergistic, or additive environmental effects. The rapid pace of change in current local, regional, or global environments has resulted in new or previously unrecognized complex impacts on their contained species. While only a few of these novel effects are mentioned here, a general awareness should exist that the likelihood of novel effects is increased at the current rapid pace of often complex changes. One symptom of a potentially serious, but as of yet undetermined, effect is the apparent decline of high elevation populations of amphibians as the result of an unidentified impact that may be atmospheric in nature. Recent surveys and studies attempting to show that acidification is the cause of such declines have failed to reveal data in support of this hypothesis in California (Landers et al. 1987; Bradford et al. 1991, 1992, 1994). In the absence of evidence for acidification, increased levels of ambient mid-range (UV-B) ultraviolet radiation (Blumthaler and Ambach 1990) as a consequence of the widely publicized pattern of depletion of stratospheric ozone (Watson et al. 1988) is a potentially grave atmospheric effect that should be addressed (see Blaustein et al. 1994). Even if no direct effect of UV-B is found in California, indirect effects should be considered because supratypical UV-B levels are thought to be capable of depressing immune system function, which could increase the susceptibility of organisms to pathogens or parasites (see Carey 1993).

Numerous other complex effects are possible; only a few more important ones will be mentioned. First, recent climatic trends perhaps indicative of global warming resulted in severe drought in California over the interval 1986-1990 (see especially Knox 1991). Terrestrial plethodontid salamanders (e.g., *Batrachoseps* spp., *Ensatina eschscholtzii,* and *Hydromantes* spp.), which are dependent on soil moisture to maintain activity (Cohen 1952), may have had their activity altered or their survivorship influenced in unknown ways by the severe drought. If a major underlying theme can be attributed to the general pattern of habitat change in California even before the 1986-1990 drought, it was increased xerification on local and regional scales. Human diversion and use of water initiated or assisted, often imperceptibly on a short time-scale, the drying of many previously more mesic habitats. Drought accentuated the process of xerification, which became apparent in

places where previously it had been barely perceptible. Drought-accentuated xerification may influence some aquatic amphibians (e.g., *Rana boylii* and *R. cascadae)* that have apparently disappeared from the southern portions of their geographic ranges in California. Understanding of how local xerification may haveinfluenced both aquatic and terrestrial amphibians needs study. Second, a frequently unrecognized, but potentially important influence, on amphibian and reptile populations is the temporary or permanent change in the concentration of predators as the result of human activity. For example, local increases in common raven *(Corvus corax)* populations associated with excessive depredation of young desert tortoises in the Mojave Desert has been linked to local increases in alternative food resources (garbage dumps and landfills) as a consequence of local increases in the human population (U.S. Fish and Wildlife Service 1990; but see also Camp et al. 1993). Similar human-induced concentrations of generalized predators (e.g., American crows *[C. brachyrhynchos],* common ravens, Virginia opossums *[Didelphis virginiana],* and raccoons) that increase predation over historic background levels may be occurring elsewhere and may be responsible for declines now observed in several of the species discussed herein. Moreover, such effects are likely additive to or synergistic with the problems posed by exotics. Such human-induced effects should be watched for, and steps should be taken to discourage them, wherever possible. Third, ways in which other elements of the native fauna may benefit native amphibians and reptiles are often unrecognized or need study. For example, dam-constructing beaver create slackwater habitat that benefit a number of taxa including amphibians (e.g., *Rana aurora aurora),* and removal of beaver has been linked to unfavorable erosional downcutting in some stream systems (Apple 1985, Parker et al. 1985). Care should be taken however, to differentiate between native and introduced populations of beaver in California since the latter may have undetermined undesirable impacts. Furthermore, the often limited burrowing capabilities of amphibians and reptiles may be the cause of their frequent association with burrowing mammals (besides the latter simply being prey items in the case of snakes). Determination of how dependent on burrowing mammals many amphibians and reptiles are for refuge sites needs study. Fourth, more subtle human-induced changes in habitats often go unrecognized for years. One example of this is the increase and proliferation in campsites in wilderness areas over the past 20 years (see Cole 1993). The effects local habitat degradation caused by these impacts has on amphibian and reptile populations is unknown. Yet, these effects need to be quantified because they may be more insidious as negative long-term trends will be more difficult to identify than for other factors.

6) Livestock management and grazing - Problems that result from grazing practices and livestock management undoubtedly rank among the most important in California; the effects are often cumulative over many years and are amplified by interactions with other factors. While the impacts of grazing have focused appropriately on riparian and aquatic systems (Buckhouse et al. 1981, L. Bryant 1985, Jones 1988b, Kauffman and Krueger 1984, Kauffman et al. 1983, Marlow and Pogacnik 1985, Siekert et al. 1985, Szaro et al. 1985), impacts to the terrestrial herpetofauna are also recognized (Jones 1979). Perhaps the greatest problem with grazing and livestock management is that, in California, much of it occurs on private land, where non-abusive management practices must be largely voluntarily applied by landowners. As a result, most landowners implement management practices that are economically the most favorable in the short-term, practices which are invariably the least favorable to the amphibian and reptile fauna in the long-term (e.g., see species account for the California red-legged frog). Recent economic hardship assisted by the severity of multi-year drought conditions has worsened this pattern. In particular, drought conditions have accentuated the cumulative effects of many years of abusive grazing practices. Significant reversal of the existing patterns of livestock management on private land require a broad-based education effort (see #2 primary recommendation) that emphasizes the greater long-term gain of applying beneficent grazing practices over practices that result in only short-term gain, but cumulative loss. This must be coupled to

encouraging practices that allow recovery of rangelands (e.g., partial riparian exclosures (Szaro et al. 1985) and timing of grazing (Marlow and Pogacnik 1985)).

7) Patterns of timber harvest - Although problems associated with timber harvest relate largely to the coniferous forests of coastal and montane California, some also apply to the diverse oak woodlands in lowland and submontane areas of the state. Education and programs that encourage some diversity of downed woody material (in particular, that ensure a continuous supply of that material of different ages), that help maintain a significant broad-leaf (especially oak) litter layer, that help maintain significant riparian corridors, and that limit the size of tree patches harvested should be promoted. These measures help provide nest and refuge sites for, encourage the food base for, or reduce hydrological and other impacts to, amphibians and reptiles that occupy timbered areas (Bury 1983; Bury and Corn 1988a, 1988b; M. Bryant 1985; Murphy and Hall 1981; Newbold et al. 1980; Raphael 1987; Welsh and Lind 1988; Welsh 1990).

8) Long-term studies - Long-term studies are costly, but are the only way to identify population trends that may signal deteriorating environmental conditions (Morrison 1988), and are the only way to obtain demographic information on amphibian and reptile taxa that are long-lived (e.g., *Clemmys marmorata)*. These demographic data are essential to their effective management. Long-term is a taxon-relative designation. To be useful, a long-term study should at least exceed the average longevity of adults of a taxon. Where the average longevity is not known, it should extend over a period long enough that confidence is high that at least 80% of the adult population has turned over (i.e., replaced itself). In the absence of long-term data, deteriorating environmental conditions will be manifest in a frequently abrupt manner. Intermittent surveys over long time intervals will often reveal only absences of taxa once present, and an inability to refine management alternatives for long-lived species will persist.

9) Loss of biological information - Under current State and Federal statutes, development and other land use changes require that biological assessments be undertaken only when one or more listed species are suspected of being at risk. Although generalized biological inventories are often undertaken, neither vouchers nor photographs of amphibian and reptile species identified to be present are taken for historical record. As a result, if the development or land use change takes place, nothing is available to voucher the historical biological composition of a given site. The biological composition of a given site, including its amphibian and reptile fauna, is as much a part of the heritage of California as its archaeological heritage. Under Sections 106 and 110 of the National Historic Preservation Act, Federal agencies and, by default, State agencies must require a pre-development survey for archaeological sites. Where archaeological remains are found, but the site is of too minor archaeological significance to be secured in permanence, qualified professionals salvage the remains. A parallel, state-level statute should be instituted to "salvage" biological data in the form of some kind of vouchering for sites that ultimately undergo development. Such vouchers, including materials secured for frozen tissue collections, should be deposited in one of the four major, in-state repositories designed for that purpose (i.e., CAS, LACM, MVZ, SDSNH; Table 1). Cost of the biological survey as well as the maintenance cost of vouchers in the repository institution should simply be a part of the cost of development of a site.

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Plate 16. Larval and adult California red-legged frog (*Rana aurora draytonii*) [from Stebbins 1951].

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APPENDIX I

The budget of the California Department of Fish and Game (CDFG) As Applied to Amphibians and Reptiles

Constraints on the non-game portion of the budget applied directly or indirectly to amphibians and reptiles (in the sense treated in the discussion) are a function of the total CDFG budget. However, interpretation from budget changes is difficult because non-game monies applied to these taxa do not represent a tracked budget category (Appendix Table I) and are drawn from different budget categories (J. Brode and B. Bolster, pers. comm.). Moreover, non-parallel shifts have occurred in the amounts applied to amphibians and reptiles among different budget categories (J. Brode and B. Bolster, pers. comm.). Nevertheless, several considerations based on an understanding of the total budget and changes in tracked budget categories are possible.

First, although the total CDFG budget has increased roughly six-fold since 1970 (see Appendix Table 1), many indications exist that the funding base is deteriorating. These include the fact that since 1978 the total CDFG budget has represented a declining fraction of the total state budget, and has not kept pace with inflation.

Second, except for a decrease in the total CDFG budget between the years 1977-78 and 1978-79, the total budget increased by absolute amounts varying from $76,000 (between 1986-87 and 1987-88) to $16.7 million (between 1984-85 and 1985-86) through 1990 (Appendix Table 1). Most alarming is the fact that for the most recent budget year (1990-1991), the total CDFG budget has decreased by $109,000 over the previous fiscal year.

Third, the Nongame Inland Fisheries budget, which historically contributed the largest segment of amphibian and reptile monies, increased from a small fraction of the total budget (0.17%) in 1970-1971 to fluctuating around 1.0% of total budget in the late 1970s and early 1980s (peaking at 1.3% in 1985-86). In 1990-91, this budget dropped to an all-time low of 0.07% of the total budget and the decrease of $803,000 over the previous fiscal year was the largest ever. It needs emphasis that this only partly reflects what has occurred in the most recent years with nongame monies applied to amphibians and reptiles. Since 1986, two additional budget categories (Nongame Heritage and Total Nongame Monies Spent; see Appendix Table I) have been tracked from which significant monies have been applied to these groups. The Total Nongame Monies Spent category is further complicated because it represents CDFG budget monies combined with monies from outside the total CDFG budget, thus this category cannot be treated as a fraction of the total budget. Nevertheless, the data indicate consistent annual declines in the Total Nongame Monies Spent category since 1987-88 with the greatest decline (2.5 million dollars) occurring between the two most recent fiscal years for which data exist (Appendix Table 1). The Nongame Heritage category did increase in 1990-1, but by an amount ($692,000) more than exceeded by the decrease in the Nongame Inland Fisheries budget.

Although factors contributing to the deteriorating budgetary situation are complex and are beyond the scope of this report to unravel, a number of significant factors contribute. These include:

a) The annual CDFG budget, like the state and federal budgets, is based in part on projections of growth. Expectations of increased income levels exist whether or not growth occurs. Lack of growth contraindicating annual projections have contributed to a funding shortfall and resulted in deficit spending.

Appendix Table I. The annual budget of the California Department of Fish and Game 1970-1991. Data in dollar amounts were extracted from the official Governor's Budget Reports (1973-1993). All figures are based on actual monies spent. The Nongame Inland Fisheries budget is shown separately because it includes expenditures on amphibian and reptiles as well as nongame fishes. Annual totals exclude administrative expenses.

ITEM	1970-71	(%)	1971-72	(%)	1972-73	(%)	1973-74	(%)
Total Budget	21,631,707	(100.00)	23,147,296	(100.00)	25,513,307	(100.00)	28,434,562	(100.00)
Enforcement	6,563,560	(30.34)	6,723,301	(29.05)	7,407,526	(29.03)	8,204,202	(28.85)
Wildlife Management	4,169,987	(19.28)	4,466,447	(19.30)	4,841,465	(18.98)	5,288,030	(18.60)
Inland Fisheries	4,396,463	(20.32)	4,892,026	(21.13)	5,422,149	(21.25)	6,292,484	(22.13)
Anadromous Fisheries	2,494,079	(11.53)	2,816,195	(12.17)	3,112,160	(12.20)	3,336,579	(11.73)
Marine Resources	2,485,855	(11.49)	2,756,481	(11.91)	3,004,266	(11.76)	3,261,501	(11.47)
Environmental Services	1,521,763	(7.03)	1,492,846	(6.45)	1,725,741	(6.76)	2,051,766	(7.22)
Administration	(1,915,470)	(-----)	(1,919,455)	(-----)	(2,066,599)	(-----)	(2,221,057)	(-----)
Nongame Heritage	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Total Nongame Monies Spent	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Nongame Inland Fisheries	36,807	(0.17)	110,166	(0.48)	156,505	(0.61)	190,387	(0.91)

ITEM	1974-75	(%)	1975-76	(%)	1976-77	(%)	1977-78	(%)
Total Budget	32,796,462	(100.00)	36,098,138	(100.00)	39,009,722	(100.00)	43,566,205	(100.00)
Enforcement	9,746,528	(29.72)	10,291,408	(28.51)	11,235,154	(28.80)	13,915,804	(31.94)
Wildlife Management	5,695,628	(17.37)	6,965,253	(19.30)	7,305,207	(18.73)	7,372,003	(16.92)
Inland Fisheries	6,871,652	(20.95)	7,452,483	(20.65)	8,484,157	(21.75)	9,232,987	(21.19)
Anadromous Fisheries	4,340,203	(13.23)	4,396,488	(12.18)	5,040,603	(12.92)	5,083,662	(11.67)
Marine Resources	3,744,456	(11.42)	4,311,351	(11.94)	4,371,450	(11.21)	4,619,431	(10.60)
Environmental Services	2,397,995	(7.31)	2,681,155	(7.43)	2,573,151	(6.60)	3,342,318	(7.67)
Administration	(2,714,019)	(-----)	(2,875,165)	(-----)	(3,068,482)	(-----)	(3,301,561)	(-----)
Nongame Heritage	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Total Nongame Monies Spent	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Nongame Inland Fisheries	299,629	(0.91)	313,693	(0.87)	405,778	(1.04)	479,329	(1.10)

Appendix Table I. The annual budget of the California Department of Fish and Game 1970-1991 (continued). Data in dollar amounts were extracted from the official Governor's Budget Reports (1973-1993). All figures are based on actual monies spent. The Nongame Inland Fisheries budget is shown separately because it includes expenditures on amphibian and reptiles as well as nongame fishes. Annual totals exclude administrative expenses.

ITEM	1978-79	(%)	1979-80	(%)	1980-81	(%)	1981-82	(%)
Total Budget	43,480,197	(100.00)	50,220,500	(100.00)	60,194,000	(100.00)	65,788,000	(100.00)
Enforcement	13,960,639	(32.11)	15,415,782	(30.70)	19,089,000	(31.71)	20,078,000	(30.52)
Wildlife Management	7,552,850	(17.37)	9,021,127	(17.96)	10,893,000	(18.10)	11,621,000	(17.66)
Inland Fisheries	8,883,956	(20.43)	9,356,608	(18.63)	10,600,000	(17.61)	12,232,000	(18.59)
Anadromous Fisheries	5,170,479	(11.89)	7,485,578	(14.91)	8,851,000	(14.70)	12,032,000	(18.29)
Marine Resources	4,763,001	(10.95)	5,079,053	(10.11)	5,972,000	(9.92)	4,807,000	(7.31)
Environmental Services	3,149,272	(7.24)	3,862,352	(7.69)	4,789,000	(7.96)	5,018,000	(7.63)
Administration	(3,480,727)	(-----)	(3,680,248)	(-----)	(2,104,000)	(-----)	(8,700,000)	(-----)
Nongame Heritage	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Total Nongame Monies Spent	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Nongame Inland Fisheries	487,320	(1.12)	506,364	(1.01)	545,364	(0.91)	394,000	(0.60)

ITEM	1982-83	(%)	1983-84	(%)	1984-85	(%)	1985-86	(%)
Total Budget	66,980,000	(100.00)	71,156,000	(100.00)	82,490,000	(100.00)	99,251,000	(100.00)
Enforcement	20,592,000	(30.74)	20,985,000	(29.49)	25,065,000	(30.39)	25,908,000	(26.10)
Wildlife Management	12,329,000	(18.41)	12,596,000	(17.70)	16,378,000	(19.85)	25,434,000	(25.63)
Inland Fisheries	11,983,000	(17.89)	13,782,000	(19.37)	13,966,000	(16.93)	13,740,000	(13.84)
Anadromous Fisheries	11,993,000	(17.91)	12,943,000	(18.19)	15,290,000	(18.54)	21,847,000	(22.01)
Marine Resources	5,231,000	(7.81)	5,442,000	(7.65)	6,245,000	(7.57)	6,712,000	(6.76)
Environmental Services	4,852,000	(7.24)	5,408,000	(7.60)	5,546,000	(6.72)	5,610,000	(5.65)
Administration	(8,960,000)	(-----)	(11,298,000)	(-----)	(11,310,000)	(-----)	(12,852,000)	(-----)
Nongame Heritage	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Total Nongame Monies Spent	-----	(-----)	-----	(-----)	-----	(-----)	-----	(-----)
Nongame Inland Fisheries	631,000	(0.94)	447,000	(0.63)	450,000	(0.55)	1,268,000	(1.28)

Appendix Table I. The annual budget of the California Department of Fish and Game 1970-1991 (continued). Data in dollar amounts were extracted from the official Governor's Budget Reports (1973-1993). All figures are based on actual monies spent. The Nongame Inland Fisheries budget is shown separately because it includes expenditures on amphibian and reptiles as well as nongame fishes. Annual totals exclude administrative expenses.

ITEM	1986-87	(%)	1987-88	(%)	1988-89	(%)	1989-90	(%)
Total Budget	103,244,000	(100.00)	103,320,000	(100.00)	113,106,000	(100.00)	118,798,000	(100.00)
Enforcement	26,746,000	(25.91)	29,864,000	(28.90)	26,989,000	(23.86)	28,614,000	(24.09)
Wildlife Management	16,482,000	(15.96)	14,783,000	(14.31)	16,783,000	(14.84)	19,469,000	(16.39)
Inland Fisheries	17,587,000	(17.03)	19,764,000	(19.13)	22,726,000	(20.09)	23,330,000	(19.64)
Anadromous Fisheries	19,806,000	(19.18)	14,388,000	(13.93)	15,611,000	(13.80)	17,791,000	(14.98)
Marine Resources	7,171,000	(6.95)	8,167,000	(7.90)	7,804,000	(6.90)	9,886,000	(8.32)
Environmental Services	8,772,000	(8.50)	8,789,000	(8.51)	7,246,000	(6.41)	7,756,000	(6.53)
Administration	(15,462,000)	(-----)	(18,947,000)	(-----)	(21,425,000)	(-----)	(22,283,000)	(-----)
Nongame Heritage	6,680,000	(6.47)	7,565,000	(7.32)	11,239,000	(9.94)	8,118,000	(6.83)
Total Nongame Monies Spent	(10,401,000)	(-----)	(17,596,000)	(-----)	(16,488,000)	(-----)	(15,570,000)	(-----)
Nongame Inland Fisheries	484,000	(0.47)	423,000	(0.41)	590,000	(0.52)	882,000	(0.74)

ITEM	1990-91	(%)
Total Budget	118,689,000	(100.00)
Enforcement	29,602,000	(24.94)
Wildlife Management	16,086,000	(13.55)
Inland Fisheries	17,487,000	(14.73)
Anadromous Fisheries	23,953,000	(20.18)
Marine Resources	9,579,000	(8.07)
Environmental Services	10,226,000	(8.62)
Administration	(22,669,000)	(-----)
Nongame Heritage	8,810,000	(7.42)
Total Nongame Monies Spent	(13,061,000)	(-----)
Nongame Inland Fisheries	79,000	(0.07)

b) Total nongame monies available is partly dependent on voluntary contributions, such as the check-off system on the state-tax form and personalized license plate monies. The increasingly severe economic climate, exacerbated by multi-year drought, has led to a decline in voluntary contributions. Moreover, competition resulting from an increase in the number of voluntary check-off items on the state tax form has resulted in a greater partitioning of voluntary contributions from a largely unchanging base. Finally, a decline in confidence in governmental agencies has assisted in curtailing contributions.

c) Total nongame monies available is partly dependent on a funding base linked to game species, largely from monies that result from licensing for hunting and fishing. Changes in this funding base in the last 10 years have declined for two key reasons: A change in attitude about the environment has resulted in a decline in numbers of individuals that hunt or fish, and declines in populations of game species has resulted in hunters or fishermen decreasing their level of these activities within the state, with avid sportsmen increasingly leaving the state to hunt or fish.

d) Total non-game monies available is partly dependent on a funding base linked, like the total CDFG budget, to the state general fund, also a declining funding base. Environmental deterioration in California, exacerbated by the recent, severe multi-year drought, increasingly contributes to a demographic transition in which a greater number of individuals of moderate-to-high income levels leave the state than enter it. Such a transition is helping to slowly erode the state income tax base. Environmental deterioration also contributes to numerous obvious and subtle hidden costs that increasingly burden the general fund from different directions, leaving an ever-smaller segment for CDFG, and consequently, the non-game contribution.

The current economic crisis in California will undoubtedly slow any attempts at reversal of the deteriorating budgetary situation. Yet, several recommendations can be made that will ultimately achieve a reversal, benefiting the entire budgetary base for CDFG, and as a consequence, the non-game segment applied to amphibians and reptiles. These are:

a) Eliminate the pattern of annual budget estimation based on projections of growth, and as a result the anticipation of increased funding that leads to deficit spending. The realization must be arrived at that an adequate level of environmental quality and the general of quality of life in California requires a population cap. As a consequence, the state funding base can not longer be expected to increase as a function of the population. If any increases in the CDFG budget occur, they will have to result from funding innovations that are largely population-independent.

b) To the greatest extent possible, the nongame portion of the CDFG budget, and perhaps the entire budget, should be decoupled from the vagaries of the political and social climate. It should be recognized that the health of humans and game and non-game species alike are inextricably linked to environmental quality. This linkage should be reflected in a budget that represents a significant, but fixed proportion of the state budget, whatever that might be. Such an emphasis would reflect the responsibility of the entire human population of the state for maintenance of environmental quality. Voluntary contributions and license-generated funding should ultimately be viewed as supplemental, and should add to, rather than be necessary to fill out, various segments of the CDFG budget.

c) Game species should not be favored over non-game species within the new budget construct. Based on numbers alone, although awareness continues to increase, nongame species are currently highly de-emphasized. If emphasis on a taxon occurs, it should reflect environmental sensitivity or the degree to which that taxon controls greater energy

flow in an ecosystem or is a keystone taxon. Ultimately, the artificial dichotomy of game and nongame species should be eliminated.

d) Novel sources of funding should be linked to CDFG's responsibility in the management of all animal taxa, such as the potentially significant funding that could be generated as the result of recouping lost biological data (see secondary recommendation #9 in discussion).

Implementation of the aforementioned reforms will, no doubt, result in a long, likely tortuous transitory period. Yet, if implemented, they will result in significantly decrease costs that are currently the result of ignorance of the linkage between environmental quality, human welfare, and the array of other species (both game and nongame). Among the most important is that currently, a full one quarter of the CDFG budget is allocated to enforcement. If the human population of the state takes greater responsibility by paying for a significant, but fixed CDFG budget, the enforcement segment of the budget, as awareness increases, will be guaranteed to decrease to a much lower level. Many other positive feedbacks of this effect are possible.

APPENDIX II

The working list of taxa submitted with the questionnaire (see Appendix III). This list includes all taxa suggested as possible candidates for special status or potential listing as threatened or endangered.

List of Species for Consideration as Special Concern

Species are listed according to Jennings (1987. Special Publication, Southwestern Herpetologists Society (3):1-48). Species currently listed as being of "Special Concern" by the State of California are denoted by an asterisk (*).

Ambystomatidae:	
____1) California tiger salamander	*Ambystoma californiense**
Dicamptodontidae:	
____2) Pacific giant salamander	*Dicamptodon ensatus*
____3) Olympic salamander	*Rhyacotriton olympicus variegatus*
Salamandridae:	
____4) Red-bellied newt	*Taricha rivularis*
Plethodontidae:	
____5) Inyo Mountains salamander	*Batrachoseps campi**
____6) Channel Islands slender salamander	*Batrachoseps pacificus pacificus**
____7) Relictual slender salamander	*Batrachoseps pacificus relictus*
____8) Breckenridge Mt. slender salamander	*Batrachoseps* sp.
____9) Fairview slender salamander	*Batrachoseps* sp.
___10) Guadalupe slender salamander	*Batrachoseps* sp.
___11) Hell Hollow slender salamander	*Batrachoseps* sp.
___12) Kern Plateau slender salamander	*Batrachoseps* sp.
___13) San Gabriel slender salamander	*Batrachoseps* sp.
___14) Yellow-blotched salamander	*Ensatina eschscholtzii croceater**
___15) Large-blotched salamander	*Ensatina eschscholtzii klauberi*
___16) Mount Lyell salamander	*Hydromantes platycephalus**
___17) Owens Valley web-toed salamander	*Hydromantes* sp.
___18) Dunn's salamander	*Plethodon dunni**
___19) Del Norte salamander	*Plethodon elongatus elongatus**
Ascaphidae:	
___20) Tailed frog	*Ascaphus truei*
Pelobatidae:	
___21) Couch's spadefoot	*Scaphiopus couchii*
___22) Western spadefoot	*Scaphiopus hammondii**
___23) Great Basin spadefoot	*Scaphiopus intermontanus*
Bufonidae:	
___24) Colorado River toad	*Bufo alvarius**
___25) Yosemite toad	*Bufo canorus**
___26) Great Plains toad	*Bufo cognatus*
___27) Arizona toad	*Bufo microscaphus microscaphus**
___28) Arroyo toad	*Bufo microscaphus californicus**
___29) Red-spotted toad	*Bufo punctatus*

Appendix II. List of Species for Consideration as Special Concern (continued).

Hylidae:	
___30) California treefrog	*Pseudacris (=Hyla) cadaverina**
Ranidae:	
___31) Northern red-legged frog	*Rana aurora aurora**
___32) California red-legged frog	*Rana aurora draytonii**
___33) Foothill yellow-legged frog	*Rana boylii**
___34) Cascade frog	*Rana cascadae*
___35) Mountain yellow-legged frog	*Rana muscosa*
___36) Northern leopard frog	*Rana pipiens*
___37) Spotted frog	*Rana pretiosa**
___38) Lowland leopard frog	*Rana yavapaiensis*
Kinosternidae:	
___39) Sonoran mud turtle	*Kinosternon sonoriense sonoriense*
Emydidae:	
___40) Southwestern pond turtle	*Clemmys marmorata pallida**
Testudinidae:	
___41) Desert tortoise	*Xerobates (=Gopherus) agassizii**
Gekkonidae:	
___42) Peninsular leaf-toed gecko	*Phyllodactylus xanti nocticolus**
Iguanidae:	
___43) Baja collared lizard	*Crotaphytus insularis vestigium*
___44) Long-nosed rock lizard	*Petrosarus mearnsi mearnsi*
___45) San Diego horned lizard	*Phrynosoma coronatum blainvillii**
___46) California horned lizard	*Phrynosoma coronatum frontale*
___47) Pigmy short-horned lizard	*Phrynosoma douglassii douglassii*
___48) Flat-tailed horned lizard	*Phrynosoma mcallii**
___49) Western chuckwalla	*Sauromalus obesus obesus**
___50) Yellow-backed spiny lizard	*Sceloporus magister uniformis*
___51) Granite spiny lizard	*Sceloporus orcutti*
___52) Colorado Desert fringe-toed lizard	*Uma notata notata**
___53) Mojave fringe-toed lizard	*Uma scoparia*
Xantusiidae:	
___54) Granite night lizard	*Xantusia henshawi henshawi**
___55) Sandstone night lizard	*Xantusia henshawi gracilis**
___56) Sierra night lizard	*Xantusia vigilis sierrae**
Teiidae:	
___57) Belding's orange-throated whiptail	*Cnemidophorus hyperythrus beldingi**
Anguidae:	
___58) Panamint alligator lizard	*Elgaria panamintina**
Anniellidae:	
___59) Silvery legless lizard	*Anniella pulchra pulchra**
___60) Black legless lizard	*Anniella pulchra nigra**

Appendix II. List of Species for Consideration as Special Concern (continued).

Helodermatidae:

___61) Banded Gila monster	*Heloderma suspectum cinctum**

Leptotyphlopidae:

___62) Southwestern blind snake	*Leptotyphlops humilis humilis*

Boidae:

___63) Desert rosy boa	*Lichanura trivirgata gracia**
___64) Coastal rosy boa	*Lichanura trivirgata roseofusca**

Colubridae:

___65) Sharp-tailed snake	*Contia tenuis*
___66) Baja California rat snake	*Elaphe rosaliae*
___67) Sierra mountain kingsnake	*Lampropeltis zonata multicincta**
___68) Coast mountain kingsnake	*Lampropeltis zonata multifasciata**
___69) San Bernardino mountain kingsnake	*Lampropeltis zonata parvirubra**
___70) San Diego mountain kingsnake	*Lampropeltis zonata pulchra**
___71) St. Helena mountain kingsnake	*Lampropeltis zonata zonata**
___72) San Joaquin whipsnake	*Masticophis flagellum ruddocki**
___73) Santa Cruz gopher snake	*Pituophis melanoleucus pumilus**
___74) Coast patch-nosed snake	*Salvadora hexalepis virgultea*
___75) Hammond's two-striped garter snake	*Thamnophis hammondii hammondii*
___76) South Coast garter snake	*Thamnophis sirtalis* sp.
___77) Sonoran lyre snake	*Trimorphodon biscutatus lambda*
___78) California lyre snake	*Trimorphodon biscutatus vandenburgi**

Viperidae:

___79) Western diamondback	*Crotalus atrox*
___80) Red diamond rattlesnake	*Crotalus ruber ruber*

APPENDIX III

Copy of Cover Letter and Questionnaire:

10 October 1988

Dear :

We are currently reviewing the status of third category amphibian and reptile taxa (i.e., species of special concern) for the State of California. As one who has either, or both of, current or past field experience with one or more of the taxa being considered, we would like the benefit of your ideas and opinions. We cannot overemphasize that our ability to refine the quality of this review will remain limited without input from you; being among a handful of people with direct experience with, or knowledge of, each of these species. These last two decades have seen significant advances in increasing environmental awareness, yet the understanding of many California amphibians and reptiles, particularly with respect to their basic ecology and their importance in local communities and ecosystems, remains limited. With widespread habitat modification, your contribution to the understanding of these species, in particular where that contribution could benefit management, is urgent. It is especially so if we are to have some expectation that most species will be present for future generations to appreciate and study. We firmly believe that we can increase the objectivity of our recommendations and information by distilling information from a maximum number of sources, so we encourage you to take the time to respond carefully to this questionnaire as promptly as your schedule will allow.

Find enclosed a preliminary list of species under consideration [see Appendix II]. We emphasize the preliminary nature of this list because data collected in this review are likely to change list composition and one of the objectives of this review is to provide recommendations for changes in status of respective taxa. The array of possible recommendations for changes in status within the scope of our review are: 1) no change from a species' current status, 2) an upgrade from no listing to special concern or from special concern to either threatened or endangered, and 3) a downgrade either from special concern to no listing or from threatened or endangered to special concern. It is because of the aforementioned changes in status that the list contains a number of species that are not special concern according to the current state listing. The preliminary list does not include currently listed threatened or endangered species since we anticipate few or no downgrades to a special concern status. Still, for the sake of completeness, we consider downgrades possible and you should refer to the most current state listing of threatened and endangered species if presenting data supporting a downgrade. We also welcome suggestions of additional species that based on the data you have, you feel should be listed.

In reviewing the status of third category amphibian and reptile taxa for California, we have several objectives. These objectives are: 1) to identify and characterize the range of extant populations of each taxon; 2) to provide some indication of whether the current range differs significantly from the historic range; 3) to suggest the reasons for change, if any, between the current and historic ranges; 4) to provide some indication of the habitat variables crucial to each taxon; 5) to suggest how management should be implemented to the greatest benefit of each taxon; 6) to indicate gaps in knowledge for each taxon in each of the categories indicated previously; and 7) to recommend a status change as discussed above. The questions we ask are directed at addressing these objectives.

Appendix III (continued)

We realize that some of you may have concerns as to the release of data that might be used by individuals to collect animals from extant populations of reviewed taxa or as to the release of data not yet published. We wish to provide assurances that the details of any data released to us in confidence will not be revealed, but that we will be making interpretations, drawing conclusions, and making summary recommendations based, in part, on these data. Because one of the purposes behind this review is to help fill gaps in the data possessed by the California Department of Fish and Game-The Nature Conservancy Natural Heritage Data Base for California, we will be sending information to the Data Base from those contributions that are willing to have their data released through us. If you do not wish us to release your information to the Data Base, we would hope that you will provide it to them yourself, preferably as soon as possible. Regulatory agencies often query the Data Base for listed species that occur within large-scale development projects. If the Data Base lacks such information for special concern amphibians and reptiles, a greater probability will exist that even more of the remaining habitat for such species will be eliminated. Thus, it is important that the Data Base be provided with current information.

We want to thank you in advance for taking the time to response to this questionnaire. Only with your contributions can this review be truly realized. Please return your questionnaire to Mark Jennings at the Davis address. We look forward to hearing from you soon.

Sincerely,

Mark R. Jennings
Research Associate
California Academy of Sciences
1830 Sharon Ave
Davis, CA 95616-9420
Telephone: (916) 753-2727

Marc P. Haves
Department of Biology
P.O. Box 249118
University of Miami
Coral Gables, FL 33124-9118
Telephone: (305) 665-2291
(305) 667-2761

Encl: questionnaire

Appendix. III (continued).

QUESTIONNAIRE

AMPHIBIAN AND REPTILE SPECIES OF SPECIAL CONCERN IN CALIFORNIA

1) Verify that your name and address as indicated in our cover letter to you is correct. In addition, please provide us with the nine-digit zip code for your area (if you have not already done so and one exists), your phone number(s) (include your area code), and some minimum series of hours during the week at which time it would be convenient for us to contact you should the need arise. It is essential that we have this information in order to help organize the array of information provided by the many contributors in a sensible fashion. It will be particularly important where we need to have you elaborate on the data you provide or follow-up on sources of information.

2) Check off and number the taxa on which you will be providing data on the enclosed list. If you have reason to include taxa not on that list, please add them. However, **please restrict your list to taxa that you feel should have special concern status,** whether or not these taxa currently have that status. **Please also restrict your list to taxa with which either you have had direct field experience or your own experience indicates that said taxa have disappeared at localities where evidence of their historical occurrence exists.** In the event you feel the data you have to provide is too voluminous to handle in the questionnaire format we have provided, and you would be willing to arrange a meeting with us to discuss those data, please indicate so and we will contact you.

3) For each taxon you have listed, list any localities for which you are providing data alphabetically by county and locality specifics. **Please be as specific as you can;** we will do randomized update checks of some localities in the course of fieldwork associated with this review. For each locality, wherever possible, provide the time of day and time interval (search effort) involved in the sighting, any specific sampling methods that may have been used (if applicable), the number of individuals observed or captured, whether individuals of the observed taxon were adults, juveniles, or some other life stage (if this could be distinguished), and a statement of condition of the habitat relative to said taxon. If a locality or localities were visited in a haphazard fashion not linked to any particular sampling regime, state so. Finally, indicate for each sighting whether museum specimens, photographs, or other individuals that were with you at the time of the sighting are available to corroborate the record. We do not include this to discourage listing of sight records you may have, rather it is simply better if the records you provide have some way in which they can be corroborated.

4) Available evidence indicates that some taxa for which you will be reporting data have gone locally extinct. Since one important objective of our review is to establish historical trends, we are particularly interested in you indicating whether or not a particular record or sighting is **the most recent one** you know of or have for a particular locality. Please be as specific as possible with dates; day, month, and year is best, when available.

Appendix III (continued)

5) If the data you report is suggestive of decline for a particular taxon, please indicate what is (are) the likely factor(s) causal in decline. **Please be as specific as possible.** If you indicate that habitat alteration appears to be causal, specify what type of habitat alteration (e.g., removal of riparian vegetation). Further, if a specific type of removal of riparian vegetation was done, state so. Also try to focus, if possible, on the aspect of alteration that may be negatively affecting the taxa you discuss. If data, from whatever source or aspect or aspect exist to support your contention, provide the support or state the source. We are equally interested how habitat alteration may be physiologically as well as ecologically stressing said taxa, so your suggestions and opinions are also important. **Remember, if no data are available at whatever level, state so, but we still want your suggestions as to the most likely factors that may be negatively affecting the taxa you discuss.**

6) For each taxon you discuss, indicate the elements of habitat variation that appear to be crucial to its survival. Partition habitat elements into those important for mating, nesting or oviposition, hibernation, and refuges for developmental stages, juveniles, or adults, if these differ or are applicable in each case. If data are unavailable to understand either the elements of habitat variation crucial to a taxon's survival or to allow the partition of those elements with respect to the aspects of the life history listed above, state so. Please indicate the data source for the information you state, whether it be your own opinions, observations, systematically collected data, or literature. If the latter, please indicate one or two of the **most recent** references that apply.

7) Most of you reporting data have some kind of local or regional domain in which you may come into contact with individuals knowledgeable about amphibians and reptiles that are, or should be, of special concern or reports (i.e., the so-called "gray literature" including county surveys, environmental impact statements, biological surveys of military bases, national, state, and regional parks or monuments, and other regional reports) that may contain information important to our review. Please list for us any such individuals or reports as you may know of and provide us with a minimum of information as to how we might contact these individuals or gain access to the reports or records. We have some knowledge of such data, but nevertheless, it is best to treat us as naive with respect to the aforementioned information. That will insure we miss fewer potential sources of data that should have been examined. Again, if you feel the information you have to provide is too voluminous, state so and we will contact you regarding this information.

8) Although we have asked you to indicate above if no data exist in certain areas for discussed taxa, we feel the gaps in data may exceed the areas we have indicated. If you have any particular strong feelings as to gaps in data for certain taxa that were not covered by our inquiry, or broader studies that include these taxa that are imperative to be done to better understand them, please elaborate on these gaps and needed studies here.

9) Please recommend a status change according to the categories provided in our cover letter for each taxon you discussed. Also provide some indication of how strongly you feel about your recommendation based on available data.

10) We are attempting to be as thorough as possible, but we, may have omitted covering areas that are important to this review. Thus, we ask you to please indicate to us any areas that we have overlooked that you feel are important. Do not hesitate to provide any strongly held opinions about what we should add, delete, or change, or in general, as to what this review should provide.

APPENDIX IV

Individuals Who Were Mailed Questionnaires:

Benjamin H. Banta, James E. Berrian, Sean J. Barry, Harold E. Basey, Elinor S. Benes, Kristen H. Berry, Robert L. Bezy, Charles M. Bogert, Raymond J. Bogiatto, Michael C. Bondello, Jeffrey Boundy, David F. Bradford, Arden H. Brame, Jr. II, Bayard H. Brattstrom, John M. Brode, Edmund D. Brodie, Jr., Charles W. Brown, Charles J. Brown, Jr., R. Bruce Bury, Janalee P. Caldwell, Mark L. Caywood, Henry E. Childs, Jr., Frank S. Cliff, Arthur L. Cohen, Nathan W. Cohen, James P. Collins, Paul W. Collins, Lawrence Cory, Harold F. DeLisle, Mark A. Dimmitt, James R. Dixon, C. Kenneth Dodd, Jr., James W. Dole, Stan Elam, F. Edward Ely, Richard E. Etheridge, Colin D. S. Fagan, Gary M. Fellers, Timothy J. Ford, Martin J. Fouquette, Jr., Thomas H. Fritts, Anthony J. Gaudin, Derham Giuliani, Stephen R. Goldberg, Ronald Gonzales, David A. Good, David M. Graber, Joe Gorman, Harry W. Greene, L. Lee Grismer, Donald E. Hahn, George H. Hanley, George E. Hansen, Robert W. Hansen, Lester E. Harris, Jr., David M. Hillis, Dan C. Holland, Warren J. Houck, Jeffrey M. Howland, Arthur C. Hulse, Donald Hunsaker II, Lawrence E. Hunt, John B. Iverson, David L. Jameson, Cynthia Kagarise Sherman, John P. Karges, Roger Lederer, Robert L. Livezey, Michael C. Long, Roger A. Luckenbach, David L. Martin, Paul E. Maslin, Wilbur W. Mayhew, Samuel M. McGinnis, Brian M. McGurty, Joseph C. Medeiros, Philip A. Medica, Richard R. Montanucci, David J. Morafka, Steven R. Morey, Martin L. Morton, Robert W. Murphy, Thomas F. Newman, Velma Nile, Kenneth S. Norris, Ronald A. Nussbaum, Richard O'Grady, Robert D. Ohmart, John R. Ottley, Theodore J. Papenfuss, James E. Platz, Edwin P. Pister, Gregory K. Pregill, Theodore A. Rado, Martin G. Raphael, Thomas L. Rodgers, Aryan I. Roest, Douglas A. Rossman, Martin B. Ruggles, Rudolfo Ruibal, Stephen B. Ruth, Robert B. Sanders, Alan A. Schoenherr, Cecil R. Schwalbe, Norman J. Scott, Jr., H. Bradley Shaffer, Wade C. Sherbrooke, Robert C. Stebbins, Glenn R. Stewart, Brian K. Sullivan, Samuel S. Sweet, Lloyd P. Tevis, Jr., Kristine Tollstrup, Walter Tordoff III, Frederick B. Turner, Velma J. Vance, Jens V. Vindum, Laurie J. Vitt, David B. Wake, Hartwell H. Welsh, Jr., Daniel C. Wilhoft, J. W. (Jay) Wright, John W. Wright, R. Peter Yingling, Gary Zahm, and Richard G. Zweifel.

Other Individuals Who Were Contacted For Information:

Kevin S. Baldwin, Gerald Barden, Richard D. Beland, Gary Bell, Albin R. Bills, Peter Bloom, Norris Bloomfield, Betsy C. Bolster, William L. Brisby, Philip R. Brown, Slader G. Buck, Robin A. Butler, Sheila Byrne, Beverly Clark, Joseph F. Copp, Stephen P. Corn, James Cornett, Kenneth S. Croker, William R. Dawson, James E. Deacon, Al Denmston, William A. Dill, Mark Dodero, George Drewry, Wade L. Eakle, Todd C. Esque, Roger Farschon, Sheri Fedorchak, Robert N. Fisher, William E. Frost, Michael M. Fuller, Robyn Garcia, Richard E. Genelly, John D. Goodman, David M. Graber, Michael P. Hamilton, Thomas E. Harvey, Charles P. Hawkins, John Hendrickson, Arthur C. Hulse, Randy D. Jennings, Mark C. Jorgensen, Ernest L. Karlstrom, Steve Klett, F. Thomas Knefler, Mike Krause, Pete N. Lahanas, Robert C. Lewis, Eric Lichtwardt, Leslie E. Long, William E. Loudermilk, Charles H. Lowe, Jr., Greg Martinsen, William J. Mautz, Michael E. McCain, Clinton W. McCarthy, Alan M. McCready, Roy W. McDiarmid, Darline A. McGriff, Pat McMonagle, William L. Minckley, Peter B. Moyle, Stephen J. Myers, Kimberly A. Nicol, Mary E. Rasmussen, Galen B. Rathbun, Stephen M. Reilly, James C. Rorabaugh, Philip C. Rosen, Ronald Ruppert, Nancy H. Sandburg, Georgina M. Sato, Nancy Sirski, Joseph P. Skorupa, Todd M. Steiner, Jerry J. Smith, Michael J. Sredl, George Sturdinski, Camm C. Swift, Thomas L. Taylor, Brian K. Twedt, Robert Van De Hoek, Jared Verner, Elden H. Vestal, Dana L. Waters, William O. Wirtz II, Annemarie Woessner, Karen Worcester, Ronald J. Woychak, and Richard L. Zembal.

APPENDIX V

Definitions of "Endangered" and "Threatened" Species Based on the 1991 Fish and Game Code of the State of California

CHAPTER 1.5. ENDANGERED SPECIES

Section 2062. "Endangered species" defined.

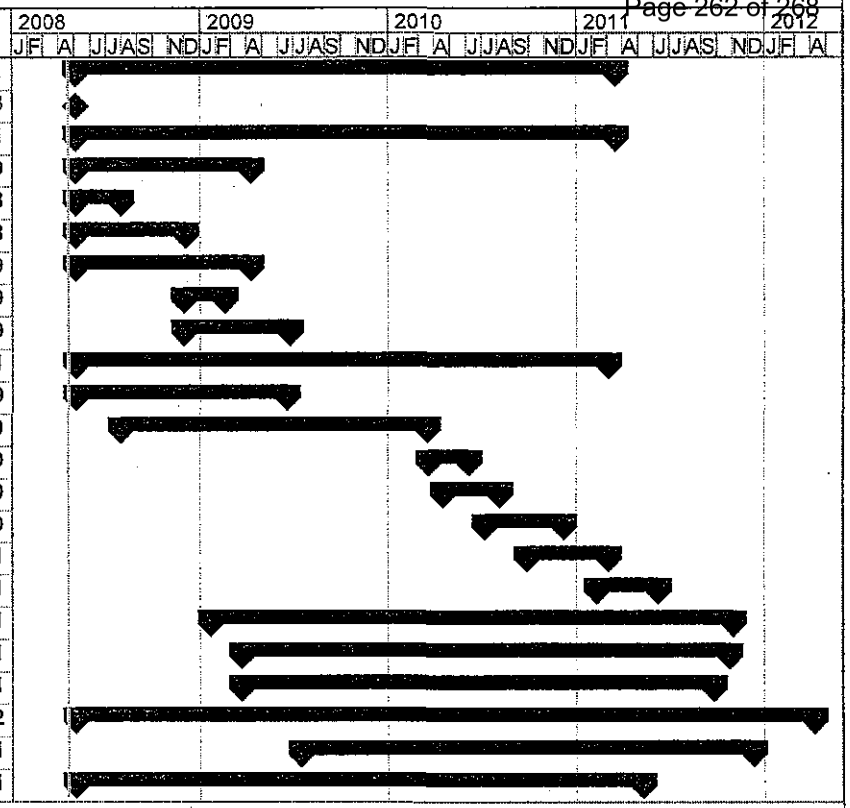
"Endangered species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease. Any species determined by the commission as "endangered" on or before January 1, 1985, is an "endangered species."

Section 2067. "Threatened species" defined.

"Threatened species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "rare" on or before January 1, 1985, is a "threatened species."

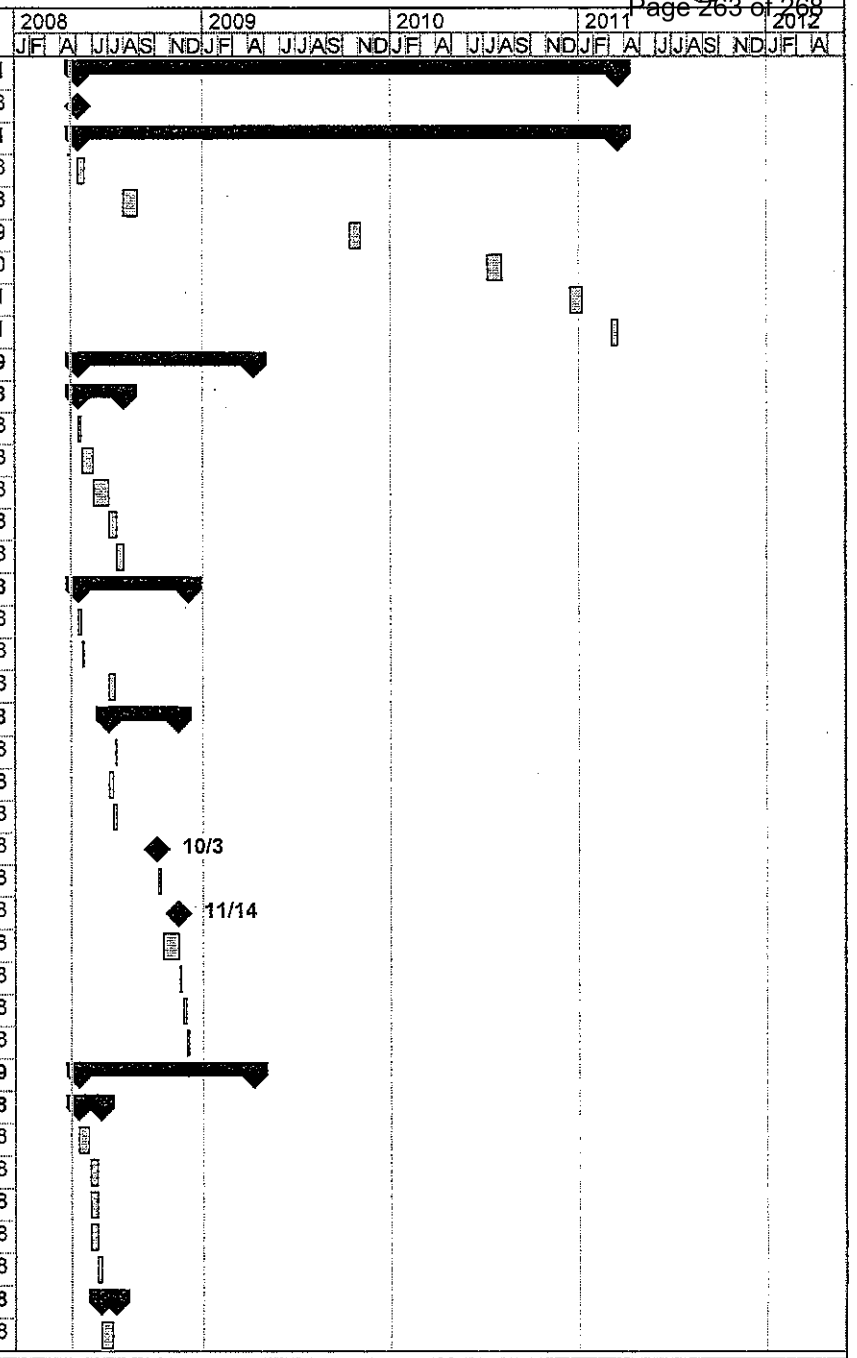
CONCEPTUAL BDCP EIR/S-ESA SCHEDULE

Task Name	Start	Finish
Project Definition	5/5/08	3/18/11
Notice to Proceed	5/5/08	5/5/08
Goals and Objectives - Purpose and Need	5/5/08	3/18/11
Key Issue Resolution	5/5/08	4/10/09
Task 1 Scoping Support	5/5/08	7/31/08
Task 2 Alternatives Development	5/5/08	12/4/08
Task 3 Alternative IF Design Engineering	5/5/08	4/10/09
Project Alternatives Description	12/1/08	2/18/09
Project Permitting Strategy	12/1/08	6/24/09
Environmental Analysis	5/5/08	3/4/11
Task 3 Data Collection and Existing Conditions	5/5/08	6/18/09
Task 4 Administrative Draft EIR/S	8/1/08	3/19/10
Task 5 Draft EIR/S	3/22/10	6/7/10
Public Review - DEIR/S	4/19/10	8/6/10
Task 6 Responses to Comments	7/8/10	12/8/10
Task 7 FEIR/S Preparation	9/28/10	3/4/11
EIR/S Decision-Making	2/11/11	6/9/11
CWA Section 404 Process	1/22/09	11/2/11
CWA 401 Water Quality Certification	3/23/09	10/26/11
CDFG 1602 Streambed Alteration Agreement	3/23/09	9/26/11
Amend SWRCB Water Right (Amount and Point of Diversion)	5/5/08	4/9/12
Revise Delta Water Quality Control Plan	7/17/09	12/12/11
Clean Air Act Compliance and Consistency Determination	5/5/08	5/10/11



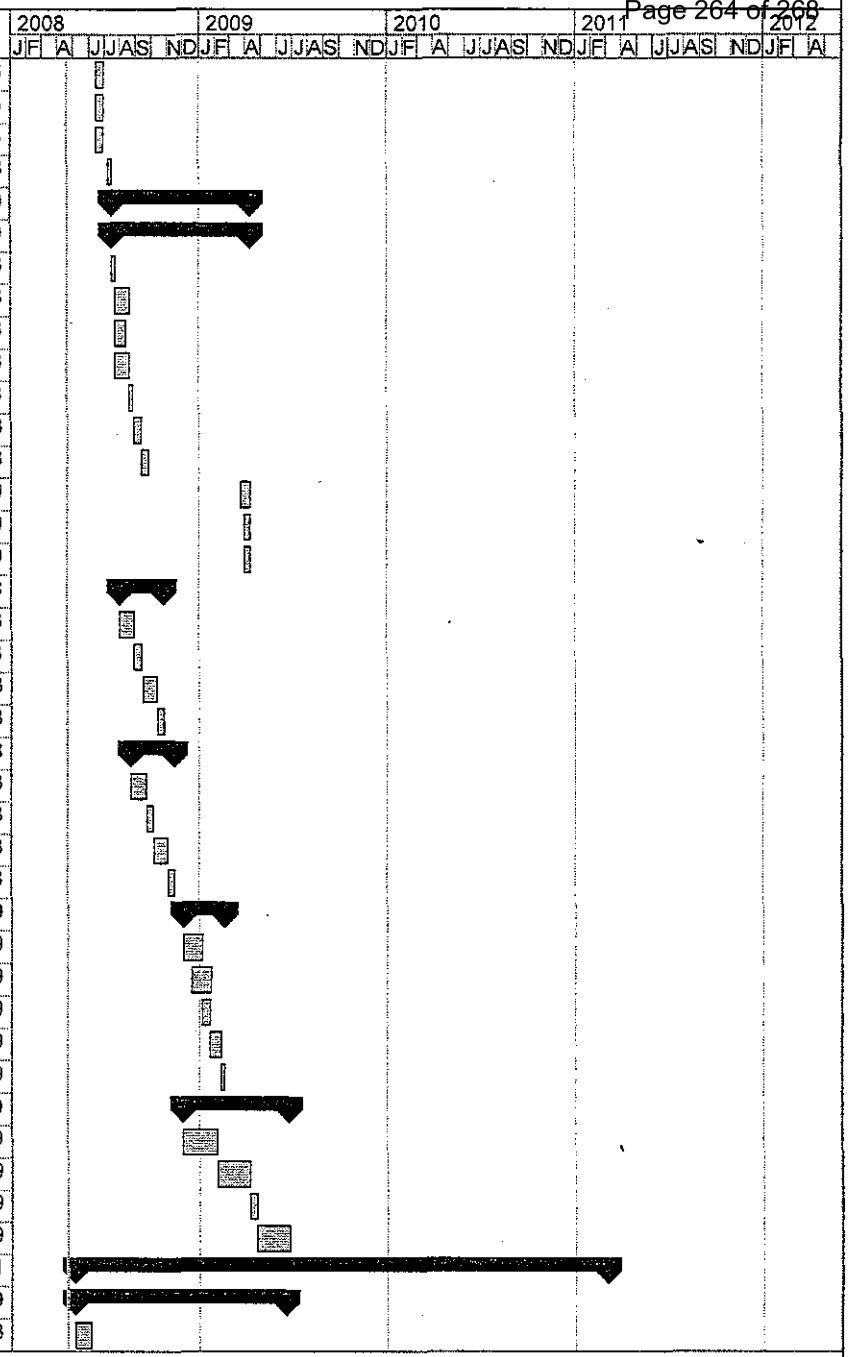
CONCEPTUAL BDCP EIR/S-ESA SCHEDULE

Task Name	Start	Finish
Project Definition	**5/5/08**	**3/18/11**
Notice to Proceed	5/5/08	5/5/08
Goals and Objectives - Purpose and Need	**5/5/08**	**3/18/11**
Define Preliminary Goals and Objectives - Purpose and Need	5/5/08	5/16/08
Refine Goals and Objectives - Purpose and Need from Scoping	8/1/08	8/28/08
Confirm for ADEIR	10/15/09	11/4/09
Refine from DEIR Review	7/9/10	8/5/10
Refine from AFEIR Review	12/16/10	1/7/11
Refine for Decision Making	3/7/11	3/18/11
Key Issue Resolution	**5/5/08**	**4/10/09**
Task 1 Scoping Support	**5/5/08**	**7/31/08**
Coordinate with Scoping Team	5/5/08	5/9/08
Consolidate Scoping Comments	5/12/08	6/2/08
Prepare Draft Scoping Summary	6/3/08	7/2/08
Review Draft Scoping Summary	7/3/08	7/17/08
Prepare Scoping Summary	7/18/08	7/31/08
Task 2 Alternatives Development	**5/5/08**	**12/4/08**
Coordinate with BDCP Team for Habitat Conservation Alternatives	5/5/08	5/9/08
Identify Water Conservation Alternatives from Scoping	5/12/08	5/14/08
Develop Draft Alternatives Screening Criteria	7/3/08	7/14/08
Develop Conveyance Alternatives	**7/3/08**	**11/14/08**
Receive Initial IF Conceptual Design	7/16/08	7/16/08
Confirm Conveyance Alternatives (Location, Size, Operations Criteria)	7/3/08	7/10/08
Confirm Other Delivery Locations, Timing, Components	7/11/08	7/17/08
Conveyance Alternatives - Rev 1	10/3/08	10/3/08
Revise Conveyance Alternatives Concepts - Rev 1 to 2	10/6/08	10/10/08
Conveyance Alternatives - Rev 2	11/14/08	11/14/08
Update Habitat Conservation and Other Alternatives	10/16/08	11/14/08
Review/ Modify/Approve Screening Alternatives	11/17/08	11/19/08
Screen Broad Alternatives List to Reasonable Range	11/24/08	11/28/08
Approve Alternatives Screening and Range	12/1/08	12/4/08
Task 3 Alternative IF Design Engineering	**5/5/08**	**4/10/09**
Prepare Conceptual IF Design for Alternatives	**5/5/08**	**6/16/08**
Obtain Prior Conceptual Designs and Operational Criteria	5/5/08	5/23/08
Refine Diversion-Operations Concepts	5/27/08	6/9/08
Refien Conveyance Designs (Canal & Pumping)	5/27/08	6/9/08
Refine Steam Crossings Designs	5/27/08	6/9/08
Prepare Conceptual IF Design	6/10/08	6/16/08
Refine Conceptual IF Alternatives Design with Env Data	**6/17/08**	**7/15/08**
Hydrology-Water Quality	6/17/08	7/8/08



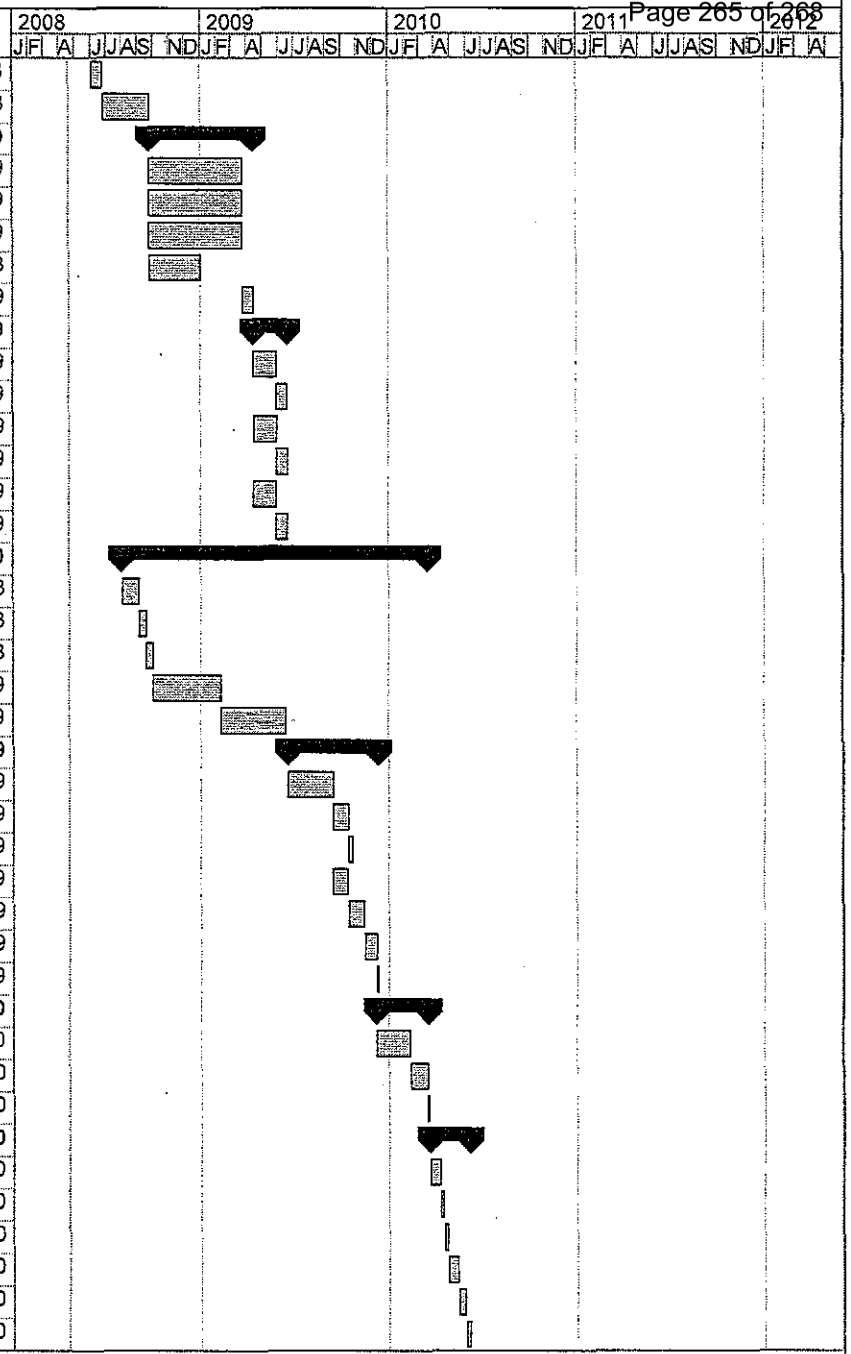
CONCEPTUAL BDCP EIR/S-ESA SCHEDULE

Task Name	Start	Finish
Aquatic Species	6/17/08	6/30/08
Terrestrial and Wetlands	6/17/08	6/30/08
ROW - Land use	6/17/08	6/30/08
Prepare Initial IF Description for Screening	7/9/08	7/15/08
Prepare Preliminary Conveyance Designs	**7/16/08**	**4/10/09**
Develop Operational Plan	**7/16/08**	**4/10/09**
Provide Preliminary Operational Criteria	7/16/08	7/22/08
Provide Hydrologic Model Input - Rev 1	7/23/08	8/19/08
Provide Fisheries Constraints - Rev 1	7/23/08	8/12/08
Provide Land Constraints - Rev 1	7/23/08	8/19/08
Review Operational Plan - Rev 1	8/20/08	8/26/08
Develop Operational Plan - Rev 2	8/27/08	9/10/08
Review Operational Plan Rev 2	9/11/08	9/24/08
Provide Hydrologic Model Input - Rev 2	3/23/09	4/10/09
Provide Fisheries Constraints - Rev 2	3/30/09	4/10/09
Provide Land Constraints - Rev 2	3/30/09	4/10/09
Develop Conveyance Facilities Design	**8/1/08**	**10/24/08**
Develop Facilities Design - Rev 1	8/1/08	8/28/08
Review Facilities Design - Rev 1	8/29/08	9/12/08
Develop Facilities Design - Rev 2	9/15/08	10/10/08
Review Facilities Design - Rev 2	10/13/08	10/24/08
Develop Construction Plan	**8/22/08**	**11/14/08**
Develop Construction Plan - Rev 1	8/22/08	9/19/08
Review Construction Plan - Rev 1	9/22/08	10/3/08
Develop Construction Plan - Rev 2	10/6/08	10/31/08
Review Construction Plan - Rev 2	11/3/08	11/14/08
Project Alternatives Description	**12/1/08**	**2/18/09**
Prepare ADEIR Project Alternatives Description	12/1/08	1/6/09
Prepare ADEIR/S Alternatives Selection and Screening Process	12/17/08	1/23/09
Review ADEIR Project Alternatives	1/7/09	1/21/09
Revise ADEIR Project Alternatives	1/22/09	2/11/09
Approve ADEIR Project Alternatives	2/12/09	2/18/09
Project Permitting Strategy	**12/1/08**	**6/24/09**
Develop Environmental Permitting Strategy	12/1/08	2/4/09
Develop Draft Permitting Strategy Memorandum	2/5/09	4/8/09
Review Draft Permitting Strategy Memorandum	4/9/09	4/22/09
Prepare Permitting Strategy Memorandum	4/23/09	6/24/09
Environmental Analysis	**5/5/08**	**3/4/11**
Task 3 Data Collection and Existing Conditions	**5/5/08**	**6/18/09**
Assess Data Needs	5/5/08	6/4/08



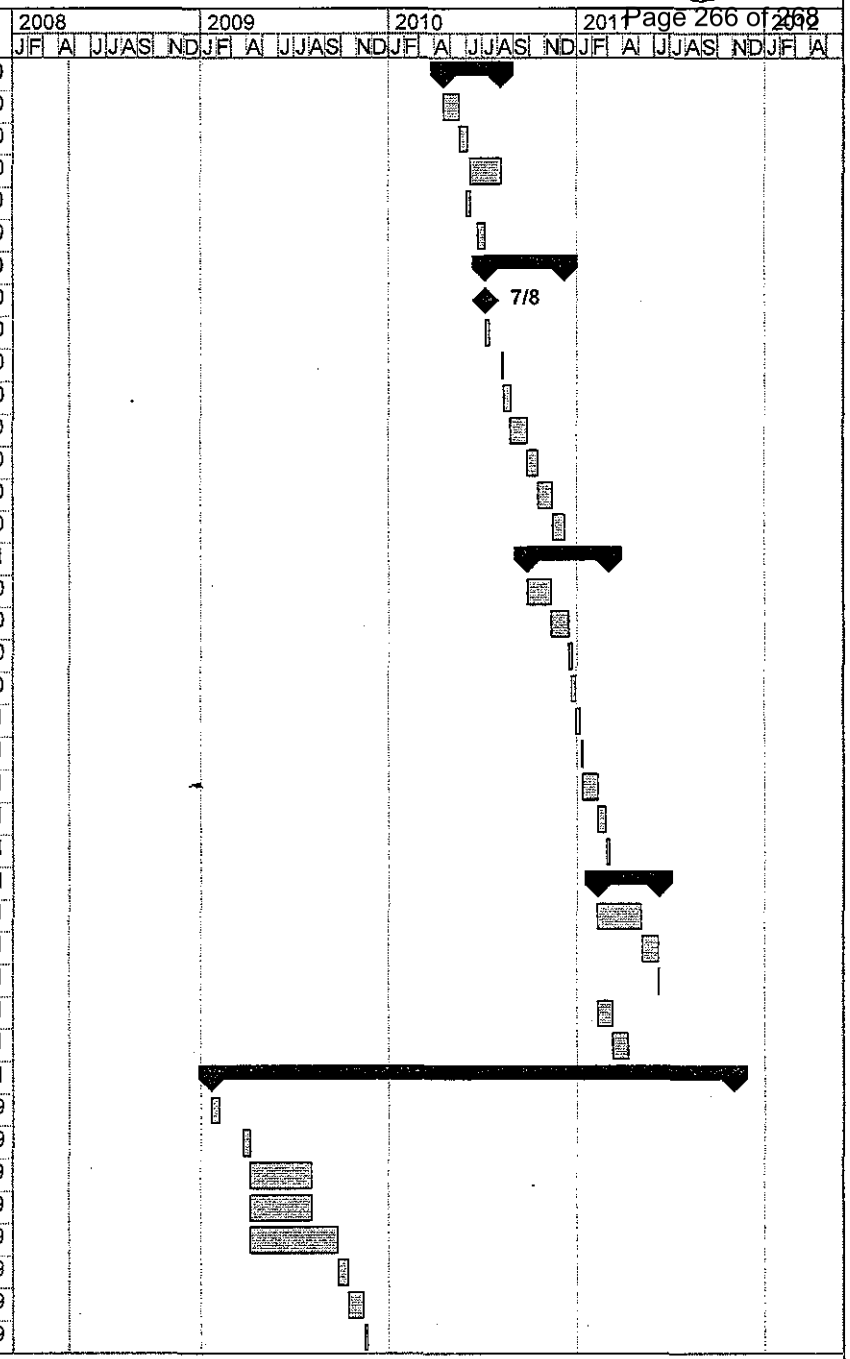
CONCEPTUAL BDC. R/S-ESA SCHEDULE

Task Name	Start	Finish
Prepare Data Collection Plans	6/5/08	6/25/08
Acquire Land Access Permits	6/25/08	9/23/08
Collect Site Specific Data	**9/24/08**	**4/13/09**
Botanical Surveys	9/24/08	3/23/09
Terrestrial Species Surveys	9/24/08	3/23/09
Wetlands Surveys	9/24/08	3/23/09
Cultural Resouces	9/24/08	12/31/08
Review/Approve Data Collections	3/24/09	4/13/09
Existing Conditions	**4/14/09**	**6/18/09**
Prepare Natural Resources Existing Conditions Tech Memo	4/14/09	5/28/09
Review Natural Resources Tech Memo	5/29/09	6/18/09
Prepare Physical Sciences Existing Conditions Tech Memo	4/14/09	5/28/09
Review Physical Sciences Tech Memo	5/29/09	6/18/09
Prepare Human Resources Existing Conditions Tech Memo	4/14/09	5/28/09
Review Human Resources Tech Memo	5/29/09	6/18/09
Task 4 Administrative Draft EIR/S	**8/1/08**	**3/19/10**
Prepare ADEIR Approach and Outlines	8/1/08	9/2/08
Review/comment on ADEIR Outlines and Approaches	9/3/08	9/16/08
Revise ADEIR Outlines and Approaches	9/17/08	9/30/08
Develop Cumulative Projects List and Descriptions	10/1/08	2/9/09
Review, Comment and Revise Cumulative Projects List	2/10/09	6/15/09
Prepare ADEIR #1	**6/19/09**	**12/11/09**
Prepare ADEIR/S #1 Tech Section	6/19/09	9/14/09
Review ADEIR/S #1 Tech Sections	9/15/09	10/14/09
Attend ADEIR#1 Review Meeting	10/15/09	10/22/09
Prepare ADEIR/S #1 Cumulative, Growth and Other Sections	9/15/09	10/14/09
Review ADEIR/S #1 Cumulative, Growth and Other Sections	10/15/09	11/13/09
Review ADEIR/S #1 Cumulative, Growth and Other Sections	11/16/09	12/8/09
Attend ADEIR/S #1 Cumulative, Growth and Other Sections Review Meetir	12/9/09	12/11/09
Prepare 2nd ADEIR	**12/9/09**	**3/19/10**
Prepare ADEIR#2	12/9/09	2/11/10
Review ADEIR#2	2/12/10	3/16/10
Attend ADEIR#2 Review Mtg	3/17/10	3/19/10
Task 5 Draft EIR/S	**3/22/10**	**6/7/10**
Prepare Screencheck DEIR	3/22/10	4/9/10
Review Screencheck DEIR	4/12/10	4/16/10
Attend Screencheck Review Meeting	4/19/10	4/23/10
Prepare DEIR	4/26/10	5/14/10
Produce DEIR	5/17/10	5/28/10
Distribute DEIR	6/1/10	6/7/10



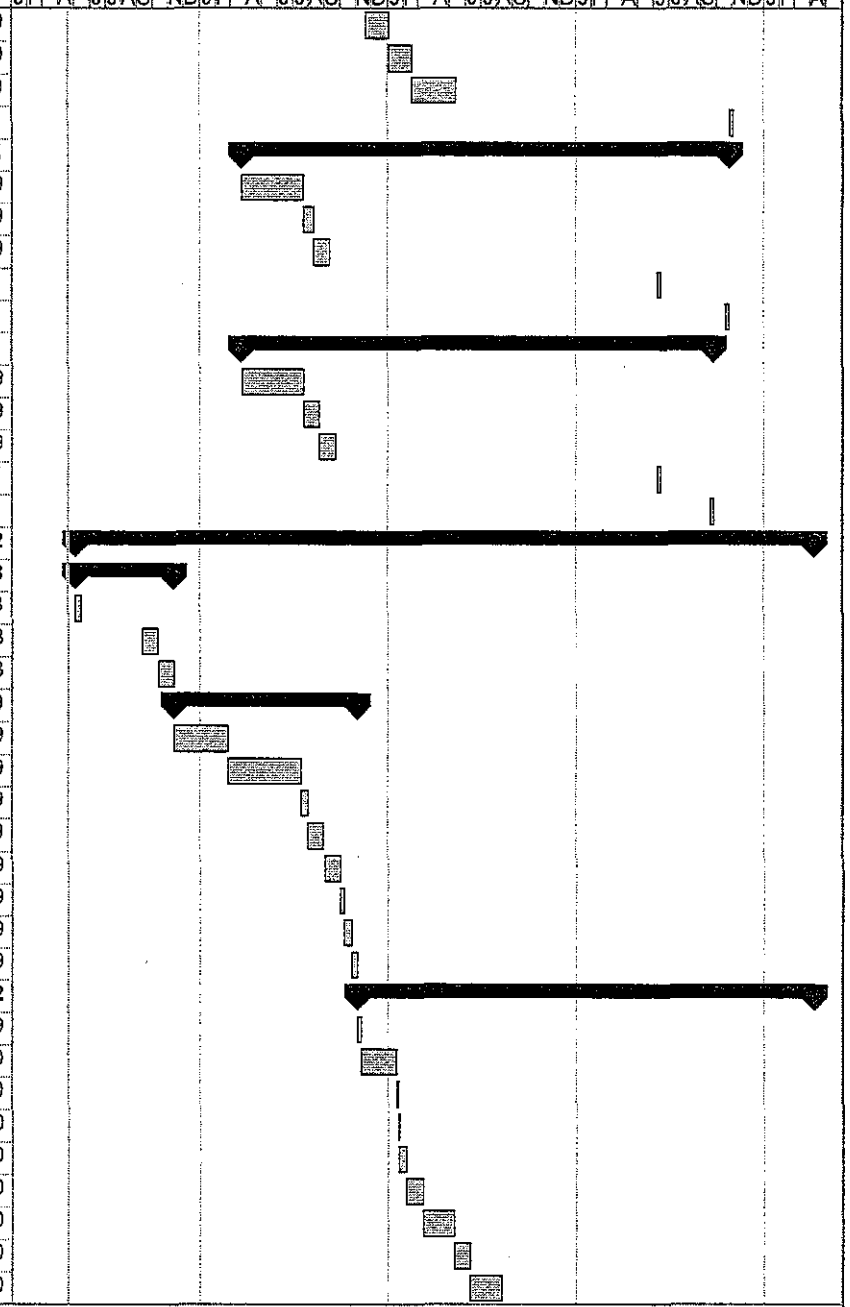
CONCEPTUAL BDCP EIR/S-ESA SCHEDULE

Task Name	Start	Finish
Public Review - DEIR/S	**4/19/10**	**8/6/10**
Prepare draft Project Information and Public Hearing Materials	4/19/10	5/18/10
Review draft Project Information and Hearing Materials	5/19/10	6/2/10
Public Review of DEIR	6/7/10	8/6/10
Finalize Project Information and Hearing Materials	6/3/10	6/9/10
Attend DEIR Hearings	6/24/10	7/8/10
Task 6 Responses to Comments	**7/8/10**	**12/8/10**
Receive Notice to Proceed with the Response to Comments	7/8/10	7/8/10
Receive Hearing Transcripts	7/9/10	7/15/10
Receive Written comments	8/9/10	8/11/10
Categorize and Identify Comments	8/12/10	8/25/10
Prepare Admin Draft Responses to Comments	8/26/10	9/27/10
Review Admin Draft Responses to Comments	9/28/10	10/18/10
Prepare Responses to Comments	10/19/10	11/15/10
Review Responses to Comments	11/16/10	12/8/10
Task 7 FEIR/S Preparation	**9/28/10**	**3/4/11**
Prepare AFEIR/S & MRMP	9/28/10	11/11/10
Review AFEIR/S & MRMP	11/12/10	12/15/10
Attend AFEIR/S Review Meeting	12/16/10	12/22/10
Prepare Screencheck FEIR/S	12/23/10	12/30/10
Review Screencheck FEIR/S	12/31/10	1/7/11
Attend FEIR/S Review Meeting	1/10/11	1/12/11
Prepare FEIR/S	1/13/11	2/10/11
Produce FEIR/S	2/11/11	2/25/11
Distribute FEIR/S	2/28/11	3/4/11
EIR/S Decision-Making	**2/11/11**	**6/9/11**
Prepare Findings, MRMP	2/11/11	5/6/11
Certify EIR	5/9/11	6/8/11
Approve BDCP Project	6/9/11	6/9/11
Prepare and circulate ROD	2/11/11	3/11/11
Sign ROD	3/11/11	4/10/11
CWA Section 404 Process	**1/22/09**	**11/2/11**
Obtain, review and confirm ADEIR Project Description	1/22/09	2/4/09
Obtain, review and format existing conditions	3/24/09	4/6/09
Prepare Draft 404(b)(1) Alternatives Analysis	4/6/09	8/4/09
Prepare Draft Wetland Mitigation Program	4/6/09	8/4/09
Prepare Draft 404 Application (incl. Draft Public Notice)	4/7/09	9/24/09
Review of Permit Application Package by Team	9/24/09	10/14/09
Revise 404 analyses	10/15/09	11/13/09
Submit Permit Application to Corps	11/16/09	11/20/09



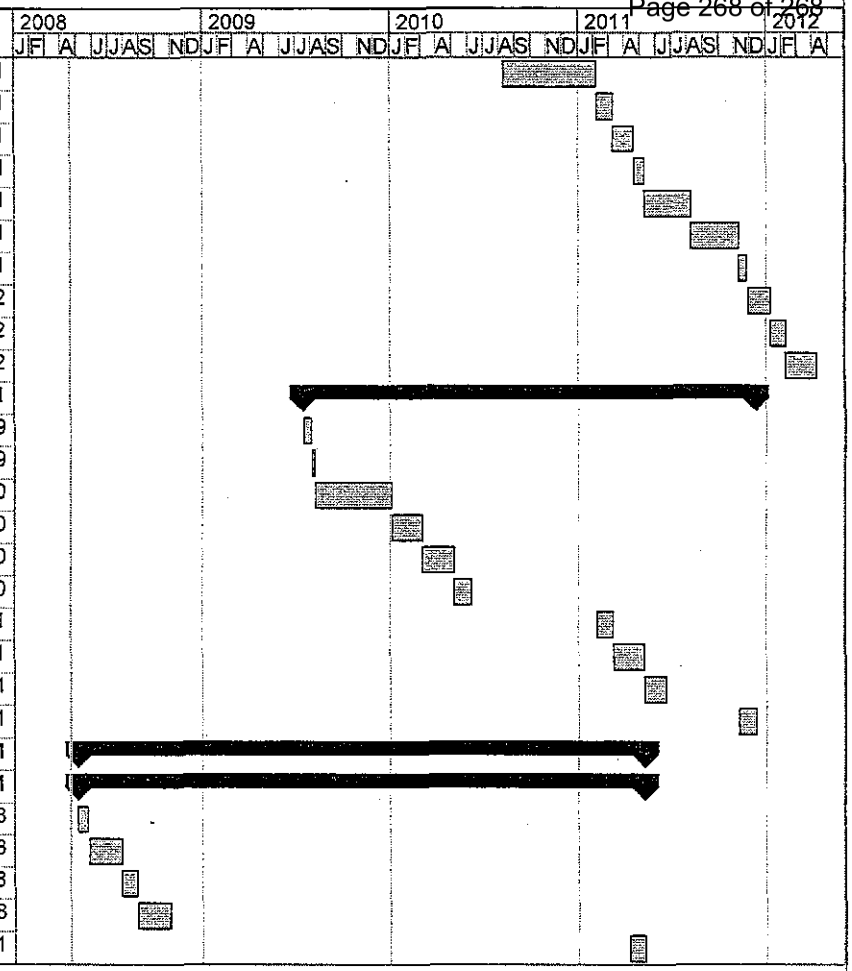
CONCEPTUAL BDC[illegible]/S-ESA SCHEDULE

Task Name	Start	Finish
Publish 404 Application	11/20/09	1/4/10
Public Comment Period	1/4/10	2/18/10
Respond to Public Comments	2/19/10	5/14/10
Issue Permit	10/27/11	11/2/11
CWA 401 Water Quality Certification	**3/23/09**	**10/26/11**
Prepare Draft 401/WDR Application	3/23/09	7/21/09
Review of Draft 401/WDR Application by Team	7/21/09	8/10/09
Revise 401 Application	8/11/09	9/10/09
Submit 401/WDR Application to Regional Board	6/9/11	6/15/11
Regional Board Issues 401 Certification/WDR	10/20/11	10/26/11
CDFG 1602 Streambed Alteration Agreement	**3/23/09**	**9/26/11**
Prepare Draft 1602 Notification	3/23/09	7/21/09
Review of Draft 1602 Notification Package by Team	7/22/09	8/20/09
Revise 1602 Package	8/21/09	9/22/09
Submit 1602 Notification to CDFG for Processing	6/9/11	6/15/11
CDFG Issues Streambed Alteration Agreement	9/20/11	9/26/11
Amend SWRCB Water Right (Amount and Point of Diversion)	**5/5/08**	**4/9/12**
Pre-Amendment Coordination	**5/5/08**	**11/11/08**
Review contents of the Right (Amount and POD)	5/5/08	5/16/08
Develop list of components for revision	9/11/08	10/10/08
Meet with SWRCB staff re: revision contents	10/13/08	11/11/08
Water Right Amendment	**11/12/08**	**11/3/09**
Obtain Fish and Wildlife data from CDFG and others	11/12/08	2/24/09
Prepare additional analyses to support Water Right Amendment	2/25/09	7/16/09
Prepare CA Water Code Section 1260 sections	7/17/09	7/30/09
Prepare Draft Amendment	7/31/09	8/28/09
Review and Comment on Draft POD Amendment	9/1/09	9/30/09
Revise Draft Amendment	10/1/09	10/7/09
Brief revised draft Amendment to SWRCB staff	10/8/09	10/22/09
Revise/submit draft amendment to Water Rights	10/23/09	11/3/09
Water Right Amendment-Approval	**11/3/09**	**4/9/12**
Receive draft amendment	11/3/09	11/10/09
Complete initial review of draft amendment	11/10/09	1/18/10
Attend initial review meeting	1/18/10	1/21/10
Issue Deficience Notice	1/21/10	1/22/10
Update draft amendment (60 days max, S. 1270)	1/22/10	2/5/10
Review and accept amendment update. Issue Receipt Notice (S.1300)	2/5/10	3/10/10
Submit Water Right Protests (S. 1302)	3/10/10	5/9/10
Request Additional information from protestant	5/10/10	6/9/10
Receive Additional information	6/10/10	8/9/10



CONCEPTUAL BDC[illegible]/S-ESA SCHEDULE

Task Name	Start	Finish
Good Faith protest resolution period	8/9/10	2/5/11
Request additional information to assist Board resolution activities	2/7/11	3/9/11
Provide additional information regarding protests and resolution	3/10/11	4/19/11
Conduct field investigation (S. 1345)	4/19/11	5/9/11
Schedule and participate in a SWRCB Hearing	5/9/11	8/7/11
Prepare draft Staff Report and Amendment conditions	8/8/11	11/8/11
Discuss draft Staff Report and Amendment conditions	11/9/11	11/23/11
Prepare supplements to the Amendment conditions	11/28/11	1/10/12
Prepare Draft Final Water Right Amendment	1/10/12	2/9/12
Final Water Right Amendment Construction Initiation Waiting period (S. 1395)	2/9/12	4/9/12
Revise Delta Water Quality Control Plan	**7/17/09**	**12/12/11**
Prepare Project Description and Draft Technical Evaluations	7/17/09	7/31/09
Accept Water Agency submittals	8/3/09	8/7/09
Prepare revisions to the 2006 WQCP	8/10/09	1/4/10
Review Revisions	1/5/10	3/4/10
Prepare Draft Revised WQCP	3/5/10	5/5/10
Review/Approve Revised WQCP	5/6/10	6/7/10
Publish Draft Revised WQCP	2/7/11	3/9/11
Review/Comment on Draft Revised WCQP	3/9/11	5/8/11
Prepare Responses to Comment	5/8/11	6/19/11
Prepare Revised WQCP	11/9/11	12/12/11
Clean Air Act Compliance and Consistency Determination	**5/5/08**	**5/10/11**
Permit Evaluation and Preparation	**5/5/08**	**5/10/11**
Evaluate need for Authority to Construct	5/5/08	5/23/08
Identify Reasonably Available Control Measures	5/27/08	7/28/08
Provide Air Permitting requirements to Project Description	7/29/08	8/27/08
Develop Air Quality Analysis and Permitting Plan	8/28/08	10/29/08
Comply with Portable Equipment Requirements	4/11/11	5/10/11



A.8 - Attachment H:
Complete List of Species of Special Concern

ATTACHMENT H

Complete List of Amphibian, Reptile, Bird and Mammal Species in California

California Department of Fish and Game
Sept. 2008 (updated)

This list represents all of the native or introduced amphibian, reptile, bird and mammal species known in California. Introduced species are marked with "I", harvest species with "HA", and vagrant species or species with extremely limited distributions with *. The term "introduced", as used here, represents both accidental and intentional introductions.

Subspecies are not included on this list. The most current list of species and subspecies with special management status is available from the California Natural Diversity Database (CNDDB)

Taxonomy and nomenclature used within the list are the same as those used within both the CNDDB and CWHR software programs and data sets. If a discrepancy exists between this list and the ones produced by CNDDB, the CNDDB list can be presumed to be more accurate as it is updated more frequently than the CWHR data set.

AMPHIBIA (Amphibians)

CAUDATA *(Salamanders)*

AMBYSTOMATIDAE *(Mole Salamanders and Relatives)*

Long-toed Salamander	*Ambystoma macrodactylum*	
Tiger Salamander	*Ambystoma tigrinum*	I
California Tiger Salamander	*Ambystoma californiense*	
Northwestern Salamander	*Ambystoma gracile*	

RHYACOTRITONIDAE *(Torrent or Seep Salamanders)*

Southern Torrent Salamander	*Rhyacotriton variegatus*

DICAMPTODONTIDAE *(Giant and Olympic Salamanders)*

California Giant Salamander	*Dicamptodon ensatus*
Pacific Giant Salamander	*Dicamptodon tenebrosus*

SALAMANDRIDAE *(Newts)*

California Newt	*Taricha torosa*
Red-bellied Newt	*Taricha rivularis*
Rough-skinned Newt	*Taricha granulosa*

PLETHODONTIDAE *(Lungless Salamanders)*

Mount Lyell Salamander	*Hydromantes platycephalus*	
Black-bellied Slender Salamander	*Batrachoseps nigriventris*	
Channel Islands Slender Salamander	*Batrachoseps pacificus*	
San Gabriel Mtns Slender Salamander	*Batrachoseps gabrieli*	
Gabilan Mtns Slender Salamander	*Batrachoseps gavilanensis*	
Santa Lucia Mtns Slender Salamander	*Batrachoseps luciae*	
Lesser Slender Salamander	*Batrachoseps minor*	
San Simeon Slender Salamander	*Batrachoseps incognitus*	
Sequoia Slender Salamander	*Batrachoseps kawia*	
Relictual Slender Salamander	*Batrachoseps relictus*	
California Slender Salamander	*Batrachoseps attenuatus*	
Owen's Valley Web-toed Salamander	*Hydromantes sp. 1*	
Shasta Salamander	*Hydromantes shastae*	
Kern Canyon Slender Salamander	*Batrachoseps simatus*	
Limestone Salamander	*Hydromantes brunus*	
Gregarius Slender Salamander	*Batrachoseps gregarius*	
Hell Hollow Slender Salamander	*Batrachoseps diabolicus*	
Breckenridge Mtn Slender Salamander	*Batrachoseps sp. 1*	*
Kings River Slender Salamander	*Batrachoseps regius*	
Scott Bar Salamander	*Plethodon asupak*	
Garden Slender Salamander	*Batrachoseps major (aridus now*	
Wandering Salamander	*Aneides vagrans*	
Tehachapi Slender Salamander	*Batrachoseps stebbinsi*	
Large-blotched Ensatina	*Ensatina klauberi*	
Dunn's Salamander	*Plethodon dunni*	
Del Norte Salamander	*Plethodon elongatus*	
Siskiyou Mountains Salamander	*Plethodon stormi*	
Black Salamander	*Aneides flavipunctatus*	
Clouded Salamander	*Aneides ferreus*	
Arboreal Salamander	*Aneides lugubris*	
Ensatina	*Ensatina eschscholtzii*	
Kern Plateau Salamander	*Batrachoseps robustus*	
Inyo Mountains Salamander	*Batrachoseps campi*	

ANURA *(Frogs and Toads)*

ASCAPHIDAE *(Tailed Frogs)*

Western Tailed Frog	*Ascaphus truei*	

PELOBATIDAE *(Spadefoot Toads)*

Great Basin Spadefoot	*Spea intermontana*	
Couch's Spadefoot	*Scaphiopus couchii*	
Western Spadefoot	*Spea hammondii*	

BUFONIDAE *(True Toads)*

Western Toad	*Bufo boreas*	
Great Plains Toad	*Bufo cognatus*	
Red-spotted Toad	*Bufo punctatus*	
Arroyo Toad	*Bufo californicus*	
Woodhouse's Toad	*Bufo woodhousii*	
Black Toad	*Bufo exsul*	
Sonoran Desert (Colorado River) Toad	*Bufo alvarius*	
Yosemite Toad	*Bufo canorus*	

HYLIDAE *(Tree Frogs and Relatives)*

California Treefrog	*Hyla cadaverina*	
Pacific Treefrog	*Hyla regilla*	

RANIDAE *(True Frogs)*

Sierra Madre Yellow-legged Frog	*Rana muscosa*	
Sierra Nevada Yellow-legged Frog	*Rana sierrae*	
Foothill Yellow-legged Frog	*Rana boylii*	
Bullfrog	*Rana catesbeiana*	I
Northern Leopard Frog	*Rana pipiens*	I
Cascades Frog	*Rana cascadae*	
African Clawed Frog	*Xenopus laevis*	I
Rio Grande Leopard Frog	*Rana berlandieri*	I
Northern Red-legged Frog	*Rana aurora*	
California Red-legged Frog	*Rana draytonii*	
Oregon Spotted Frog	*Rana pretiosa*	
Lowland Leopard Frog	*Rana yavapaiensis*	*
Southern Leopard Frog	*Rana sphenocephala*	

REPTILIA *(Reptiles)*

TESTUDINES *(Turtles)*

CHELYDRIDAE *(Snapping Turtles)*

Snapping Turtle	*Chelydra serpentina*	I

KINOSTERNIDAE *(Musk and Mud Turtles)*

Sonora Mud Turtle	*Kinosternon sonoriense*	*

EMYDIDAE *(Box and Water Turtles)*

Western Pond Turtle	*Emys marmorata*	
Painted Turtle	*Chrysemys picta*	I
Pond Slider	*Trachemys scripta*	I

TESTUDINIDAE *(True Land Tortoises)*

Desert Tortoise	*Gopherus agassizii*	

CHELONIIDAE *(Sea Turtles)*

Hawksbill	*Eretmochelys imbricata*	*
Olive Ridley	*Lepidochelys olivacea*	*
Loggerhead	*Caretta caretta*	*
Green Turtle	*Chelonia mydas*	*

DERMOCHELYIDAE *(Leatherback Turtles)*

Leatherback	*Dermochelys coriacea*	*

TRIONYCHIDAE	***(Softshell Turtles)***	
Spiny Softshell	*Trionyx spiniferus*	I

SQUAMATA *(Lizards and Snakes)*

GEKKONIDAE	***(Geckos)***	
Moorish Wall Gecko	*Tarentola mauritanica*	*
Mediterranean House Gecko	*Hemidactylus turcicus*	I
Leaf-toed Gecko	*Phyllodactylus xanti*	
Western Banded Gecko	*Coleonyx variegatus*	
Barefoot Gecko	*Coleonyx switaki*	
IGUANIDAE	***(Iguanids)***	
Desert Iguana	*Dipsosaurus dorsalis*	
Common Chuckwalla	*Sauromalus ater*	
CROTOPHYTIDAE	***(Collared and Leopard Lizards)***	
Cope's Leopard Lizard	*Gambelia copeii*	
Baja California Collared Lizard	*Crotaphytus vestigium*	
Long-nosed Leopard Lizard	*Gambelia wislizenii*	
Blunt-nosed Leopard Lizard	*Gambelia sila*	
Mojave Black-collared Lizard	*Crotaphytus bicinctores*	
PHRYNOSOMATIDAE		
Pigmy Short-horned Lizard	*Phrynosoma douglassi*	
Desert Horned Lizard	*Phrynosoma platyrhinos*	
Desert Spiny Lizard	*Sceloporus magister*	
Coast Horned Lizard	*Phrynosoma coronatum*	
Banded Rock Lizard	*Petrosaurus mearnsi*	
Baja California Brush Lizard	*Urosaurus nigricaudus*	
Ornate Tree Lizard	*Urosaurus ornatus*	
Long-tailed Brush Lizard	*Urosaurus graciosus*	
Flat-tailed Horned Lizard	*Phrynosoma mcallii*	
Common Side-blotched Lizard	*Uta stansburiana*	
Western Fence Lizard	*Sceloporus occidentalis*	
Granite Spiny Lizard	*Sceloporus orcutti*	
Mojave Fringe-toed Lizard	*Uma scoparia*	
Coachella Valley Fringe-toed Lizard	*Uma inornata*	
Colorado Desert Fringe-toed Lizard	*Uma notata*	
Zebra-tailed Lizard	*Callisaurus draconoides*	
Sagebrush Lizard	*Sceloporus graciosus*	
XANTUSIIDAE	***(Night Lizards)***	
Island Night Lizard	*Xantusia riversiana*	
Desert Night Lizard	*Xantusia vigilis*	
Henshaw's Night Lizard	*Xantusia henshawi*	
Sandstone Night Lizard	*Xantusia gracilis*	
SCINCIDAE	***(Skinks)***	
Western Skink	*Eumeces skiltonianus*	
Gilbert's Skink	*Eumeces gilberti*	
TEIIDAE	***(Whiptails and Relatives)***	
Western Whiptail	*Aspidoscelis tigris*	
Orange-throated Whiptail	*Aspidoscelis hyperytha*	
ANGUIDAE	***(Alligator Lizards and Relatives)***	
Panamint Alligator Lizard	*Elgaria panamintina*	
Southern Alligator Lizard	*Elgaria multicarinata*	
Northern Alligator Lizard	*Elgaria coerulea*	
ANNIELLIDAE	***(California Legless Lizards)***	
California Legless Lizard	*Anniella pulchra*	
HELODERMATIDAE	***(Venomous Lizards)***	
Gila Monster	*Heloderma suspectum*	

LEPTOTYPHLOPIDAE	***(Slender Blind Snakes)***	
Western Blind Snake	*Leptotyphlops humilis*	
BOIDAE	***(Boas)***	
Southern Rubber Boa	*Charina umbratica*	
Rubber Boa	*Charina bottae*	
Rosy Boa	*Charina trivirgata*	
COLUBRIDAE	***(Egg-laying Snakes)***	
Night Snake	*Hypsiglena torquata*	
Common Kingsnake	*Lampropeltis getula*	
California Mountain Kingsnake	*Lampropeltis zonata*	
Long-nosed Snake	*Rhinocheilus lecontei*	
Western Ground Snake	*Sonora semiannulata*	
Western Shovel-nosed Snake	*Chionactis occipitalis*	
California Black-headed Snake	*Tantilla planiceps*	
Western Lyre Snake	*Trimorphodon biscutatus*	
Striped Whipsnake	*Masticophis taeniatus*	
Glossy Snake	*Arizona elegans*	
Southwestern Black-headed Snake	*Tantilla hobartsmithi*	
Spotted Leaf-nosed Snake	*Phyllorhynchus decurtatus*	
Gopher Snake	*Pituophis catenifer*	
Sharp-tailed Snake	*Contia tenuis*	
Racer	*Coluber constrictor*	
Coachwhip	*Masticophis flagellum*	
California Whipsnake (Striped Racer)	*Masticophis lateralis*	
Baja California Rat Snake	*Bogertophis rosaliae*	
Western Patch-nosed Snake	*Salvadora hexalepis*	
Ring-necked Snake	*Diadophis punctatus*	
NATRICIDAE	***(Live-bearing Snakes)***	
Common Garter Snake	*Thamnophis sirtalis*	
Western Terrestrial Garter Snake	*Thamnophis elegans*	
Diamondback Water Snake	*Nerodia rhombifer*	I
Checkered Garter Snake	*Thamnophis marcianus*	
Northwestern Garter Snake	*Thamnophis ordinoides*	
Two-striped Garter Snake	*Thamnophis hammondii*	
Aquatic Garter Snake	*Thamnophis atratus*	
Giant Garter Snake	*Thamnophis gigas*	
Sierra (Western Aquatic) Garter Snake	*Thamnophis couchii*	
HYDROPHIDAE	***(Sea Snakes)***	
Yellow-bellied Sea Snake	*Pelamis platurus*	
VIPERIDAE	***(Vipers)***	
Western Rattlesnake	*Crotalus viridis*	
Sidewinder	*Crotalus cerastes*	
Mojave Rattlesnake	*Crotalus scutulatus*	
Speckled Rattlesnake	*Crotalus mitchellii*	
Western Diamond-backed Rattlesnake	*Crotalus atrox*	
Red Diamond Rattlesnake	*Crotalus ruber*	

AVES *(Birds)*

GAVIIFORMES *(Loons)*

GAVIIDAE	***(Loons)***	
Red-throated Loon	*Gavia stellata*	
Arctic Loon	*Gavia arctica*	*
Pacific Loon	*Gavia pacifica*	
Common Loon	*Gavia immer*	
Yellow-billed Loon	*Gavia adamsii*	*

PODICIPEDIDAE	***(Grebes)***	
Least Grebe	*Tachybaptus dominicus*	*
Clark's Grebe	*Aechmophorus clarkii*	
Western Grebe	*Aechmophorus occidentalis*	
Eared Grebe	*Podiceps nigricollis*	
Pied-billed Grebe	*Podilymbus podiceps*	
Horned Grebe	*Podiceps auritus*	
Red-necked Grebe	*Podiceps grisegena*	

PROCELLARIIFOR *(Albatrosses, Shearwaters, Petrels and Relatives)*

DIOMEDEIDAE	***(Albatrosses)***	
Black-footed Albatross	*Phoebastria nigripes*	
Short-tailed Albatross	*Phoebastria albatrus*	*
Laysan Albatross	*Phoebastria immutabilis*	
Wandering Albatross	*Diomedea exulans*	*
Light-mantled Albatross	*Phoebetria palpebrata*	*
Shy Albatross	*Thalassarche cauta*	*
PROCELLARIIDAE	***(Shearwaters and Fulmars)***	
Dark-rumped Petrel	*Pterodroma phaeopygia*	*
Pink-footed Shearwater	*Puffinus creatopus*	
Sooty Shearwater	*Puffinus griseus*	
Buller's Shearwater	*Puffinus bulleri*	
Wedge-tailed Shearwater	*Puffinus pacificus*	*
Manx Shearwater	*Puffinus puffinus*	*
Greater Shearwater	*Puffinus gravis*	*
Black-vented Shearwater	*Puffinus opisthomelas*	
Flesh-footed Shearwater	*Puffinus carneipes*	
Short-tailed Shearwater	*Puffinus tenuirostris*	
Little Shearwater	*Puffinus assimilis*	*
Streaked Shearwater	*Calonectris leucomelas*	*
Cory’s Shearwater	*Calonectris diomedea*	*
Bulwer's Petrel	*Bulweria bulwerii*	*
Cook's Petrel	*Pterodroma cookii*	
Mottled Petrel	*Pterodroma inexpectata*	*
Murphy's Petrel	*Pterodroma ultima*	
Great-winged Petrel	*Pterodoma macroptera*	*
Northern Fulmar	*Fulmarus glacialis*	
Stejneger's Petrel	*Pterodroma longirostris*	*
Parkinson’s Petrel	*Procellaria parkinsoni*	*
HYDROBATIDAE	***(Storm Petrels)***	
Black Storm-petrel	*Oceanodroma melania*	
Leach's Storm-petrel	*Oceanodroma leucorhoa*	
Least Storm-petrel	*Oceanodroma microsoma*	
Ashy Storm-petrel	*Oceanodroma homochroa*	
Wilson's Storm-petrel	*Oceanites oceanicus*	*
Fork-tailed Storm-petrel	*Oceanodroma furcata*	
Wedge-rumped Storm-petrel	*Oceanodroma tethys*	*
Ringed Storm-petrel	*Oceanodroma hornbyi*	*

PELECANIFORMES *(Tropicbirds, Pelicans and Relatives)*

PHAETHONTIDAE	***(Tropicbirds)***	
White-tailed Tropicbird	*Phaethon lepturus*	*
Red-billed Tropicbird	*Phaethon aethereus*	
Red-tailed Tropicbird	*Phaethon rubricauda*	*
SULIDAE	***(Boobies and Gannets)***	
Masked Booby	*Sula dactylatra*	*
Nazca Booby	*Sula granti*	*
Blue-footed Booby	*Sula nebouxii*	*
Brown Booby	*Sula leucogaster*	*
Red-footed Booby	*Sula sula*	*
PELECANIDAE	***(Pelicans)***	
American White Pelican	*Pelecanus erythrorhynchos*	

Brown Pelican	*Pelecanus occidentalis*	
PHALACROCORACIDAE	***(Cormorants)***	
Double-crested Cormorant	*Phalacrocorax auritus*	
Pelagic Cormorant	*Phalacrocorax pelagicus*	
Brandt's Cormorant	*Phalacrocorax penicillatus*	
Neotropic Cormorant	*Phalacrocorax brasilianus*	*
ANHINGIDAE	***(Darters)***	
Anhinga	*Anhinga anhinga*	*
FREGATIDAE	***(Frigatebirds)***	
Magnificent Frigatebird	*Fregata magnificens*	
Great Frigatebird	*Fregata minor*	*

CICONIIFORMES *(Herons, Storks, Ibises and Relatives)*

ARDEIDAE	***(Herons and Bitterns)***	
Great Blue Heron	*Ardea herodias*	
Black-crowned Night Heron	*Nycticorax nycticorax*	
Green Heron	*Butorides virescens*	
Cattle Egret	*Bubulcus ibis*	
Reddish Egret	*Egretta rufescens*	
Tricolored Heron	*Egretta tricolor*	*
Little Blue Heron	*Egretta caerulea*	
Great Egret	*Ardea alba*	
Least Bittern	*Ixobrychus exilis*	
American Bittern	*Botaurus lentiginosus*	
Yellow-crowned Night-heron	*Nyctanassa violacea*	*
Snowy Egret	*Egretta thula*	
THRESKIORNITHIDAE	***(Ibises and Spoonbills)***	
White-faced Ibis	*Plegadis chihi*	
Roseate Spoonbill	*Platalea ajaja*	*
Glossy Ibis	*Plegadis falcinellus*	*
White Ibis	*Eudocimus albus*	*
CICONIIDAE	***(Storks and Wood Ibises)***	
Wood Stork	*Mycteria americana*	
CATHARTIDAE	***(New World Vultures)***	
Black Vulture	*Coragyps atratus*	*
Turkey Vulture	*Cathartes aura*	
California Condor	*Gymnogyps californianus*	

ANSERIFORMES *(Screamers, Ducks and Relatives)*

ANATIDAE	***(Swans, Geese and Ducks)***	
Redhead	*Aythya americana*	HA
King Eider	*Somateria spectabilis*	*,HA
Common Eider	*Somateria mollissima*	*
Steller's Eider	*Polysticta stelleri*	*,HA
Lesser Scaup	*Aythya affinis*	HA
Greater Scaup	*Aythya marila*	HA
Tufted Duck	*Aythya fuligula*	*,HA
Harlequin Duck	*Histrionicus histrionicus*	HA
Common Pochard	*Aythya ferina*	*,HA
Long-tailed Duck	*Clangula hyemalis*	HA
Canvasback	*Aythya valisineria*	HA
Green-winged Teal	*Anas crecca*	HA
Baikal Teal	*Anas formosa*	*,HA
Ring-necked Duck	*Aythya collaris*	HA
Surf Scoter	*Melanitta perspicillata*	HA
Black Scoter	*Melanitta nigra*	HA
Bufflehead	*Bucephala albeola*	HA
Common Goldeneye	*Bucephala clangula*	HA
Barrow's Goldeneye	*Bucephala islandica*	HA
Smew	*Mergellus albellus*	*,HA
Hooded Merganser	*Lophodytes cucullatus*	HA

Common Merganser	*Mergus merganser*	HA
Red-breasted Merganser	*Mergus serrator*	HA
Ruddy Duck	*Oxyura jamaicensis*	HA
Eurasian Wigeon	*Anas penelope*	HA
Garganey	*Anas querquedula*	*,HA
White-winged Scoter	*Melanitta fusca*	HA
Egyptian Goose	*Alopochen aegyptiacus*	I
American Black Duck	*Anas rubripes*	*,HA
Black-bellied Whistling-Duck	*Dendrocygna autumnalis*	*
Fulvous Whistling-Duck	*Dendrocygna bicolor*	HA
Greater White-fronted Goose	*Anser albifrons*	HA
Emperor Goose	*Chen canagica*	*,HA
Snow Goose	*Chen caerulescens*	HA
Ross' s Goose	*Chen rossii*	HA
Brant	*Branta bernicla*	HA
Mute Swan	*Cygnus olor*	I
Trumpeter Swan	*Cygnus buccinator*	*
Tundra Swan	*Cygnus columbianus*	
Mallard	*Anas platyrhynchos*	HA
Northern Shoveler	*Anas clypeata*	HA
Canada Goose	*Branta canadensis*	HA
Blue-winged Teal	*Anas discors*	HA
Whooper Swan	*Cygnus cygnus*	*
Cackling Goose (Aleutian Can in CA)	*Branta hutchinsii*	
American Wigeon	*Anas americana*	HA
Northern Pintail	*Anas acuta*	HA
Falcated Duck	*Anas falcata*	*,HA
Gadwall	*Anas strepera*	HA
Mandarin Duck	*Aix galericulata*	I
Wood Duck	*Aix sponsa*	HA
Cinnamon Teal	*Anas cyanoptera*	HA

FALCONIFORMES *(Vultures, Hawks and Falcons)*

ACCIPITRIDAE *(Hawks, Old World Vultures and Harriers)*

Red-shouldered Hawk	*Buteo lineatus*	
Osprey	*Pandion haliaetus*	
Golden Eagle	*Aquila chrysaetos*	
Rough-legged Hawk	*Buteo lagopus*	
Ferruginous Hawk	*Buteo regalis*	
Red-tailed Hawk	*Buteo jamaicensis*	
Zone-tailed Hawk	*Buteo albontatus*	*
Swainson's Hawk	*Buteo swainsoni*	
Broad-winged Hawk	*Buteo platypterus*	
White-tailed Kite	*Elanus leucurus*	
Common Black-hawk	*Buteogallus anthracinus*	*
Northern Goshawk	*Accipiter gentilis*	
Cooper's Hawk	*Accipiter cooperii*	
Sharp-shinned Hawk	*Accipiter striatus*	
Northern Harrier	*Circus cyaneus*	
Bald Eagle	*Haliaeetus leucocephalus*	
Harris's Hawk	*Parabuteo unicinctus*	*
Mississippi Kite	*Ictinia mississippiensis*	*

FALCONIDAE *(Caracaras and Falcons)*

Prairie Falcon	*Falco mexicanus*	
Peregrine Falcon	*Falco peregrinus*	
Gyrfalcon	*Falco rusticolus*	*
Merlin	*Falco columbarius*	
Crested Caracara	*Caracara cheriway*	*
American Kestrel	*Falco sparverius*	

GALLIFORMES *(Magapodes, Curassows, Pheasants and Relatives)*

PHASIANIDAE *(Quails, Pheasants and Relatives)*

White-tailed Ptarmigan	*Lagopus leucura*	I, HA
Greater Sage-grouse	*Centrocercus urophasianus*	HA
Wild Turkey	*Meleagris gallopavo*	I,HA
Sharp-tailed Grouse	*Tympanuchus phasianellus*	E

Ruffed Grouse	*Bonasa umbellus*	HA
Chukar	*Alectoris chukar*	I
Common Peafowl	*Pavo cristatus*	I
Ring-necked Pheasant	*Phasianus colchicus*	I,HA
Sooty Grouse	*Dendragapus fuliginosus*	HA

ODONTOPHORIDAE *(New World Quail)*

Mountain Quail	*Oreortyx pictus*	HA
California Quail	*Callipepla californica*	HA
Gambel's Quail	*Callipepla gambelii*	HA

GRUIFORMES *(Cranes, Rails and Relatives)*

RALLIDAE *(Rails, Gallinules and Coots)*

Clapper Rail	*Rallus longirostris*	
American Coot	*Fulica americana*	HA
Common Moorhen	*Gallinula chloropus*	HA
Purple Gallinule	*Porphyrio martinica*	*
Virginia Rail	*Rallus limicola*	
Black Rail	*Laterallus jamaicensis*	
Yellow Rail	*Coturnicops noveboracensis*	*
Sora	*Porzana carolina*	

GRUIDAE *(Cranes)*

Sandhill Crane	*Grus canadensis*	

CHARADRIIFORMES *(Shorebirds, Gulls and Relatives)*

CHARADRIIDAE *(Plovers and Relatives)*

Wilson's Plover	*Charadrius wilsonia*	*
Mountain Plover	*Charadrius montanus*	
Eurasian Dotterel	*Charadrius morinellus*	*
Killdeer	*Charadrius vociferus*	
Piping Plover	*Charadrius melodus*	*
Semipalmated Plover	*Charadrius semipalmatus*	
Greater Sand-Plover	*Charadrius leschenaultii*	*
Lesser Sand-Plover	*Charadrius mongolus*	*
Pacific Golden-Plover	*Pluvialis fulva*	
American Golden-Plover	*Pluvialis dominica*	
Black-bellied Plover	*Pluvialis squatarola*	
Snowy Plover	*Charadrius alexandrinus*	

HAEMATOPODIDAE *(Oystercatchers)*

Black Oystercatcher	*Haematopus bachmani*	
American Oystercatcher	*Haematopus palliatus*	*

RECURVIROSTRIDAE *(Avocets and Stilts)*

American Avocet	*Recurvirostra americana*	
Black-necked Stilt	*Himantopus mexicanus*	

SCOLOPACIDAE *(Sandpipers and Relatives)*

Sharp-tailed Sandpiper	*Calidris acuminata*	
Pectoral Sandpiper	*Calidris melanotos*	
Baird's Sandpiper	*Calidris bairdii*	
White-rumped Sandpiper	*Calidris fuscicollis*	*
Least Sandpiper	*Calidris minutilla*	
Long-toed Stint	*Calidris subminuta*	*
Rock Sandpiper	*Calidris ptilocnemis*	
Red-necked Stint	*Calidris ruficollis*	*
Red Phalarope	*Phalaropus fulicarius*	
Western Sandpiper	*Calidris mauri*	
Little Stint	*Calidris minuta*	*
Dunlin	*Calidris alpina*	
Curlew Sandpiper	*Calidris ferruginea*	*
Stilt Sandpiper	*Calidris himantopus*	
Buff-breasted Sandpiper	*Tryngites subruficollis*	*
Short-billed Dowitcher	*Limnodromus griseus*	
Jack Snipe	*Lymnocryptes minimus*	*
Semipalmated Sandpiper	*Calidris pusilla*	

American Woodcock	*Scolopax minor*	*
Wilson's Phalarope	*Phalaropus tricolor*	
Red-necked Phalarope	*Phalaropus lobatus*	
Long-billed Dowitcher	*Limnodromus scolopaceus*	
Ruff	*Philomachus pugnax*	
Greater Yellowlegs	*Tringa melanoleuca*	
Wilson's Snipe	*Gallinago delicata*	HA (1)
Common Greenshank	*Tringa nebularia*	*
Lesser Yellowlegs	*Tringa flavipes*	
Spotted Redshank	*Tringa erythropus*	*
Solitary Sandpiper	*Tringa solitaria*	
Willet	*Catoptrophorus semipalmatus*	
Wandering Tattler	*Heteroscelus incanus*	
Gray-tailed Tattler	*Heteroscelus brevipes*	*
Spotted Sandpiper	*Actitis macularia*	
Terek Sandpiper	*Xenus cinereus*	*
Upland Sandpiper	*Bartramia longicauda*	*
Surfbird	*Aphriza virgata*	
Whimbrel	*Numenius phaeopus*	
Bristle-thighed Curlew	*Numenius tahitiensis*	*
Long-billed Curlew	*Numenius americanus*	
Hudsonian Godwit	*Limosa haemastica*	*
Bar-tailed Godwit	*Limosa lapponica*	*
Marbled Godwit	*Limosa fedoa*	
Ruddy Turnstone	*Arenaria interpres*	
Black Turnstone	*Arenaria melanocephala*	
Sanderling	*Calidris alba*	
Red Knot	*Calidris canutus*	
Little Curlew	*Numenius minutus*	*
LARIDAE	***(Skuas, Gulls, Terns and Skimmers)***	
Royal Tern	*Sterna maxima*	
Caspian Tern	*Sterna caspia*	
Gull-billed Tern	*Sterna nilotica*	
Ivory Gull	*Pagophila eburnea*	*
Red-legged Kittiwake	*Rissa brevirostris*	*
Elegant Tern	*Sterna elegans*	
Swallow-tailed Gull	*Creagrus furcatus*	*
Sooty Tern	*Sterna fuscata*	*
Sabine's Gull	*Xema sabini*	
Black-legged Kittiwake	*Rissa tridactyla*	
Sandwich Tern	*Sterna sandvicensis*	*
Common Tern	*Sterna hirundo*	
Arctic Tern	*Sterna paradisaea*	
Forster's Tern	*Sterna forsteri*	
Bridled Tern	*Onychoprion anaethetus*	*
White-winged Tern	*Chlidonias leucopterus*	*
Black Tern	*Chlidonias niger*	
Black Skimmer	*Rynchops niger*	
Glaucous Gull	*Larus hyperboreus*	
Mew Gull	*Larus canus*	
Least Tern	*Sternula antillarum*	
Black-headed Gull	*Larus ridibundus*	*
South Polar Skua	*Stercorarius maccormicki*	
Pomarine Jaeger	*Stercorarius pomarinus*	
Parasitic Jaeger	*Stercorarius parasiticus*	
Long-tailed Jaeger	*Stercorarius longicaudus*	
Laughing Gull	*Larus atricilla*	
California Gull	*Larus californicus*	
Little Gull	*Larus minutus*	*
Glaucous-winged Gull	*Larus glaucescens*	
Bonaparte's Gull	*Larus philadelphia*	
Heermann's Gull	*Larus heermanni*	
Yellow-footed Gull	*Larus livens*	
Franklin's Gull	*Larus pipixcan*	
Western Gull	*Larus occidentalis*	
Belcher's Gull	*Larus belcheri*	*
Lesser Black-backed Gull	*Larus fuscus*	*
Iceland Gull	*Larus glaucoides*	*

Thayer's Gull	*Larus thayeri*	
Herring Gull	*Larus argentatus*	
Ring-billed Gull	*Larus delawarensis*	
Black-tailed Gull	*Larus crassirostris*	*
Slaty-backed Gull	*Larus schistisagus*	*
Ross's Gull	*Rhodostethia rosea*	*

ALCIDAE *(Auks, Murres and Puffins)*

Kittlitz's Murrelet	*Brachyramphus brevirostris*	*
Rhinoceros Auklet	*Cerorhinca monocerata*	
Crested Auklet	*Aethia cristatella*	*
Least Auklet	*Aethia pusilla*	*
Parakeet Auklet	*Aethia psittacula*	*
Tufted Puffin	*Fratercula cirrhata*	
Cassin's Auklet	*Ptychoramphus aleuticus*	
Horned Puffin	*Fratercula corniculata*	
Xantus's Murrelet	*Synthliboramphus hypoleucus*	
Marbled Murrelet	*Brachyramphus marmoratus*	
Long-billed Murrelet	*Brachyramphus perdix*	*
Pigeon Guillemot	*Cepphus columba*	
Thick-billed Murre	*Uria lomvia*	*
Common Murre	*Uria aalge*	
Ancient Murrelet	*Synthliboramphus antiquus*	
Craveri's Murrelet	*Synthliboramphus craveri*	

COLUMBIFORMES *(Pigeons and Doves)*

COLUMBIDAE *(Pigeons and Doves)*

Ringed Turtle-Dove	*Streptopelia risoria*	I
Oriental Turtle-Dove	*Streptopelia orientalis*	*
Ruddy Ground-Dove	*Columbina talpacoti*	*
Common Ground-Dove	*Columbina passerina*	
Inca Dove	*Columbina inca*	
Mourning Dove	*Zenaida macroura*	HA
Spotted Dove	*Streptopelia chinensis*	I,HA
Band-tailed Pigeon	*Patagioenas fasciata*	HA
Rock Pigeon	*Columba livia*	I
Eurasian Collared-Dove	*Streptopelia decaocto*	I
White-winged Dove	*Zenaida asiatica*	HA

PSITTACIFORMES *(Parrots and Relatives)*

PSITTACIDAE *(Lories, Parakeets, Macaws and Parrots)*

Yellow-chevroned Parakeet	*Brotogeris chiriri*	I
Black-hooded Parakeet	*Nandayus nenday*	I
Yellow-headed Parrot	*Amazona oratrix*	I
Lilac-crowned Parrot	*Amazona finschi*	I
Red-crowned Parrot	*Amazona viridigenalis*	I
Blue-crowned Parakeet	*Artinga acuticaudata*	I
Rose-ringed Parakeet	*Psittacula krameri*	I
Red-masked Parakeet	*Artinga erythrogenys*	I
White-winged Parakeet	*Brotogeris versicolurus*	I
Mitred Parakeet	*Aratinga mitrata*	I

CUCULIFORMES *(Cuckoos and Relatives)*

CUCULIDAE *(Typical Cuckoos)*

Groove-billed Ani	*Crotophaga sulcirostris*	*
Black-billed Cuckoo	*Coccyzus erythropthalmus*	*
Yellow-billed Cuckoo	*Coccyzus americanus*	
Greater Roadrunner	*Geococcyx californianus*	

STRIGIFORMES *(Owls)*

TYTONIDAE *(Barn Owls)*

Barn Owl	*Tyto alba*

STRIGIDAE *(Typical Owls)*

Short-eared Owl	*Asio flammeus*	
Great Horned Owl	*Bubo virginianus*	
Long-eared Owl	*Asio otus*	
Barred Owl	*Strix varia*	*
Great Gray Owl	*Strix nebulosa*	
Northern Saw-whet Owl	*Aegolius acadicus*	
Burrowing Owl	*Athene cunicularia*	
Elf Owl	*Micrathene whitneyi*	
Snowy Owl	*Bubo scandiacus*	*
Western Screech Owl	*Megascops kennicottii*	
Flammulated Owl	*Otus flammeolus*	
Northern Pygmy Owl	*Glaucidium gnoma*	
Spotted Owl	*Strix occidentalis*	

CAPRIMULGIFORMES *(Goatsuckers and Relatives)*

CAPRIMULGIDAE *(Goatsuckers)*

Lesser Nighthawk	*Chordeiles acutipennis*	
Common Nighthawk	*Chordeiles minor*	
Common Poorwill	*Phalaenoptilus nuttallii*	
Chuck-will's-widow	*Caprimulgus carolinensis*	*
Buff-collared Nightjar	*Caprimulgus ridgwayi*	*
Whip-poor-will	*Caprimulgus vociferus*	

APODIFORMES *(Swifts and Hummingbirds)*

APODIDAE *(Swifts)*

Vaux's Swift	*Chaetura vauxi*	
White-throated Swift	*Aeronautes saxatalis*	
White-collared Swift	*Streptoprocne zonaris*	*
Black Swift	*Cypseloides niger*	
Chimney Swift	*Chaetura pelagica*	

TROCHILIDAE *(Hummingbirds)*

Black-chinned Hummingbird	*Archilochus alexandri*	
Allen's Hummingbird	*Selasphorus sasin*	
Broad-tailed Hummingbird	*Selasphorus platycercus*	
Calliope Hummingbird	*Stellula calliope*	
Rufous Hummingbird	*Selasphorus rufus*	
Costa's Hummingbird	*Calypte costae*	
Broad-billed Hummingbird	*Cynanthus latirostris*	*
Anna's Hummingbird	*Calypte anna*	
Ruby-throated Hummingbird	*Archilochus colubris*	*
Blue-throated Hummingbird	*Lampornis clemenciae*	*
Violet-crowned Hummingbird	*Amazilia violiceps*	*
Xantus's Hummingbird	*Hylocharis xantusii*	*
Magnificent Hummingbird	*Eugenes fulgens*	*
Green Violet-ear	*Colibri thalassinus*	*

CORACIIFORMES *(Kingfishers and Relatives)*

ALCEDINIDAE *(Kingfishers)*

Belted Kingfisher	*Ceryle alcyon*	

PICIFORMES *(Woodpeckers and Relatives)*

PICIDAE *(Woodpeckers and Wrynecks)*

Williamson's Sapsucker	*Sphyrapicus thyroideus*	
Pileated Woodpecker	*Dryocopus pileatus*	
Lewis's Woodpecker	*Melanerpes lewis*	
Gilded Flicker	*Colaptes chrysoides*	(2)
Northern Flicker	*Colaptes auratus*	
Black-backed Woodpecker	*Picoides arcticus*	
White-headed Woodpecker	*Picoides albolarvatus*	
Hairy Woodpecker	*Picoides villosus*	
Downy Woodpecker	*Picoides pubescens*	
Ladder-backed Woodpecker	*Picoides scalaris*	
Red-breasted Sapsucker	*Sphyrapicus ruber*	

Red-naped Sapsucker	*Sphyrapicus nuchalis*	
Yellow-bellied Sapsucker	*Sphyrapicus varius*	
Gila Woodpecker	*Melanerpes uropygialis*	
Red-headed Woodpecker	*Melanerpes erythrocephalus*	*
Nuttall's Woodpecker	*Picoides nuttallii*	
Acorn Woodpecker	*Melanerpes formicivorus*	

PASSERIFORMES *(Perching Birds)*

TYRANNIDAE *(Tyrant Flycatchers)*

Scissor-tailed Flycatcher	*Tyrannus forficatus*	
Ash-throated Flycatcher	*Myiarchus cinerascens*	
Great Crested Flycatcher	*Myiarchus crinitus*	*
Brown-crested Flycatcher	*Myiarchus tyrannulus*	
Sulphur-bellied Flycatcher	*Myiodynastes luteiventris*	*
Tropical Kingbird	*Tyrannus melancholicus*	
Couch's Kingbird	*Tyrannus couchii*	*
Cassin's Kingbird	*Tyrannus vociferans*	
Thick-billed Kingbird	*Tyrannus crassirostris*	*
Eastern Kingbird	*Tyrannus tyrannus*	
Fork-tailed Flycatcher	*Tyrannus savana*	*
Vermilion Flycatcher	*Pyrocephalus rubinus*	
Dusky-capped Flycatcher	*Myiarchus tuberculifer*	*
Western Kingbird	*Tyrannus verticalis*	
Gray Flycatcher	*Empidonax wrightii*	
Nutting's Flycatcher	*Myiarchus nuttingi*	*
Western Wood-pewee	*Contopus sordidulus*	
Eastern Wood-pewee	*Contopus virens*	*
Yellow-bellied Flycatcher	*Empidonax flaviventris*	*
Alder Flycatcher	*Empidonax alnorum*	*
Willow Flycatcher	*Empidonax traillii*	
Say's Phoebe	*Sayornis saya*	
Hammond's Flycatcher	*Empidonax hammondii*	
Dusky Flycatcher	*Empidonax oberholseri*	
Pacific-slope Flycatcher	*Empidonax difficilis*	
Cordilleran Flycatcher	*Empidonax occidentalis*	
Greater Pewee	*Contopus pertinax*	*
Black Phoebe	*Sayornis nigricans*	
Olive-sided Flycatcher	*Contopus cooperi*	
Eastern Phoebe	*Sayornis phoebe*	
Least Flycatcher	*Empidonax minimus*	

LANIIDAE *(Shrikes)*

Loggerhead Shrike	*Lanius ludovicianus*	
Brown Shrike	*Lanius cristatus*	*
Northern Shrike	*Lanius excubitor*	

VIREONIDAE *(Typical Vireos)*

Hutton's Vireo	*Vireo huttoni*	
Yellow-green Vireo	*Vireo flavoviridis*	*
Red-eyed Vireo	*Vireo olivaceus*	
White-eyed Vireo	*Vireo griseus*	*
Warbling Vireo	*Vireo gilvus*	
Blue-headed Vireo	*Vireo solitarius*	
Cassin's Vireo	*Vireo cassinii*	
Plumbeous Vireo	*Vireo plumbeus*	
Yellow-throated Vireo	*Vireo flavifrons*	*
Gray Vireo	*Vireo vicinior*	
Bell's Vireo	*Vireo bellii*	
Philadelphia Vireo	*Vireo philadelphicus*	*

CORVIDAE *(Jays, Magpies and Crows)*

Black-billed Magpie	*Pica hudsonia*	
Western Scrub-Jay	*Aphelocoma californica*	
Common Raven	*Corvus corax*	
American Crow	*Corvus brachyrhynchos*	HA
Yellow-billed Magpie	*Pica nuttalli*	
Pinyon Jay	*Gymnorhinus cyanocephalus*	

Gray Jay	*Perisoreus canadensis*	
Island Scrub-Jay	*Aphelocoma insularis*	
Blue Jay	*Cyanocitta cristata*	*
Steller's Jay	*Cyanocitta stelleri*	
Clark's Nutcracker	*Nucifraga columbiana*	
ALAUDIDAE	***(Larks)***	
Sky Lark	*Alauda arvensis*	*
Horned Lark	*Eremophila alpestris*	
HIRUNDINIDAE	***(Swallows)***	
Tree Swallow	*Tachycineta bicolor*	
Cave Swallow	*Petrochelidon fulva*	*
Cliff Swallow	*Petrochelidon pyrrhonota*	
Bank Swallow	*Riparia riparia*	
Violet-green Swallow	*Tachycineta thalassina*	
Barn Swallow	*Hirundo rustica*	
Purple Martin	*Progne subis*	
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	
PARIDAE	***(Titmice and Relatives)***	
Oak Titmouse	*Baeolophus inornatus*	
Juniper Titmouse	*Baeolophus ridgewayi*	
Chestnut-backed Chickadee	*Poecile rufescens*	
Black-capped Chickadee	*Poecile atricapillus*	
Mountain Chickadee	*Poecile gambeli*	
REMIZIDAE	***(Verdin)***	
Verdin	*Auriparus flaviceps*	
AEGITHALIDAE	***(Bushtit)***	
Bushtit	*Psaltriparus minimus*	
SITTIDAE	***(Nuthatches)***	
Red-breasted Nuthatch	*Sitta canadensis*	
White-breasted Nuthatch	*Sitta carolinensis*	
Pygmy Nuthatch	*Sitta pygmaea*	
CERTHIIDAE	***(Creepers)***	
Brown Creeper	*Certhia americana*	
TROGLODYTIDAE	***(Wrens)***	
House Wren	*Troglodytes aedon*	
Winter Wren	*Troglodytes troglodytes*	
Sedge Wren	*Cistothorus platensis*	*
Cactus Wren	*Campylorhynchus brunneicapillus*	
Canyon Wren	*Catherpes mexicanus*	
Rock Wren	*Salpinctes obsoletus*	
Marsh Wren	*Cistothorus palustris*	
Bewick's Wren	*Thryomanes bewickii*	
CINCLIDAE	***(Dippers)***	
American Dipper	*Cinclus mexicanus*	
PYCNONOTIDAE	***(Bulbuls)***	
Red-whiskered Bulbul	*Pycnonotus jocosus*	I,*
REGULIDAE	***(Kinglets)***	
Golden-crowned Kinglet	*Regulus satrapa*	
Ruby-crowned Kinglet	*Regulus calendula*	
SYLVIIDAE	***(Old World Warblers and Gnatcatchers)***	
Arctic Warbler	*Phylloscopus borealis*	*
Black-tailed Gnatcatcher	*Polioptila melanura*	
Blue-gray Gnatcatcher	*Polioptila caerulea*	
Dusky Warbler	*Phylloscopus fuscatus*	*
Lanceolated Warbler	*Locustella lanceolata*	*
California Gnatcatcher	*Polioptila californica*	

MUSCICAPIDAE	***(Old World Flycatchers)***	
Taiga Flycatcher	*Ficedula albicilla*	*
TURDIDAE	***(Thrushes)***	
Hermit Thrush	*Catharus guttatus*	
Western Bluebird	*Sialia mexicana*	
Varied Thrush	*Ixoreus naevius*	
American Robin	*Turdus migratorius*	
Rufous-backed Robin	*Turdus rufopalliatus*	*
Eyebrowed Thrush	*Turdus obscurus*	*
Wood Thrush	*Hylocichla mustelina*	*
Swainson's Thrush	*Catharus ustulatus*	
Gray-cheeked Thrush	*Catharus minimus*	*
Veery	*Catharus fuscescens*	*
Mountain Bluebird	*Sialia currucoides*	
Northern Wheatear	*Oenanthe oenanthe*	*
Red-flanked Bluetail	*Tarsiger cyanurus*	*
Townsend's Solitaire	*Myadestes townsendi*	
Stonechat	*Saxicola torquatus*	*
TIMALIIDAE	***(Babblers)***	
Wrentit	*Chamaea fasciata*	
MIMIDAE	***(Mockingbirds and Thrashers)***	
California Thrasher	*Toxostoma redivivum*	
Blue Mockingbird	*Melanotis caerulescens*	*
Gray Catbird	*Dumetella carolinensis*	*
Le Conte's Thrasher	*Toxostoma lecontei*	
Crissal Thrasher	*Toxostoma crissale*	
Bendire's Thrasher	*Toxostoma bendirei*	
Brown Thrasher	*Toxostoma rufum*	
Northern Mockingbird	*Mimus polyglottos*	
Curve-billed Thrasher	*Toxostoma curvirostre*	*
Sage Thrasher	*Oreoscoptes montanus*	
STURNIDAE	***(Starlings and Allies)***	
European Starling	*Sturnus vulgaris*	I
MOTACILLIDAE	***(Wagtails and Pipits)***	
Eastern Yellow Wagtail	*Motacilla tschutschensis*	*
Gray Wagtail	*Motacilla cinerea*	*
White Wagtail	*Motacilla alba*	*
Olive-backed Pipit	*Anthus hodgsoni*	*
Red-throated Pipit	*Anthus cervinus*	*
American Pipit	*Anthus rubrescens*	
Sprague's Pipit	*Anthus spragueii*	*
BOMBYCILLIDAE	***(Waxwings)***	
Bohemian Waxwing	*Bombycilla garrulus*	
Cedar Waxwing	*Bombycilla cedrorum*	
PTILOGONATIDAE	***(Silky Flycatchers)***	
Phainopepla	*Phainopepla nitens*	
Gray Silky-flycatcher	*Ptilogonys cinereus*	*
PARULIDAE	***(Wood Warblers and Relatives)***	
Louisiana Waterthrush	*Seiurus motacilla*	*
Bay-breasted Warbler	*Dendroica castanea*	
Blackpoll Warbler	*Dendroica striata*	
Cerulean Warbler	*Dendroica cerulea*	*
Black-and-white Warbler	*Mniotilta varia*	
American Redstart	*Setophaga ruticilla*	*
Prothonotary Warbler	*Protonotaria citrea*	*
Worm-eating Warbler	*Helmitheros vermivorum*	*
Ovenbird	*Seiurus aurocapilla*	
Northern Waterthrush	*Seiurus noveboracensis*	
Kentucky Warbler	*Oporornis formosus*	
Connecticut Warbler	*Oporornis agilis*	*
Mourning Warbler	*Oporornis philadelphia*	*

Macgillivray's Warbler	*Oporornis tolmiei*	
Common Yellowthroat	*Geothlypis trichas*	
Hooded Warbler	*Wilsonia citrina*	
Wilson's Warbler	*Wilsonia pusilla*	
Palm Warbler	*Dendroica palmarum*	
Red-faced Warbler	*Cardellina rubrifrons*	*
Painted Redstart	*Myioborus pictus*	
Yellow-breasted Chat	*Icteria virens*	
Canada Warbler	*Wilsonia canadensis*	
Golden-winged Warbler	*Vermivora chrysoptera*	*
Prairie Warbler	*Dendroica discolor*	
Blue-winged Warbler	*Vermivora pinus*	*
Tennessee Warbler	*Vermivora peregrina*	
Orange-crowned Warbler	*Vermivora celata*	
Nashville Warbler	*Vermivora ruficapilla*	
Virginia's Warbler	*Vermivora virginiae*	
Lucy's Warbler	*Vermivora luciae*	
Northern Parula	*Parula americana*	
Yellow Warbler	*Dendroica petechia*	
Chestnut-sided Warbler	*Dendroica pensylvanica*	
Magnolia Warbler	*Dendroica magnolia*	
Grace's Warbler	*Dendroica graciae*	*
Black-throated Blue Warbler	*Dendroica caerulescens*	
Yellow-rumped Warbler	*Dendroica coronata*	
Black-throated Gray Warbler	*Dendroica nigrescens*	
Golden-cheeked Warbler	*Dendroica chrysoparia*	*
Black-throated Green Warbler	*Dendroica virens*	
Townsend's Warbler	*Dendroica townsendi*	
Hermit Warbler	*Dendroica occidentalis*	
Blackburnian Warbler	*Dendroica fusca*	
Yellow-throated Warbler	*Dendroica dominica*	*
Pine Warbler	*Dendroica pinus*	*
Cape May Warbler	*Dendroica tigrina*	
THRAUPIDAE	***(Tanagers)***	
Summer Tanager	*Piranga rubra*	
Hepatic Tanager	*Piranga flava*	
Western Tanager	*Piranga ludoviciana*	
Scarlet Tanager	*Piranga olivacea*	*
EMBERIZIDAE	***(Emberizines)***	
Harris's Sparrow	*Zonotrichia querula*	
Song Sparrow	*Melospiza melodia*	
Rustic Bunting	*Emberiza rustica*	*
Nelson's Sharp-tailed Sparrow	*Ammodramus nelsoni*	
Lincoln's Sparrow	*Melospiza lincolnii*	
Swamp Sparrow	*Melospiza georgiana*	
White-throated Sparrow	*Zonotrichia albicollis*	
Fox Sparrow	*Passerella iliaca*	
White-crowned Sparrow	*Zonotrichia leucophrys*	
Golden-crowned Sparrow	*Zonotrichia atricapilla*	
Dark-eyed Junco	*Junco hyemalis*	
Mccown's Longspur	*Calcarius mccownii*	
Lapland Longspur	*Calcarius lapponicus*	
Smith's Longspur	*Calcarius pictus*	*
Little Bunting	*Emberiza pusilla*	*
Snow Bunting	*Plectrophenax nivalis*	*
Le Conte's Sparrow	*Ammodramus leconteii*	*
Black-throated Sparrow	*Amphispiza bilineata*	
Chestnut-collared Longspur	*Calcarius ornatus*	
Chipping Sparrow	*Spizella passerina*	
Lark Bunting	*Calamospiza melanocorys*	
Baird's Sparrow	*Ammodramus bairdii*	*
Spotted Towhee	*Pipilo maculatus*	
California Towhee	*Pipilo crissalis*	
Abert's Towhee	*Pipilo aberti*	
Cassin's Sparrow	*Aimophila cassinii*	*
American Tree Sparrow	*Spizella arborea*	
Green-tailed Towhee	*Pipilo chlorurus*	

Clay-colored Sparrow	*Spizella pallida*	
Brewer's Sparrow	*Spizella breweri*	
Field Sparrow	*Spizella pusilla*	*
Black-chinned Sparrow	*Spizella atrogularis*	
Vesper Sparrow	*Pooecetes gramineus*	
Lark Sparrow	*Chondestes grammacus*	
Sage Sparrow	*Amphispiza belli*	
Savannah Sparrow	*Passerculus sandwichensis*	
Grasshopper Sparrow	*Ammodramus savannarum*	
Rufous-crowned Sparrow	*Aimophila ruficeps*	
CARDINALIDAE	***(Cardinals, Grosbeaks and Allies)***	
Indigo Bunting	*Passerina cyanea*	
Dickcissel	*Spiza americana*	
Painted Bunting	*Passerina ciris*	*
Varied Bunting	*Passerina versicolor*	*
Lazuli Bunting	*Passerina amoena*	
Blue Grosbeak	*Passerina caerulea*	
Black-headed Grosbeak	*Pheucticus melanocephalus*	
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	
Northern Cardinal	*Cardinalis cardinalis*	I (3)
Pyrrhuloxia	*Cardinalis sinuatus*	*
ICTERIDAE	***(Blackbirds, Orioles and Allies)***	
Scott's Oriole	*Icterus parisorum*	
Baltimore Oriole	*Icterus glabula*	
Bullock's Oriole	*Icterus bullockii*	
Streak-backed Oriole	*Icterus pustulatus*	*
Hooded Oriole	*Icterus cucullatus*	
Orchard Oriole	*Icterus spurius*	
Brown-headed Cowbird	*Molothrus ater*	
Common Grackle	*Quiscalus quiscula*	*
Bobolink	*Dolichonyx oryzivorus*	
Great-tailed Grackle	*Quiscalus mexicanus*	
Red-winged Blackbird	*Agelaius phoeniceus*	
Tricolored Blackbird	*Agelaius tricolor*	
Western Meadowlark	*Sturnella neglecta*	
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	
Rusty Blackbird	*Euphagus carolinus*	
Brewer's Blackbird	*Euphagus cyanocephalus*	
Bronzed Cowbird	*Molothrus aeneus*	
FRINGILLIDAE	***(Finches)***	
Red Crossbill	*Loxia curvirostra*	
Pine Siskin	*Carduelis pinus*	
Evening Grosbeak	*Coccothraustes vespertinus*	
Oriental Greenfinch	*Carduelis sinica*	I
American Goldfinch	*Carduelis tristis*	
Lawrence's Goldfinch	*Carduelis lawrencei*	
Lesser Goldfinch	*Carduelis psaltria*	
Black Rosy-finch	*Leucosticte atrata*	*
Brambling	*Fringilla montifringilla*	*
Gray-crowned Rosy-finch	*Leucosticte tephrocotis*	
House Finch	*Carpodacus mexicanus*	
Cassin's Finch	*Carpodacus cassinii*	
Purple Finch	*Carpodacus purpureus*	
Pine Grosbeak	*Pinicola enucleator*	
White-winged Crossbill	*Loxia leucoptera*	*
Common Redpoll	*Carduelis flammea*	*
PASSERIDAE	***(Old World Sparrows)***	
House Sparrow	*Passer domesticus*	I
ESTRILDIDAE	***(Waxbills and Allies)***	
Nutmeg Mannikin	*Lonchura punctulata*	I,*

MAMMALIA (Mammals)

DIDELPHIMORPHI *(Marsupials)*

DIDELPHIDAE *(Opossums)*

Virginia Opossum	*Didelphis virginiana*	I,HA

INSECTIVORA *(Insectivores)*

SORICIDAE *(Shrews)*

Preble's Shrew	*Sorex preblei*
Desert Shrew	*Notiosorex crawfordi*
Merriam's Shrew	*Sorex merriami*
Trowbridge's Shrew	*Sorex trowbridgii*
Marsh Shrew	*Sorex bendirii*
Inyo Shrew	*Sorex tenellus*
Ornate Shrew	*Sorex ornatus*
Fog Shrew	*Sorex sonomae*
Dusky Shrew	*Sorex monticolus*
Mt. Lyell Shrew	*Sorex lyelli*
Water Shrew	*Sorex palustris*
Vagrant Shrew	*Sorex vagrans*

TALPIDAE *(Moles)*

Shrew-mole	*Neurotrichus gibbsii*
Townsend's Mole	*Scapanus townsendii*
Coast Mole	*Scapanus orarius*
Broad-footed Mole	*Scapanus latimanus*

CHIROPTERA *(Bats)*

PHYLLOSTOMIDAE *(Leaf-nosed Bats)*

Mexican Long-tongued Bat	*Choeronycteris mexicana*
Southern Long-nosed Bat	*Leptonycteris curasoae*
Lesser Long-nosed Bat	*Leptonycteris yerbabuenae*
California Leaf-nosed Bat	*Macrotus californicus*

VESPERTILIONIDAE *(Evening Bats)*

Big Brown Bat	*Eptesicus fuscus*
Spotted Bat	*Euderma maculatum*
Occult Little Brown Bat	*Myotis occultus*
Allen's Big-eared Bat	*Idionyctoeris phyllotis*
Townsend's Big-eared Bat	*Corynorhinus townsendii*
Western Yellow Bat	*Lasiurus xanthinus*
Hoary Bat	*Lasiurus cinereus*
Western Red Bat	*Lasiurus blossevillii*
Silver-haired Bat	*Lasionycteris noctivagans*
Western Small-footed Myotis	*Myotis ciliolabrum*
California Myotis	*Myotis californicus*
Long-legged Myotis	*Myotis volans*
Little Brown Myotis	*Myotis lucifugus*
Fringed Myotis	*Myotis thysanodes*
Yuma Myotis	*Myotis yumanensis*
Cave Myotis	*Myotis velifer*
Long-eared Myotis	*Myotis evotis*
Western Pipistrelle	*Pipistrellus hesperus*
Pallid Bat	*Antrozous pallidus*

MOLOSSIDAE *(Free-tailed Bats)*

Brazilian Free-tailed Bat	*Tadarida brasiliensis*
Western Mastiff Bat	*Eumops perotis*
Pocketed Free-tailed Bat	*Nyctinomops femorosaccus*
Big Free-tailed Bat	*Nyctinomops macrotis*

LAGOMORPHA *(Rabbits, Hares and Pika)*

OCHOTONIDAE *(Pikas)*

American Pika	*Ochotona princeps*	

LEPORIDAE *(Rabbits and Hares)*

White-tailed Jackrabbit	*Lepus townsendii*	HA
Snowshoe Hare	*Lepus americanus*	HA
European Rabbit	*Oryctolagus cuniculus*	I
Desert Cottontail	*Sylvilagus audubonii*	HA
Mountain Cottontail	*Sylvilagus nuttallii*	HA
Pygmy Rabbit	*Brachylagus idahoensis*	HA
Brush Rabbit	*Sylvilagus bachmani*	HA (4)
Black-tailed Jackrabbit	*Lepus californicus*	HA

RODENTIA *(Rodents)*

APLODONTIIDAE *(Mountain Beaver)*

Mountain Beaver	*Aplodontia rufa*	

SCIURIDAE *(Squirrels, Chipmunks and Marmots)*

Western Gray Squirrel	*Sciurus griseus*	HA
Belding's Ground Squirrel	*Spermophilus beldingi*	
Rock Squirrel	*Spermophilus variegatus*	
California Ground Squirrel	*Spermophilus beecheyi*	
Mohave Ground Squirrel	*Spermophilus mohavensis*	
Round-tailed Ground Squirrel	*Spermophilus tereticaudus*	
Eastern Gray Squirrel	*Sciurus carolinensis*	I,HA
Panamint Chipmunk	*Neotamias panamintinus*	
Eastern Fox Squirrel	*Sciurus niger*	I,HA (5)
Douglas' Squirrel	*Tamiasciurus douglasii*	HA
Northern Flying Squirrel	*Glaucomys sabrinus*	
Townsend's Ground Squirrel	*Spermophilus townsendii*	
Golden-mantled Ground Squirrel	*Spermophilus lateralis*	
Yellow-cheeked Chipmunk	*Neotamias ochrogenys*	
Nelson's Antelope Squirrel	*Ammospermophilus nelsoni*	
Least Chipmunk	*Neotamias minimus*	
Alpine Chipmunk	*Neotamias alpinus*	
Yellow-pine Chipmunk	*Neotamias amoenus*	
Sonoma Chipmunk	*Neotamias sonomae*	
Yellow-bellied Marmot	*Marmota flaviventris*	
California Chipmunk	*Neotamias obscurus*	
Long-eared Chipmunk	*Neotamias quadrimaculatus*	
Allen's Chipmunk	*Neotamias senex*	
Siskiyou Chipmunk	*Neotamias siskiyou*	
Lodgepole Chipmunk	*Neotamias speciosus*	
Uinta Chipmunk	*Neotamias umbrinus*	
White-tailed Antelope Squirrel	*Ammospermophilus leucurus*	
Merriam's Chipmunk	*Neotamias merriami*	

GEOMYIDAE *(Pocket Gophers)*

Northern Pocket Gopher	*Thomomys talpoides*	
Western Pocket Gopher	*Thomomys mazama*	
Townsend's Pocket Gopher	*Thomomys townsendii*	
Botta's Pocket Gopher	*Thomomys bottae*	
Mountain Pocket Gopher	*Thomomys monticola*	

HETEROMYIDAE *(Pocket Mice and Kangaroo Rats)*

Fresno Kangaroo Rat	*Dipodomys nitratoides*	
Merriam's Kangaroo Rat	*Dipodomys merriami*	
Desert Kangaroo Rat	*Dipodomys deserti*	
Stephens' Kangaroo Rat	*Dipodomys stephensi*	
Panamint Kangaroo Rat	*Dipodomys panamintinus*	
Giant Kangaroo Rat	*Dipodomys ingens*	
California Kangaroo Rat	*Dipodomys californicus*	
Narrow-faced Kangaroo Rat	*Dipodomys venustus*	
San Diego Kangaroo Rat	*Dipodomys simulans*	
Pacific Kangaroo Rat	*Dipodomys agilis*	

Little Pocket Mouse	*Perognathus longimembris*	
Chisel-toothed Kangaroo Rat	*Dipodomys microps*	
Heermann's Kangaroo Rat	*Dipodomys heermanni*	
San Joaquin Pocket Mouse	*Perognathus inornatus*	
Great Basin Pocket Mouse	*Perognathus parvus*	
White-eared Pocket Mouse	*Perognathus alticolus*	
Long-tailed Pocket Mouse	*Chaetodipus formosus*	
Bailey's Pocket Mouse	*Chaetodipus baileyi*	
Ord's Kangaroo Rat	*Dipodomys ordii*	
San Diego Pocket Mouse	*Chaetodipus fallax*	
California Pocket Mouse	*Chaetodipus californicus*	
Spiny Pocket Mouse	*Chaetodipus spinatus*	
Dark Kangaroo Mouse	*Microdipodops megacephalus*	
Pale Kangaroo Mouse	*Microdipodops pallidus*	
Desert Pocket Mouse	*Chaetodipus penicillatus*	
CASTORIDAE	***(Beavers)***	
American Beaver	*Castor canadensis*	I (6),HA
MURIDAE	***(Mice, Rats and Voles)***	
House Mouse	*Mus musculus*	I
Western Red-backed Vole	*Clethrionomys californicus*	
Heather Vole	*Phenacomys intermedius*	
Sonoma Tree Vole	*Arborimus pomo*	
California Vole	*Microtus californicus*	
Townsend's Vole	*Microtus townsendii*	
Long-tailed Vole	*Microtus longicaudus*	
Creeping Vole	*Microtus oregoni*	
Large-eared Woodrat	*Neotoma macrotis*	
Common Muskrat	*Ondatra zibethicus*	I (7),HA
Baja Mouse	*Peromyscus fraterculus*	
Norway Rat	*Rattus norvegicus*	I
White-footed Vole	*Arborimus albipes*	
Sagebrush Vole	*Lemmiscus curtatus*	
Northern Grasshopper Mouse	*Onychomys leucogaster*	
Montane Vole	*Microtus montanus*	
Deer Mouse	*Peromyscus maniculatus*	
Black Rat	*Rattus rattus*	I
California Mouse	*Peromyscus californicus*	
Cactus Mouse	*Peromyscus eremicus*	
Canyon Mouse	*Peromyscus crinitus*	
Pinyon Mouse	*Peromyscus truei*	
Southern Grasshopper Mouse	*Onychomys torridus*	
Hispid Cotton Rat	*Sigmodon hispidus*	
Arizona Cotton Rat	*Sigmodon arizonae*	
Salt-marsh Harvest Mouse	*Reithrodontomys raviventris*	
White-throated Woodrat	*Neotoma albigula*	
Western Harvest Mouse	*Reithrodontomys megalotis*	
Desert Woodrat	*Neotoma lepida*	
Dusky-footed Woodrat	*Neotoma fuscipes*	
Bushy-tailed Woodrat	*Neotoma cinerea*	
Brush Mouse	*Peromyscus boylii*	
DIPODIDAE	***(Jumping Mice)***	
Western Jumping Mouse	*Zapus princeps*	
Pacific Jumping Mouse	*Zapus trinotatus*	
ERETHIZONTIDAE	***(New World Porcupines)***	
Common Porcupine	*Erethizon dorsatum*	
MYOCASTORIDAE	***(Myocastorids)***	
Nutria	*Myocastor copyus*	

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CARNIVORA *(Carnivores)*

CANIDAE	***(Foxes, Wolves and Relatives)***	
Red Fox	*Vulpes vulpes*	I,(8)
Feral Dog	*Canis familiaris*	I
Gray Fox	*Urocyon cinereoargenteus*	HA
Island Gray Fox	*Urocyon littoralis*	
Kit Fox	*Vulpes macrotis*	
Coyote	*Canis latrans*	
URSIDAE	***(Bears)***	
Black Bear	*Ursus americanus*	HA
OTARIIDAE	***(Eared Seals)***	
Northern Fur-seal	*Callorhinus ursinus*	
Guadalupe Fur-seal	*Arctocephalus townsendi*	
Northern (Steller) Sea-lion	*Eumetopias jubatus*	
California Sea-lion	*Zalophus californianus*	
PHOCIDAE	***(Hair Seals)***	
Northern Elephant Seal	*Mirounga angustirostris*	
Harbor Seal	*Phoca vitulina*	
Ribbon Seal	*Histriophoca fasciata*	
Ringed Seal	*Pusa hispida*	
PROCYONIDAE	***(Raccoons and Relatives)***	
Ringtail	*Bassariscus astutus*	
Raccoon	*Procyon lotor*	HA
MUSTELIDAE	***(Weasels and Relatives)***	
Sea Otter	*Enhydra lutris*	
American Marten	*Martes americana*	
American Badger	*Taxidea taxus*	HA
Fisher	*Martes pennanti*	
Northern River Otter	*Lontra canadensis*	
Wolverine	*Gulo gulo*	
Long-tailed Weasel	*Mustela frenata*	HA
Ermine	*Mustela erminea*	HA
American Mink	*Mustela vison*	HA
MEPHITIDAE	***(Skunks)***	
Western Spotted Skunk	*Spilogale gracilis*	HA
Striped Skunk	*Mephitis mephitis*	HA
FELIDAE	***(Cats)***	
Feral Cat	*Felis catus*	I
Mountain Lion	*Puma concolor*	
Bobcat	*Lynx rufus*	HA

CETACEA *(Whales)*

ESCHRICHTIIDAE	***(Gray Whale)***	
Gray Whale	*Eschrichtius robustus*	
BALAENOPTERIDAE	***(Rorquals)***	
Blue Whale	*Balaenoptera musculus*	*
Fin Whale	*Balaenoptera physalus*	*
Sei Whale	*Balaenoptera borealis*	*
Minke Whale	*Balaenoptera acutorostrata*	*
Humpback Whale	*Megaptera novaeangliae*	*
BALAENIDAE	***(Right Whales)***	
Black Right Whale	*Eubalaena glacialis*	*
DELPHINIDAE	***(Dolphins)***	
Killer Whale	*Orcinus orca*	
Bottle-nosed Dolphin	*Tursiops truncatus*	
Northern Right-whale Dolphin	*Lissodelphis borealis*	
Short-finned Pilot Whale	*Globicephala macrorhynchus*	

False Killer Whale	*Pseudorca crassidens*	
Grampus	*Grampus griseus*	
Pacific White-sided Dolphin	*Lagenorhynchus obliquidens*	
Common Dolphin	*Delphinus delphis*	
Pantropical Spotted Dolphin	*Stenella attenuata*	
Rough-toothed Dolphin	*Steno bredanensis*	
Striped Dolphin	*Stenella coeruleoalba*	
PHOCOENIDAE	***(Porpoises)***	
Harbor Porpoise	*Phocoena phocoena*	
Dall's Porpoise	*Phocoenoides dalli*	
ZIPHIIDAE	***(Beaked Whales)***	
Goose-beaked Whale	*Ziphius cavirostris*	
Perrin's Beaked Whale	*Mesoplodon perrini*	
North Pacific Beaked Whale	*Mesoplodon stejnegeri*	
Dense-beaked Whale	*Mesoplodon densirostris*	
Moore's Beaked Whale	*Mesoplodon carlhubbsi*	
Ginko-toothed Whale	*Mesoplodon ginkodens*	
North Pacific Bottle-nosed Whale	*Berardius bairdii*	
KOGIIDAE	***(Pygmy Sperm Whales)***	
Pygmy Sperm Whale	*Kogia breviceps*	
Dwarf Sperm Whale	*Kogia sima*	
PHYSETERIDAE	***(Sperm Whale)***	
Sperm Whale	*Physeter macrocephalus*	

PERISSODACTYLA *(Horses, Tapirs and Relatives)*

EQUIDAE	***(Horses)***	
Feral Horse	*Equus caballus*	I
Feral Ass	*Equus asinus*	I
Burchell's Zebra	*Equus burchelli*	I

ARTIODACTYLA *(Even-toed Ungulates)*

SUIDAE	***(Pigs)***	
Wild Pig	*Sus scrofa*	I,HA
CERVIDAE	***(Deer, Elk and Relatives)***	
Elk	*Cervus elaphus*	I,HA (9)
Axis Deer	*Axis axis*	I,HA
Fallow Deer	*Dama dama*	I,HA
Mule Deer	*Odocoileus hemionus*	HA
Sambar Deer	*Cervus unicolor*	I,HA
ANTILOCAPRIDAE	***(Pronghorn)***	
Pronghorn	*Antilocapra americana*	HA
BOVIDAE	***(Sheep, Goats and Relatives)***	
Barbary Sheep	*Ammotragus lervia*	I,HA
Himalayan Tahr	*Hemitragus jemlahicus*	I,HA
Feral Goat	*Capra hircus*	I,HA
Bighorn Sheep	*Ovis canadensis*	HA (10)
Blackbuck	*Antilope cervicapra*	I
Bison	*Bos bison*	I
Feral Cattle	*Bos taurus*	I

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Notes:

Amphibians and Reptiles We have adopted nomenclature of the Center for North American Herpetology, http://www.cnah.org. The phylogenetic sequence is that of Stebbins (2003). Both Jennings (2004) and Stebbins (2003) were used as sources for species found in California. Exceptions are for taxonomic splits recognized subsequent to these publications (Shaffer et al. 2004, Vredenburg et al. 2007).

Birds We based the organization and nomenclature on the work of the American Ornithologists' Union (AOU) Committee on Classification and Nomenclature (AOU 1998, 2000, 2002, 2003a, 2003b, 2005, 2006, 2007, 2008). A list of birds found in California is provided by the California Bird Records Committee (CBRC): http://wfo-cbrc.org/cbrc/ . Our list differs slightly from CBRC because we include species introduced to California that may or may not have stable populations (Garrett 1997, Jurek 2002).

(1) Listed in the Fish and Game Code for California and in Title 14 of the California Code of Regulations as jacksnipe or common snipe.

(2) Listed as Gilded Northern Flicker in Section 670.5 of Title 14 of the California Code of Regulations.

(3) Cardinals are native to California only marginally in the Colorado River Valley. Other populations are of introduced subspecies.

Mammals We used Williams (2001) as a basis for the occurrence of mammal species in California. With few exceptions, nomenclatural conventions used were from Baker et al. (2003). As this list is ordered alphabetically, we used Jones (1982) as a reference for taxonomic sequence. This is the order used within the California Wildlife Habitat Relationships (CWHR) database program.

(4) Riparian brush rabbit (subspecies riparius) is state and federally-endangered and may not be legally harvested.

(5) Referenced in Fish and Game Code Section 4152 as Red Fox Squirrel.

(6) Some populations were introduced into the Sierra Nevada and Southern California

from stock taken from Oregon and Washington.

(7) Some populations in California were introduced.

(8) Red foxes native to California are of the subspecies V. v. necator. Populations of individuals from subspecies not native to California have been introduced. We know of at least a few subspecies of eastern red foxes and fur stock released into California, but we do not have records of every kind. Hybridization is occurring in the wild among subspecies now as well.

(9) Elk native to California are Roosevelt (C. e. roosevelti) and tule (C. e. nannodes) elk. Rocky Mountain elk (C. e. nelsoni) have been introduced to California.

(10) O. c. nelsoni is fully protected except in areas where it is legally hunted.

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