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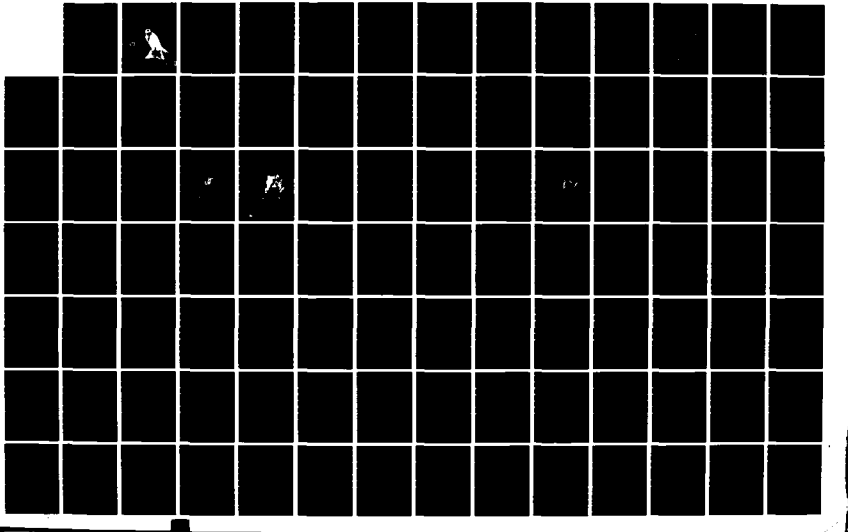

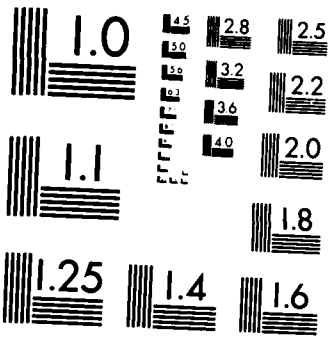

SPECIAL OFFICE REPORT
SECTION 7 CONSULTATION

WARM SPRINGS DAM
AND
LAKE SONOMA

Peregrine falcon (Falco peregrinus, Tunstall)
[Courtesy California Academy of Sciences]

US Army Corps of Engineers
San Francisco District

MAY 1983

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REPORT DOCUMENTATION PAGE

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American Peregrine Falcon
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Biological Opinion
Critical Habitat Zone
Candidate habitat zone

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

In accordance with Section 7 of the Endangered Species Act, the U.S. Fish and Wildlife Service (F&WS) has identified several concerns regarding the American Peregrine Falcon and its critical habitat in their biological opinion, dated 29 May 1979. In general, these concerns result from the implementation of the Lake Sonoma Master Plan and its related activities and include increased traffic, trespass onto private lands, potential development and habitat degradation. This document describes the analyses of alternative actions considered to address the concerns identified by F&WS.

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ITEM #20:

Actions within the existing authority of the Corps of Engineers have been taken to address the concerns and objectives of conserving the endangered falcons and protecting their critical habitat. Several alternative enhancement plans requiring additional Congressional authority have also been evaluated herein.

SPECIAL OFFICE REPORT FOR
WARM SPRINGS DAM AND LAKE SONOMA

SECTION 7 CONSULTATION ON ENDANGERED SPECIES

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
ARMY CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

IN COOPERATION WITH

U.S. FISH AND WILDLIFE SERVICE
SACRAMENTO, CALIFORNIA

SPECIAL OFFICE REPORT FOR
WARM SPRINGS DAM AND LAKE SONOMA
SECTION 7 CONSULTATION ON ENDANGERED SPECIES

The responsible lead agency is the U.S. Army Engineer District, San Francisco. The responsible cooperating agency is the Endangered Species Office, U.S. Fish and Wildlife Service (F&WS), Sacramento, California.

ABSTRACT/SYLLABUS

In accordance with Section 7 of the Endangered Species Act, the F&WS has identified several concerns regarding the American Peregrine Falcon (Falco peregrinus anatum) and its critical habitat (about 13,300 acres in Sonoma County, California) in the 29 May 1979 biological opinion. In general, these concerns result from the implementation of the Lake Sonoma Master Plan and its related activities and include increased traffic, trespass onto private lands, potential development and habitat degradation. This document describes the analyses of alternative actions considered to address the concerns identified by F&WS.

Actions within the existing authority of the Corps of Engineers have been taken to address the concerns and objectives of conserving the endangered falcons and protecting their critical habitat. Several alternative enhancement plans requiring additional Congressional authority have also been evaluated herein. Key environmental characteristics (significant resources) in evaluating the enhancement plans are: (1) endangered species; (2) wildlife resources; (3) land use; (4) local government finances; (5) displacement of population; (6) cultural resources; and (7) aesthetic quality. However, none of the enhancement plans are recommended for implementation.

SPECIAL OFFICE REPORT FOR
WARM SPRINGS DAM AND LAKE SONOMA
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SPECIAL OFFICE REPORT FOR
WARM SPRINGS DAM AND LAKE SONOMA
SECTION 7 CONSULTATION ON ENDANGERED SPECIES

SUMMARY

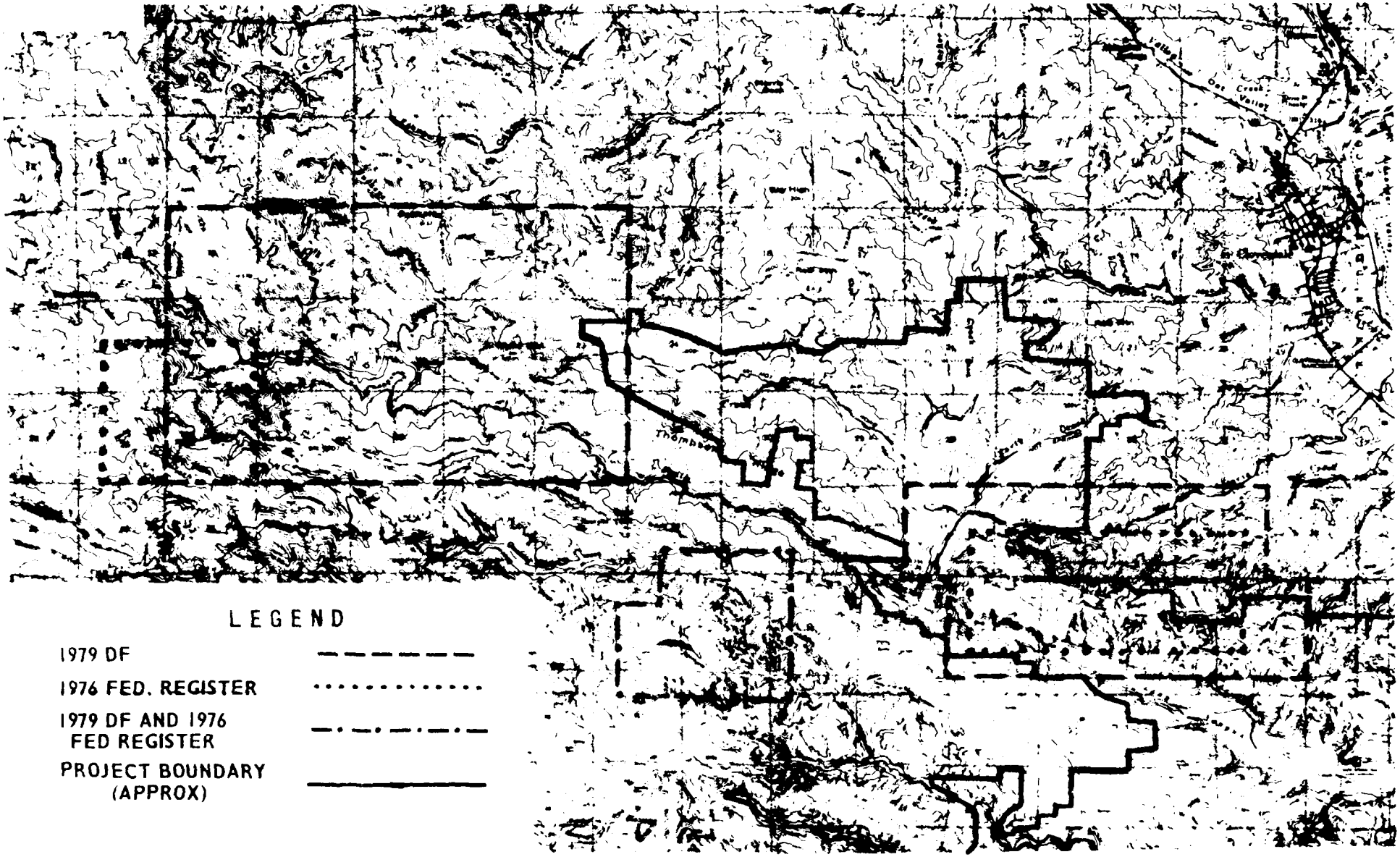
Biological Opinion. On 13 February 1979, the U.S. Fish and Wildlife Service (F&WS) requested that formal consultation related to the Lake Sonoma Master Plan be implemented in accordance with Section 7 of the Endangered Species Act as amended. On 20 February 1979 a formal request to initiate consultation was forwarded to F&WS. On 29 May 1979 the F&WS provided its biological opinion indicating that jeopardy to the endangered American peregrine falcons would result if the Lake Sonoma Master Plan were implemented. In addition, the opinion also provided a preliminary list of alternatives to remove jeopardy. Additional alternatives within the administrative authority of the Corps of Engineers were developed subsequent to the May 29 biological opinion and are also described herein. On 7 April and 30 November 1982 F&WS provided its concurrence that the additional alternatives developed after the rendering of the May 29 biological opinion would remove jeopardy.

Critical Habitat Zone (CHZ) Descriptions (Plate 1).

a. Rancheria Creek CHZ: Formally designated in August 1977, this CHZ encompasses an area of about 1,820 acres to the southwest of the Warm Springs Dam and Lake Sonoma project boundary and about 6.5 miles southwest of the town of Cloverdale. The CHZ is sparsely populated and is characterized by mountainous terrain. Some timber production and hunting occur on these CHZ lands. The only major access is by Rockpile Road in the northeastern portion of the CHZ.

b. Dry Creek CHZ: The Dry Creek CHZ partially overlaps the project area with its southern and eastern boundaries intersecting Lake Sonoma. The total Dry Creek CHZ is about 2,400 acres of rugged hills with vegetation dominated by oak woodland, chapparal and grassland types. About 1,200 acres of the CHZ is within the Warm Springs Dam and Lake Sonoma project boundaries. Present activities in this CHZ outside the project include minor timber production, limited hunting and grazing. Kelly Road, an unimproved dirt road, provides access to the northern portion of the CHZ outside of the project boundaries.

c. Upper Dry Creek candidate habitat zone: This candidate zone was described in the 29 May 1979 biological opinion. It is located about seven miles west of Cloverdale and covers about 9,600 acres with its easternmost boundary overlapping the extreme western project lands (about 145 acres). Lands of this candidate zone are used primarily for timber production and grazing. Rockpile Road to the south and Hot Springs Road to the north of the zone are the main accesses to the area.


LEGEND
1979 DF
1976 FED. REGISTER
1979 DF AND 1976 FED REGISTER
PROJECT BOUNDARY (APPROX)

Alternative Plans

a. Plan A: Includes measures which have been or shall be implemented within the existing authority of the Corps of Engineers that would satisfy the concerns regarding jeopardy to the endangered falcons expressed by the F&WS.

b. Plan B: Includes all of the measures in Plan A and the acquisition of an environmental easement on lands of the Dry Creek CHZ, and buffer area outside of the existing Federal ownership.

c. Plan C: Includes all of the measures in Plan B and the addition of an annual monitoring program to protect the upper Dry Creek candidate habitat zone.

d. Plan D: Includes all of the measures in Plan A, fee acquisition of the Dry Creek CHZ outside of the existing Federal ownership and habi management for the area acquired.

e. Plan E: Includes all of the measures in Plan D plus fee acquisition of the upper Dry Creek candidate habitat zone, habitat ma ement for the area acquired and an annual monitoring program to protect th r Dry Creek candidate habitat zone.

MAJOR CONCLUSIONS AND FINDINGS

a. Most Likely Alternative Future. The Warm Springs Dam and Lake Sonoma project will result in the upgrading of Rockpile Road to handle traffic use presently occurring on Kelly Road and in provisions for access to users for the loss of Hot Springs Road. Road modifications will be constructed to meet minimum standards of safety for present traffic uses. The approved Final Master Plan specifying recreational development for Lake Sonoma and incorporating several measures to preserve the endangered falcons expressed in the 29 May 1979 biological opinion will be implemented. Due to budget priorities and policies of the current administration, the recreation development specified by the Final Master Plan for the northern portion of the project has been delayed indefinitely. Development on lands adjacent to the project may take place based on local (county) land use decisions. At this point in time, it is difficult to estimate the level of development that may occur in the vicinity of the project. The present land comprising most of the CHZ's and candidate zone has been designated as either undeveloped or agricultural, although some areas have been zoned as developable lands in the Upper Dry Creek candidate habitat zone. Although development may occur in the vicinity of the project, local land use decisions permitting extensive development to the detriment of the endangered species would have to be made with full recognition of the designated critical habitat zones in the vicinity of the project.

b. NED Plan. Since no plan makes positive contributions to National economic development, no NED plan has been designated. It has been determined that the least cost plan to protect the endangered falcons is Plan A, which includes actions within the discretion of the Corps of Engineers to remove jeopardy to the endangered falcons but does not include measures for enhancement.

c. EQ Plan. The EQ Plan has been identified as Plan E which includes fee acquisition of the Dry Creek CHZ and the candidate habitat zone and management of these lands for the falcon. The total land acquisition would involve about 11,480 acres. Major net contributions to the conservation of the endangered falcons could be realized with this fee acquisition plan.

d. Selected Plan. Plan A, the least cost plan described above, has been determined to be the best course of action at this time. It addresses the concerns expressed in the 29 May 1979 biological opinion in the most cost effective manner. This plan does not require additional authority making its implementation the most timely. Plan A does not preclude future options to improve conditions for the continued survival of the resident falcons.

e. Findings Regarding Executive Order 11990, Protection of Wetlands, and Section 404, Clean Water Act. No wetlands will be directly affected by the actions being proposed. Indirectly, riparian woodlands could be positively affected by the alternatives involving management activities, which are related to land acquisition. A Section 404 evaluation is not applicable to the alternatives being considered in this report.

f. Prime and Unique Farmlands. In a 1980 memorandum, the Council of Environmental Quality discussed a policy on impacts to prime and unique farmland in environmental impact statements. Although the study area is comprised of remote, rugged terrain, some areas are amenable to cultivation. However, these falcon habitat areas are not considered significant areas of prime or unique farmlands.

g. Finding of No Significant Impact. Based on information obtained during preparation of this study, it is concluded that the recommended actions to remove jeopardy will not have a significant impact on the quality of the human environment, will not significantly change the project as described in the Final Environmental Statement and its supplement and that the preparation of an additional supplement to the Final Environmental Impact Statement is not required.

Areas of Controversies. No controversies have been identified.

Unresolved Issues. There are no unresolved issues.

Relationship to Applicable Laws, Policies and Plans

The following paragraphs list the principal environmental laws, policies, or plans of Federal, State or local governments applicable to the alternative plans for the conservation of the endangered falcons. Those environmental statutes not applicable to this action include: Clean Air Act; Clean Water Act; Chief of Engineers Wetland Policy; Coastal Zone Management Act; Policy on Prime and Unique Farmlands; Estuary-Inventory-Study Act; Executive Order 11988 Floodplain Management; Executive Order 11990 Protection of Wetlands; Marine Protection, Research and Sanctuaries Act; California Coastal Management Program; California Wetland Policy; and California Water Quality Control Plan. See Table 1 for summary of alternative plans compliance with laws, policies, and plans.

a. National Environmental Policy Act (NEPA). NEPA (P.L. 91-190, 83 Stat. 852, 42 U.S.C. 4321-4327) establishes a national environmental policy to insure that Federal actions do not contribute to undesirable and unintended environmental problems. Federal agencies are required to comply with procedures as established by the Act and published as Federal regulations. NEPA directs all Federal agencies to include a detailed environmental impact statement (EIS) in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment. It has been determined that the recommended administrative actions under Plan A to comply with the Section 7 responsibilities of the Endangered Species Act are not considered an action significantly affecting the quality of the human environment. This document fulfills the requirements of NEPA.

b. Endangered Species Act, Section 7. Section 7(a) of the Act, P.L. 93-205 (87 Stat. 884, 16 U.S.C. 1531 et seq), requires, among other things, that Federal agencies, in consultation with and with the assistance of the Secretary of the Interior (F&WS), insure that their actions do not jeopardize the continued existence of endangered or threatened species or destroy or adversely modify the critical habitat that supports such species. This report addresses the Corps' responsibilities related to the Warm Springs Dam and Lake Sonoma project and the endangered American peregrine falcon under this Act.

c. National Historic Preservation Act (NHPA). The NHPA, P.L. 80-665 (80 Stat. 915, 16 U.S.C. 470) requires that Federal agencies take into account the effect of their undertakings upon National Register properties. No property on the National Register listing of Historic Places will be adversely impacted as a result of the action being proposed.

d. Executive Order 11593, May 1971, Preservation and Enhancement of Cultural Resources. This executive order directs Federal agencies to assume leadership in preserving and enhancing the Nation's cultural heritage, to survey and nominate to the National Register historic properties under their jurisdiction, to refrain from impairing historic properties under their control and to initiate measures to ensure that their programs and policies contribute to the preservation and enhancement of non-federally owned historic resources. Actions to be undertaken will not impair historic properties.

e. Sonoma County General Plan. This County Plan is a guide to the long-term physical development and use of resources in the County. The elements of the general plan are, in varying degrees, all related and interdependent. The land use element was prepared in close relationship to environmental, housing and transportation components of the plan. In turn, the environmental elements were prepared in close relationship to land use, transportation and housing. The stated general goals for natural resources includes provisions for preserving and restoring the County's biological diversity for its scenic and educational values ("Review all proposed development with regard to possible adverse or beneficial effects on plant and animal life," O. a., p. 17, Sonoma County General Plan and "The General Goal on Natural Resources", V . Polices a. and c., p.12, Sonoma County General Plan.) The administrative actions to be taken are compatible with the local land use plans.

RECOMMENDATIONS OF THE DISTRICT ENGINEER

Based on the conclusions of this report, it is recommended that the following measures be taken:

1. A nest establishment program on existing Federal lands in cooperation with F&WS for the Rancheria Creek CHZ will be implemented (Appendix E).

2. Guidelines for potential development in the Dry Creek CHZ will be described by the Sonoma County Planning Department (see 16 December 1982 Sonoma County, Dept of Planning letter, Appendix C). A specific area plan for the Dry Creek CHZ has been determined not to be necessary by Sonoma County.

3. Review process of on-going development in the Dry Creek CHZ and Upper Dry Creek candidate habitat zone by the Corps of Engineers and F&WS will be maintained (to allow input to the County planning activities associated with the zones).

In addition, the measures below have already been implemented by approval of the Final Master Plan:

1. No public use facilities or activities in the Dry Creek CHZ.

2. Limitation of boat speed on the lake adjacent to the Dry Creek CHZ.

3. Continued annual monitoring of the Dry Creek CHZ. O&M funding of the Corps of Engineers shall be utilized to implement this activity for a period of five years after the reservoir is filled. Prior to the end of the period, an agreement to transfer administration and funding requirements to the F&WS for incorporation into its existing state-wide monitoring program will be undertaken. It will be the Corps of Engineer responsibility to ensure that its project is not likely to jeopardize the endangered peregrine as long as it remains listed in accordance with the Endangered Species Act.

4. Management of the Dry Creek CHZ (Transfer of management responsibilities in the Dry Creek CHZ to the State of California, Department of Fish and Game is presently being accomplished: Finalization of the administrative license is scheduled for November-December 1983).

5. Elimination of public use facilities west of Cherry Creek.

6. Elimination of public or recreation traffic west of Cherry Creek and construction of a new access road between Rockpile Road and Hot Springs Road or a negotiated settlement between the landowners and the Corps.

Lastly, no Federal action involving acquisition of any of the 13,300 acres in the three zones is recommended for the preservation or enhancement of the peregrine falcons.

TABLE 1

RELATIONSHIP OF PLANS TO ENVIRONMENTAL REQUIREMENTS

Federal Policies	Plan A	Plan B	Plan C	Plan D	Plan E
National Environmental Policy Act	FC	FC	FC	FC	FC
Chief of Engineers Wetland Policy	NA	NA	NA	NA	NA
Clean Air Act	NA	NA	NA	NA	NA
Clean Water Act, Section 404	NA	NA	NA	NA	NA
Coastal Zone Management	NA	NA	NA	NA	NA
Council on Environmental Quality Policy on Prime and Unique Farmlands	NA	NA	NA	NA	NA
Endangered Species Act	FC	FC	FC	FC	FC
Estuary Inventory Study Act	NA	NA	NA	NA	NA
Executive Order 11593, Preservation and Enhancement of Cultural Resources	FC	FC	FC	FC	FC
Executive Order 11988, Floodplain Mgt	NA	NA	NA	NA	NA
Executive Order 11990, Wetland Protection	NA	NA	NA	NA	NA
Marine Protection, Research and Sanctuaries Act	NA	NA	NA	NA	NA
National Historic Preservation Act	FC	FC	FC	FC	FC
State Policies					
California Coastal Management Program	NA	NA	NA	NA	NA
California Wetland Policy	NA	NA	NA	NA	NA

TABLE 1

State Policies (cont'd)	Plan A	Plan B	Plan C	Plan D	Plan E
State Water Resources Control Board Water Quality Control Plan-N. Calif.	NA	NA	NA	NA	NA
Local Policies					
Sonoma County General Plan	FC	FC	FC	FC	FC

Key:

FC - Full Compliance
NA - Not Applicable
NC - Non Compliance

1.00 INTRODUCTION

1.01 PURPOSE AND SCOPE. The purpose of this report is to present information related to the conservation of the Amercian peregrine falcon, listed as an endangered species, pursuant to the Endangered Species Act, as amended, Public Law 95-632 (92 Stat. 3751; 16 U.S.C. 1531 et seq) and to provide the basis for selection of appropriate actions to comply with Section 7 of the Endangered Species Act in conjunction with the Dry Creek Lake (Warm Springs Dam) and Channel Improvements, hereinafter referred to as the Warm Springs Dam and Lake Sonoma Project. The report also addresses the requirements of the National Environmental Policy Act.

1.02 SECTION 7 CONSULTATION PROCESS. In accordance with Section 7(a) of the Endangered Species Act as amended, the San Francisco District, Corps of Engineers, on 20 February 1979, consulted with the Secretary of the Interior, through the Regional Office of the F&WS to insure that actions, authorized, funded or carried out in relation to the Master Plan for the Warm Springs Dam and Lake Sonoma Project, do not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species. During March 1979, a nesting pair of falcons was observed occupying the Dry Creek CHZ. Subsequently the F&WS rendered a jeopardy opinion for three specified zones with a description of reasonable and prudent alternatives which could be implemented by the Corps of Engineers to avoid such jeopardy to the continued existence of the endangered species (See Appendix A). Subsequently, additional discussions resulted in the further development of reasonable and prudent alternatives. Significant events in the consultation process are listed in Appendix D.

1.03 STUDY AUTHORITY. This report is prepared pursuant to Section 7(a) of the Endangered Species Act and amendments which states:

> "...Federal agencies shall, in consultation with and with the assistance of the Secretary (of the Interior), utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of this Act..."

(The Warm Springs Dam and Lake Sonoma project was authorized by the Flood Control Act of 1962, Public Law 87-874, approved October 23, 1963 by the 87th Congress, Second Session.)

1.04 STUDY PARTICIPANTS AND COORDINATION. The San Francisco District, Corps of Engineers is the lead agency, and the Endangered Species Office, Sacramento, F&WS, is a responsible cooperating agency. Also providing specialized information about General Plan and its policies was the Sonoma County Planning Department. These three organizations are the principal contributors to this special report. A summary of coordination between the

Corps of Engineers and F&WS in the formal consultation process has been compiled and is presented in Appendix D.

1.05 PLANNING PROCESS. This report has been developed to demonstrate the concerns for the peregrine falcon and sets forth the planning process undertaken for the selection of appropriate actions to protect and enhance the falcons, in relation to Federal water resource development activities of the Warm Springs Dam and Lake Sonoma Project.

1.06 The planning process consists of the following major steps.

1. Specification of the water and related land resources problems and opportunities.

2. Inventory, forecast and analysis of water and related land resource conditions within the planning area.

3. Formulation of alternative plans.

4. Evaluation of the effects of the alternative plans.

5. Comparison of alternative plans.

6. Selection of a recommended plan based upon the comparison of alternative plans.

1.07 The planning process is dynamic with various steps which are iterated one or more times. This process of iteration, which may occur at any step, sharpens the focus of the study as new data are obtained. The planning tasks as they have progressed in the study are described throughout this report.

1.08 REPORT ORGANIZATION. The planning process described above is presented in this report in a format set forth in the Regulations For Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Parts 1500-1508) by the Council on Environmental Quality. The report is divided into six sections described below:

1. Introduction.

2. Purpose and Need for Action. This section specifies the water and related land resources problems and opportunities which is the first step of the planning process.

3. Alternatives Including the Proposed Action. This section is the heart of the report. It describes the formulation of alternative plans, compares the alternative plans and based on this comparison, presents the rationale for the selection of a plan. These descriptions comprise the third, fifth and sixth steps of the planning process. The comparison of alternatives is based on the information and analysis presented in the sections on the Affected Environment and Environmental Consequences. In this manner, decisions relative to the planning process are presented early in the report to facilitate review.

4. Affected Environment. This section contains descriptions of the physical, biological, and socio-economic conditions within the planning area related to the identified problems and opportunities and the alternatives under consideration. The information results from the second step of the planning process.

5. Environmental Consequences. This section documents the evaluation of the effects of the alternative plans, the fourth step in the planning process. The evaluation of the effects forms the scientific and analytic basis for the comparisons included in the third section of the report.

6. Public Involvement. This section describes the means used to involve the public in the study and the remaining required coordination with other agencies and the public.

1.09 PROJECT HISTORY. Study of Dry Creek for the purposes of flood control, recreation and water supply was authorized by a House Committee in Public Works Resolution on July 1, 1958. Based upon a study by the San Francisco District of the Corps of Engineers, Congress authorized the project as part of the 1962 Flood Control Act on October 23, 1962. Information supporting authorization of the project is set forth in House Document No. 547, 87th Congress. Initial concepts for recreational development were set forth in a Preliminary Master Plan (1966). During detailed reservoir design, presented in a General Design Memorandum, 1967, the project was modified to optimize the site benefits in accordance with U.S. Senate Document 97.

1.10 In December 1973, an Environmental Impact Statement on the Warm Springs Dam and Lake Sonoma Project was filed with the Council on Environmental Quality. The purpose of the EIS was to provide a complete description of the project, the project environmental setting and the beneficial and adverse impacts of the project on the environment. In March 1974, a complaint was filed with the Federal District Court alleging inadequacy of the project environmental impact statement. In May 1974, the U.S. Supreme Court granted a stay of construction, pending review of the case by the Appellate Court. In August 1975, the Appellate Court remanded the case to the District Court for a review of the additional studies conducted by the Corps of Engineers in response to questions regarding seismicity and water quality. The Corps of Engineers filed a Supplement to the EIS in September 1976 to provide the requested additional information on water quality, cultural resources and seismicity. The District Court found that the Supplement satisfactorily addressed the questions raised by the 1974 court actions and lifted the injunction on April 1977. This decision was appealed to the Ninth Court of Appeals and hearings were held on March 15, 1978. The Corps of Engineers supplied supplementary information on March 17, 1978 and the Court of Appeals did not rule, but denied injunctions on construction. The Corps of Engineers advertised for bids for construction of the dam and appurtenances in the spring of 1978 and construction was restarted in June 1978. Development of the Master Plan was initiated in the summer of 1978. The Draft Master Plan was completed and circulated to interested parties at the end of December 1978. The approved Final Master Plan was released in October 1979. The Final EIS (December 1973), the Supplement to the Final EIS (September 1976), and the approved Final Master Plan (October 1979) are incorporated into this report by reference.

1.11 PROJECT DESCRIPTION. The Warm Springs Dam and Lake Sonoma Project consists of a dam across Dry Creek (a major tributary of the Russian River in Sonoma County, California), a reservoir, a spillway, outlet facilities, a fish hatchery, and erosion protection measures on Dry Creek downstream of the dam. The project includes 17,615 acres of land, approximately 20 miles of relocated roads, several miles of relocated utilities, various public recreation facilities and a wildlife management area. The dam is a rolled earth embankment located at the confluence of Warm Springs Creek and Dry Creek, approximately 14 miles northwest of Healdsburg, California (Sonoma County). The project is 70 miles northwest of San Francisco.

1.12 Warm Springs Dam. The dam crest elevation is 519 feet above mean sea level (m.s.l.). The top of the dam is about six feet above the maximum water surface in the reservoir. Curved on a 6,000 foot radius, the dam crest extends approximately 3,000 feet across the stream channel, and measures 30 feet wide. The upstream face of the dam is covered with rock for protection against wave action. The downstream face is covered with six inches of topsoil and seeded.

1.13 Lake Sonoma. Warm Springs Dam creates Lake Sonoma with a capacity of 381,000 acre-feet at the spillway crest elevation (495 feet m.s.l.). Of this total capacity, 130,000 acre-feet is allocated to flood control, 212,000 acre-feet to water conservation, 26,000 acre-feet to sediment accumulation during the 100-year economic life of the project and 13,000 acre-feet for maintenance of minimum pool. With the water level at the spillway crest (495 feet m.s.l.), Lake Sonoma has a surface area of 3,600 acres, extends 12 miles up Dry Creek and 7 miles up Warm Springs Creek, and provides 73 miles of shoreline. With the pool at conservation level (451 feet m.s.l.), the impoundment covers 2,700 acres, extends nine miles along Dry Creek and four miles along Warm Springs Creek and provides 53 miles of shoreline. At minimum pool elevation (292 feet m.s.l.), water surface area is 486 acres, extends five miles up Dry Creek and two miles up Warm Springs Creek and creates 17 miles of shoreline.

1.14 Relocations. To construct the project, it is necessary to relocate certain existing features. Some of these relocations have already been completed, either in part or in full.

a. The Skaggs Springs Cemetery, the Pritchett Family Cemetery and three individual grave sites have been relocated.

b. Approximately 15 miles of electrical power line and 9 miles of telephone line are being relocated.

c. Two bridges and approximately 16 miles of roads have been constructed to relocate roads passing through the reservoir area. Additional roads are described below.

1.15 Of the three major public roads that presently cross the project area, two are of importance in this report and are discussed in this section. Rockpile Road and Hot Springs Road are county roads that serve mainly as access to ranches beyond the reservoir site. Also traversing a portion of the reservoir area is a private toll road, Kelly Road, which is presently owned by

the Corps of Engineers and is primarily used for hauling timber from areas near the coast. Through use agreements, Kelly Road also is used for access to private properties along the route. These agreements are still in effect.

1.16 Filling the reservoir after construction of the dam will inundate stretches of Kelly Road and Hot Springs Road, necessitating the diversion of Kelly Road traffic onto Rockpile Road and compensatory settlement for the loss of Hot Springs Road. Present plans include improvements to Rockpile Road to compensate existing land owners. Prior to consultation pursuant to Section 7 of the Endangered Species Act, and public review of the Draft Lake Sonoma Master Plan, a relocated Hot Springs Road was proposed to provide access to two property owners. As a result of the review of the Draft Master Plan, Sonoma County commented that the relocated Hot Springs Road west of Cherry Creek should be abandoned as a public road. Hot Springs Road west of Cherry Creek was therefore eliminated in the Final Master Plan. Subsequently the County reversed its position and passed a resolution to accept a relocated Hot Springs Road. More recent studies have shown that relocating the road is not the most cost effective solution. Thus, in order to fulfill the legal responsibility to replace the public road, the Corps of Engineers has proposed to construct a new access road between Rockpile Road and Hot Springs Road to satisfy the affected landowners. Elimination of Hot Springs Road west of Cherry Creek will respond to the concerns about the endangered falcons as provided by F&WS (see 3.11 D for further discussion).

1.17 Fish and Wildlife Facilities. The estimated present annual spawning migration in the total Dry Creek drainage is 8,000 steelhead trout and 300 coho salmon. Since Warm Springs Dam will block the annual upstream migration of about 6,000 of the steelhead trout and 100 of the coho salmon to spawning areas, a fish hatchery is part of the project to mitigate the fishery losses which would otherwise occur. The hatchery will also be utilized for the development of a chinook salmon fishery, an enhancement of existing conditions.

1.18 To compensate for loss of wildlife habitat resulting from filling Lake Sonoma and for the 180 acres of additional habitat that will be taken for roads, parking areas and similar permanent features, a wildlife management area has been established on approximately 5,000 acres of land (including 400 acres of borrow site) located adjacent to the reservior in the Pritchett Peaks area north of Dry Creek and south of Kelly Road and west of Cherry Creek along upper Dry Creek. A program is being developed to improve habitat for deer, quail and other wildlife species in the management area.

1.19 Cultural Resources Study. A study of the archeological sites within the Warm Springs Dam and Lake Sonoma project area including their relationships to each other, general patterns of settlement, resource utilization as practiced at various times and the principal social and cultural processes which have transpired is under preparation.

1.20 Public Use Facilities. The approved Final Master Plan delineates regional needs, competing recreational facilities, the resource sensitivity and the recreation uses appropriate to the resource. The development will provide overnight and day-use facilities for camping, picnicking, fishing, water activities, hiking, horseback riding, sightseeing, nature study and interpretive activities.

1.21 The Final Lake Sonoma Master Plan outlines the proposed land uses for the project area and establishes plans for the recreational development of project lands. Plate 2 illustrates use locations and types, access to recreation sites and hiking and equestrian trails. Designated areas are shown for public use as well as areas zoned for specialized or limited uses.

1.22 Facilities programmed for Lake Sonoma cover a wide range of outdoor recreational activities. The extremely steep slopes (85 percent of the project slopes are over 25 percent), the potential for soil erosion and the sensitive and critical wildlife areas make access to the lake difficult and limit the areas where activity can occur. Auto camping and day-use area located close to the already existing relocated Rockpile Road and to the Hot Springs Road. Boat access to the water with the necessary ramps and parking facilities is also difficult. The major project boat ramp is oft Rockpile Road approximately one-fourth mile west of the existing Warm Springs Bridge. A boat access site, capable of accommodating small boats, is near relocated Hot Springs Road on Yorty and Cherry Creeks in the North Lake area. Equestrian and hiking trails are programmed in many areas with hike-in/boat-in camp sites clustered along the trails and shoreline in scenic areas. A multi-purpose day-use and interpretive area is located just below the dam, adjacent to the visitor center and fish hatchery.

1.23 CONSTRUCTION SCHEDULE. The following table of events lists approximate completion dates.

EVENTS AND COMPLETION DATES

Dam and Reservoir	
1. Dam Embankment, Outlook Works, and Spillway Completed	April, 1983
2. Final Completion and Cleanup January	January 1984
Relocations	
1. Skaggs Springs Road	November, 1978
2. Rockpile Road	September, 1984
3. Utilities	Indefinite
4. Connection between Kelly Road and Hot Springs Road	September, 1985
Related Works	
1. Fish Hatchery	November, 1980
2. Cultural Resource Mitigation	September, 1984
3. Develop Recreation Areas	Indefinite
4. Downstream Erosion Protection	September, 1986

2.00 NEED FOR AND OBJECTIVES OF ACTION.

2.01 PROBLEMS AND OPPORTUNITIES. This section describes the specific problems and opportunities related to the endangered peregrine falcon in the area of the Warm Springs Dam and Lake Sonoma project. The problems and opportunities are described in order that specific planning objectives can be identified which will facilitate the formulation of alternative plans.

2.02 RANCHERIA CREEK CHZ. The Rancheria Creek CHZ contains a historical nest site. Under the Endangered Species Act, the nest site and CHZ should be protected, whether occupied or not, so that as the population recovers, there will be nesting areas into which the population can expand. However, since conditions are such that its attractiveness is diminished, protection of this site may not be appropriate.

2.03 The attractiveness of a potential nesting site to a peregrine is influenced by the apparent protection it offers from disturbance. High, steep cliffs offer more protection from disturbance by mammals (including human activity) than do smaller cliffs. Peregrines are less likely to desert a high bastion. While the Rancheria Creek cliff is suitable for nesting, it is small and easily scaled. It is therefore highly susceptible to desertion. If protected from disturbance it can remain a potentially productive site. If not protected, reoccupation and resumption of productivity at this site will be unlikely.

2.04 The Rancheria Creek CHZ has had a long history of peregrine activity. From 1969 to 1971, a total of eight young were known to have fledged. No production was verified between 1972 and 1976, although a pair was known to be present. Although it is possible that future occupation of the nest site may occur at this site, such nesting by falcons is very uncertain with the existing level of activities near the site.

2.05 Traffic. The existing alignment of Rockpile Road and its proximity to the historical peregrine eyrie presents a problem to potential nesting peregrines. The sights and sounds of traffic on this road are a disturbing influence on nesting falcons (See Appendix A). Potential for disturbances will increase when traffic now using Kelly Road and Hot Springs Road is diverted onto the existing Rockpile Road. Portions of the present road including the reach from the damsite to about 0.5 mile outside the project boundary were improved in 1974 to maintain a continuous road during construction of the dam.

2.06 Traffic estimates made in 1967 for design purposes indicated that the number of vehicles on Rockpile Road would total an average daily use of 50 and 100 on Kelly Road. Scattered traffic counts prior to 1967 and estimates prepared by the Road Commissioner of Sonoma County were used in estimates for Rockpile Road traffic, and counts available in 1966 were used for the estimate of Kelly Road traffic. Based on a traffic count conducted in October 1979, considered a period of high project visitation prior to the November 1979 election. A daily average of 16 vehicles occurred on Rockpile Road and 32 vehicles occurred on Kelly Road. Using the 1979 counts (rounding to 50) and assuming a two-fold increase of this traffic over a ten-year period, about 100 vehicles on an average daily basis would utilize Rockpile Road with the

proposed diversion of Kelly Road traffic. Of this total, truck traffic is estimated at 10 vehicles per day. Logging west of the project is declining with depletion of timber reserves in the area and the need to travel eastward has diminished from estimates made prior to 1979. Presently truck traffic transporting timber on Kelly Road is expected to decrease and has been accounted for in the above estimate. Rockpile Road would continue to provide the main access into the Rancheria Creek areas for the few resident ranchers, and to the north for the two landowners who had used Hot Springs Road.

2.07 The potential for increased traffic flow upon Rockpile Road from recreation and visitation at Lake Sonoma does exist. Although the road is not intended to serve purposes other than limited use for access to local landowners, visitors straying from the lake may venture outside the Warm Springs Dam and Lake Sonoma project boundaries on Rockpile Road. Traffic generated by such impulsive travel cannot be accurately estimated; however, the incidence of such excursions is not expected to result in a major daily increase in the volume of traffic. An assignment of a reasonable percentage (5-10%) of the traffic is expected to be generated by proposed recreational facilities has been estimated. Such a percentage of traffic spread out over the year will not result in a significant increase in existing usage of the road. Signs will be used to discourage such off-site travel at the project boundary.

2.08 Trespass. The open access provided by Rockpile Road increases the likelihood of human intrusion into the area of the cliff. This increases the potential for human disturbance to nesting falcons from hikers, hunters, etc., as well as providing easy access for individuals who may steal eggs or chicks from the nest illegally. It is possible that the Rancheria Creek eyrie is presently unoccupied due to one or more of the above factors. Although increased use of Rockpile Road by sightseers after the opening of Lake Sonoma is not expected to significantly increase traffic volume, these sightseers would be more likely to trespass onto private lands than individuals associated with normal traffic. If left in its present alignment, increased use of Rockpile Road by these sightseers after the opening of recreational facilities at Lake Sonoma may cause further deterioration of the seclusion of the historical nesting site by increasing the potential for human activity.

2.09 Development. Although potential growth in this area may be somewhat restricted due to ruggedness of terrain and lack of easy access, the F&WS considers potential project-induced development near the eyrie to be of concern to the habitat of the peregrine falcon. Though much of the Rancheria Creek CHZ contains steep slopes, areas within a few hundred yards of the historical nest cliff area are fairly flat and could be developed at a future date. These areas are also immediately adjacent to the existing Rockpile Road, so that access is available.

2.10 Zoning densities for the CHZ vary depending on the average slope of developable parcels and actions by County Government. The degree to which future development in any one area is likely to occur is almost impossible to predict with any accuracy. Although no plans for development have been identified, trailer pads have been recently installed. The costs of establishing residences throughout the rugged regions of the CHZ would, however, be more than four times as much as the costs for a home in the Cloverdale area. This would be a major deterrent to most prospective home-

owners. Because of these costs, it is probable that homes would be constructed in only the most developable areas of the CHZ. Based on discussions with various agencies, officials and private individuals and institutions with knowledge of the area, approximately three to five structures would probably be developed within the next 50 years and approximately seven structures within 100 years.

2.11 The construction of only one unit, however, if placed near the eyrie, could eliminate the eyrie as a potential nesting site for peregrines (See Appendix B). With construction of residential units near the eyrie, the relative solitude of the eyrie would be impacted. Future use or occupancy by peregrines at this historical eyrie would become very improbable. If proliferation of residential development occurred in this CHZ, loss of this eyrie as a productive nest site would be certain. However, this CHZ is presently zoned for agricultural and timber uses. A large parcel of property of the CHZ and adjacent area is presently up for sale.

2.12 Habitat Enhancement. Since existing land uses may continue to impact the peregrine and its prey base, an opportunity exists to enhance the habitat of the peregrine. An existing residence is located near the nesting site and hunting in the CHZ does occur. Timber operations and other ongoing land use changes may sufficiently degrade the habitat and the prey base it supports to the point where reoccupation of the nest site would not be expected.

2.13 Species Conservation. In the opinion of F&WS (See Appendix A), the present land use and development in the Rancheria Creek CHZ have affected the nest site and its immediate environs. In fact, it is known that this nest site has not been productive over the last ten years, although a pair of falcons was present at some time during this period. A recent survey of habitat requirements for the endangered falcon in existing Federal lands nearby resulted in the preliminary documentation of suitable nest sites presently unoccupied. Opportunities exist for the enhancement of the existing population of falcons. Programs involving increasing the number of young birds in the wild have been developed and are evolving.

2.14 Three release programs can be considered. They are direct fostering, cross fostering, and hacking. Direct-fostering consists of placing peregrine chicks (or dummy eggs) into the nest of wild peregrine to augment natural production (Young are either captive bred or hatched from eggs removed from the wild). Cross fostering consists of placing peregrine chicks (usually three weeks old) into nests of other raptors, preferably cogenerics such as prairie falcons. Hacking involves placing young peregrines before they fly at suitable nest sites in order that natural, physical conditioning can take place.

2.15 DRY CREEK CHZ. The existing nest cliff presently has two suitable eyries, which has produced eight fledglings between 1979 and 1982. The nesting cavity used in 1979 and 1980 was considered to be of suboptimal size by the F&WS and may have limited the number of young which could be raised to the age of fledgling. In August 1980 the F&WS performed manual ledge modification of the suboptimal cavity and created a new one. The ledge modification was performed to improve the productivity of the nest cliff and to provide additional margin for successful rearing of the young.

2.16 Presently, the portion of the Dry Creek CHZ within the existing project boundaries is a part of the wildlife management area in the Pritchett Peaks area, about 3,200 acres. This area is to be managed specifically for wildlife resources. Management activities will be developed within the constraints posed by concern for the peregrines. A management plan will be prepared by the State Department of Fish and Game, the responsible management agency, in cooperation with the F&WS.

2.17 No documented observations of peregrines nesting in the Dry Creek CHZ were made until 1974, when three young fledged. No successful reproduction was documented between 1975 and 1978, although a pair was present in 1975 and no observations were made in 1977.

2.18 Trespass. Although the main access road (Kelly Road) is gated, access into the area via little-used trails and four-wheel drive roads is an existing problem. In a total of five months of monitoring during 1979 and 1980, people and vehicles entered the CHZ at least six times during the nesting season without using the main access road. Though monitors have guarded the area, it is not always possible for the monitors to keep trespassers from getting close enough to cause a disturbance without themselves causing a disturbance. No major disruption to the nesting pair has resulted from such trespass activities during the 1979 and 1980 monitoring periods, but the potential for harmful disturbance has existed prior to 1976.

2.19 Recreation. The peregrine falcon is particularly sensitive to disturbances near the nest cliff during the breeding season (See Appendix B). If recreational activities were to become established in the vicinity of the nesting area, the entire territory could be abandoned by the falcons.

2.20 Shooting. Approximately 50 percent of the known fatalities to adult peregrines in California have resulted from gunshot wounds (See Appendix B). Hunting seasons coincidental with the peregrine nesting period between March to September may lead to such shooting fatalities, though no information is available to support this. Controlled hunting was proposed as a form of game management by the State Department of Fish and Game for the wildlife management area which overlaps the CHZ prior to consultation. No other hunting was initially programmed for the Warm Springs Dam and Lake Sonoma project lands.

2.21 Borrow Utilization in the CHZ. The Dry Creek CHZ was not considered as a potential borrow site for construction of the dam.

2.22 Boat Noise. Motor boating and water skiing would be permitted on Lake Sonoma subject to limitations based on speed zones and noise restrictions. The nest site in the Dry Creek CHZ is located north of the lake and would be subject to noise emanating from lake activities. The concern of noise from high powered, unmuffled boats on the lake was indicated in the May 1979 Biological Opinion. This problem is usually addressed by enforcing a noise limitation of 86 dBA. To minimize any potential impacts on the peregrines, the Draft Master Plan limited boating speed to 10 miles per hour in the CHZ and established a noise limitation of 70 dBA, which is approximately equivalent to a typical automobile passing at 50 feet. Upon review of the Draft Master Plan, F&WS indicated that although there are presently no data concerning peregrine sensitivity to noise levels, further reduction in noise levels would decrease the potential for disturbance to nesting falcons.

2.23 Development. Potential development based on local land use decisions may occur on lands in the Dry Creek CHZ and on lands immediately adjacent to the boundaries of the CHZ not owned by the Federal Government. This development would introduce an increase of inhabitants to the CHZ. Increased human activity near the nest site would be detrimental to successful nesting of the falcons. Presently, many of the foraging flights made by the Dry Creek CHZ falcons are toward the direction of the non-Federally owned part of the CHZ to the north and northeast areas of the nest site. If the habitat is significantly modified, the ability of the falcons to successfully raise their young would be reduced (See Appendix B).

2.24 Current zoning could allow development within the CHZ and buffer zone not within the project boundaries. Because of the extremely high costs of development in this area due to physical factors, a likely level of development would be three to five structures within 50 years and approximately seven structures within 100 years. This CHZ is zoned primarily for agricultural uses, and is categorized as undeveloped in the General Plan.

2.25 Habitat Enhancement. The existing foraging habitat of the Federally-owned portion of the CHZ could be manipulated to improve the prey base habitat of the falcon within this management plan. Such manipulation includes spring development and controlled burning. Existing land uses outside the Federally-owned portion of the CHZ may adversely impact the peregrine and its prey base. Hunting is extensive and other existing land uses may sufficiently degrade the prey base to the point where nesting would not be expected to continue.

2.26 Species Conservation. Reproduction at this site appears normal, though lower than optimal. The ledge enhancement project may allow an increase in productivity. However, as a result of eggshell analysis at this site, it has been found that a marked eggshell thinning has occurred. Although it is not yet known what may be the cause of such thinning, the eggshell thinning recorded at this site has been determined critical. This nest was included in the F&WS direct-fostering program in 1982. Three eggs laid at this nest in the spring of 1982 were removed and replaced with dummy eggs. None of the wild eggs were viable. Other eggs laid by captive-bred falcons at the Santa Cruz Predatory Bird Research Group facility were hatched. After 14 days, two young were returned to the nest and were accepted by the nesting pair of falcons. This manipulative program has proved successful in 1981 at other nests in California. There is presently no need to introduce additional young by hacking to augment productivity, though continuation of direct-fostering may be desirable.

2.27 UPPER DRY CREEK CANDIDATE ZONE. A listed CHZ in the upper Dry Creek area was established by historical records, which indicated nesting activity in the CHZ. Since the final listing in the Federal Register, August 1977, observations by F&WS staff have shown that the peregrines are currently using an area which partially overlaps the listed CHZ and extends further north and east. The designation of the candidate habitat zone by the F&WS alerts Federal and other public agencies of the presence of the species.

2.28 Successful reproduction of peregrines has occurred from 1977 to 1981 in this area with a total of twelve young fledged. Two different cliffs have

been used by this pair of falcons in three years, and reproduction has been successful (see Appendix B). Although the nest site was observed, not much data has been collected on this particular pair of peregrines because of the relative success of the breeding pair and their sensitivity to disturbance.

2.29 Trespass. With a relocated Hot Springs Road and public use areas along this road west of Cherry Creek, as set forth in the Draft Master Plan, visitors to the northern part of the project could be provided with access to the upper Dry Creek candidate habitat zone. Potential for trespass into private lands and into areas of the candidate habitat zone would increase with access and development of recreational facilities. As indicated previously, disturbances to nesting peregrines are of particular concern. The types of disturbances of concern include and are not limited to over-zealous recreationists such as hikers, hunters, bird watchers and wildlife photographers. The problem of disturbances in California has required the posting of monitors at seven nest sites in 1977 and 1978 (See Appendix B). Even inadvertent human intrusion into the nesting territory may result in reproduction failure of nesting falcons.

2.30 Comments from Sonoma County generated by review of the Draft Master Plan in 1979 recommended abandonment of public use of Hot Springs Road west of Cherry Creek. After an analyses of alternative routes, any relocation of Hot Springs Road was determined not to be the most cost effective solution. Although the County passed a resolution to adopt the relocated Hot Springs Road in November 1981, the best interest of the Government was determined to be a settlement with the landowners affected by the loss of Hot Springs Road. This settlement would include either a new access road from Rockpile Road to Hot Springs Road or a cash settlement.

2.31 Recreation facilities in the upper Dry Creek arm of the reservoir and fishing opportunities in the upper Dry Creek arm were initially established in the Draft Lake Sonoma Master Plan to address the authorized recreation purpose of the Warm Springs Dam and Lake Sonoma project. These facilities included a boat launching area, day use/picnic facilities, an overnight camping area, and a recreational beach. They were described in the Draft Master Plan and were located west of Cherry Creek and east of a designated sensitive wildlife area, established to protect the peregrines (See Plate 3). After review of the Draft Master Plan, these facilities and opportunities were eliminated to preclude the possibility that recreational visitors would trespass onto private lands and hike near the nest site. No recreational facilities are located in the upper Dry Creek arm of the reservoir west of Cherry Creek in the approved Final Lake Sonoma Master Plan (See Plate 2).

2.32 Development. If development were to occur on private lands in close proximity to where peregrines breed and forage, adverse impacts to successful reproduction would result. Habitat degradation and general disturbances in the nesting area from development would result in either abandonment of the nest or unsuccessful reproduction. It is noted that little is known as to the tolerance of peregrines to specific levels of habitat alteration.

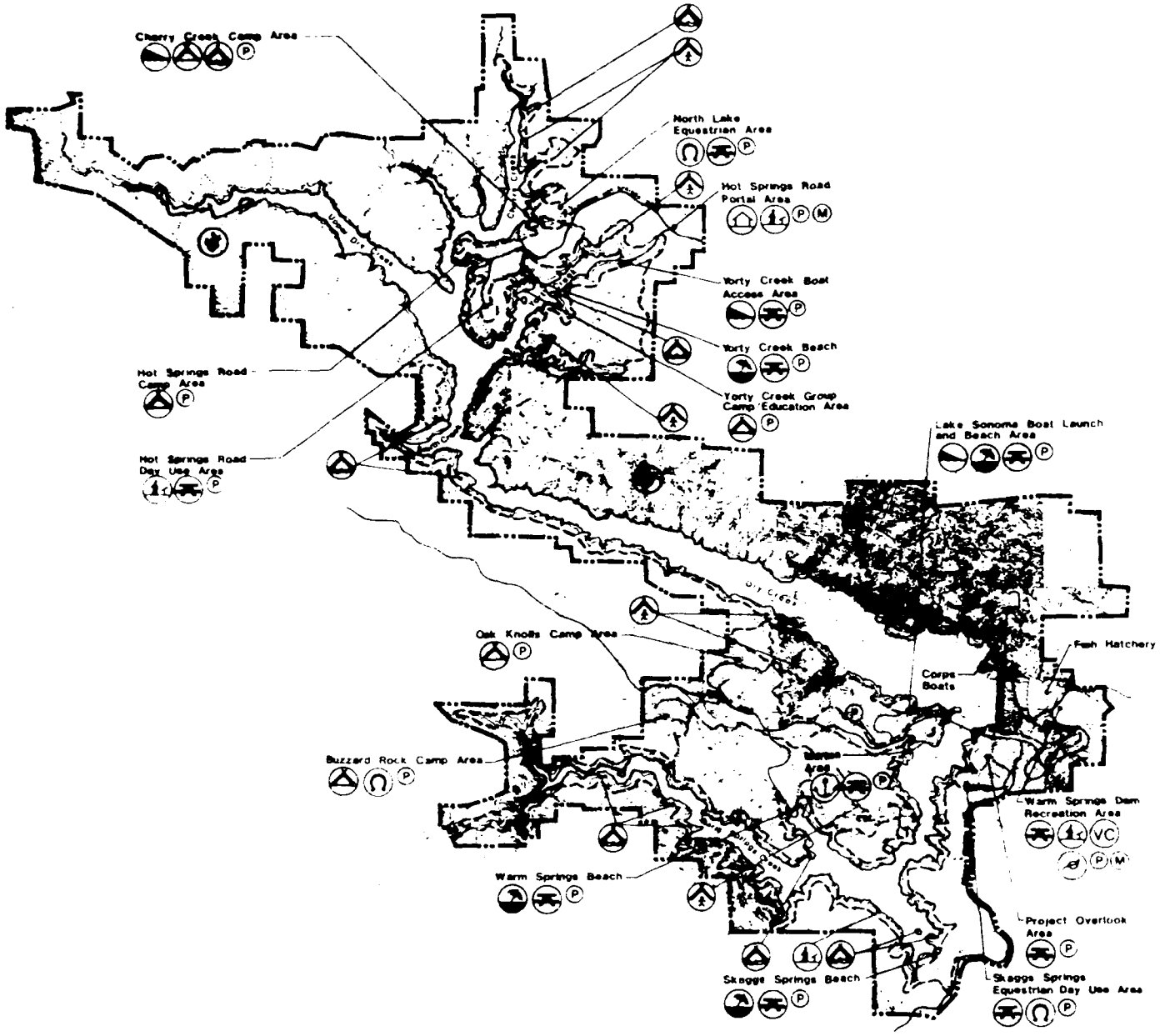
2.33 Based on existing zoning, the potential for development is high within the upper Dry Creek candidate zone. A portion of this area is zoned A-2 which allows for development. A maximum of 64 units could be developed on the two

sections where presently zoned A-2. Access to these sections is provided by Rockpile Road. The remaining portion of the area is zoned agricultural. Access by Hot Springs Road to the sensitive wildlife areas of the project and the adjacent private property of the candidate zone would be eliminated. It was stated in the biological opinion that the development of Lake Sonoma and implementation of the Master Plan would have a profound and inevitable effect on the land use patterns adjacent to the project. There are, however, other influencing factors including the presence of the critical habitat zones in the region that would also have a profound socio-economic impact upon existing land uses. For example, decisions to limit timber harvesting has made some areas less desirable as a commercial property. Such properties which cannot generate sufficient revenues would then be put up for sale. The major factors influencing less propitious conditions for existing land uses are more related to the success of present plans for development (resulting in potential increases in land values of adjacent properties) and the ability to maintain the character of the land (continuance of present conservation ethic, economic and lifestyle incentives) rather than the development of recreational facilities at Lake Sonoma. The decisions affecting alterations of property values in the region are governed by local planning and land use policies. As such, any jeopardy to the falcons that may result from new residential development and land use changes should be considered when local land use decisions are made. Maximum development could only occur with the loosening of County land use restrictions brought about by a change in the political climate. The success or failure of present plans for subdivisions and development would be closely observed by neighboring landowners. Future subdivisions would probably be based on the success of such present plans.

2.34 Habitat Enhancement. There is potential for habitat alteration that may arise from existing human activities which creates an opportunity to enhance the habitat of the peregrine. The western portion of the upper Dry Creek candidate habitat zone is designated for potential development. This would increase human activity in the candidate habitat zone. Potential for disturbance to the nest site would be dependent upon the nearness of the expected future development. Shooting in nesting territories has been a problem to falcons in past years. Uncontrolled hunting or indiscriminate shooting on lands in the candidate habitat zone is not compatible with the conservation of the peregrines.

2.35 Species Conservation. As mentioned previously there are opportunities for enhancement of the species by increasing the number of young into the wild. However, production at this nest site has been successful enough to preclude considering augmentation measures for this site at this time.

2.36 PLANNING OBJECTIVES. The planning objectives listed below were considered in the formulation of alternative plans for each CHZ and the candidate HZ. Planning objectives reflect all problems and opportunities identified in the three zones, including those presented in the F&WS biological opinion which were eliminated by measures already included as elements of the project as presently proposed.



Legend

- Marina
- Boat Launching Ramp
- Beach
- Day Use/Picnic
- Parking Area
- Boat-in Camp
- Camp Area
- Primitive Camp
- Equestrian Area
- Interpretive Area
- Information/Administration
- Visitor's Center
- Maintenance Area
- Native Plant Propagation
- Wildlife Management Area
- Trail System
- Project Boundary
- Roads

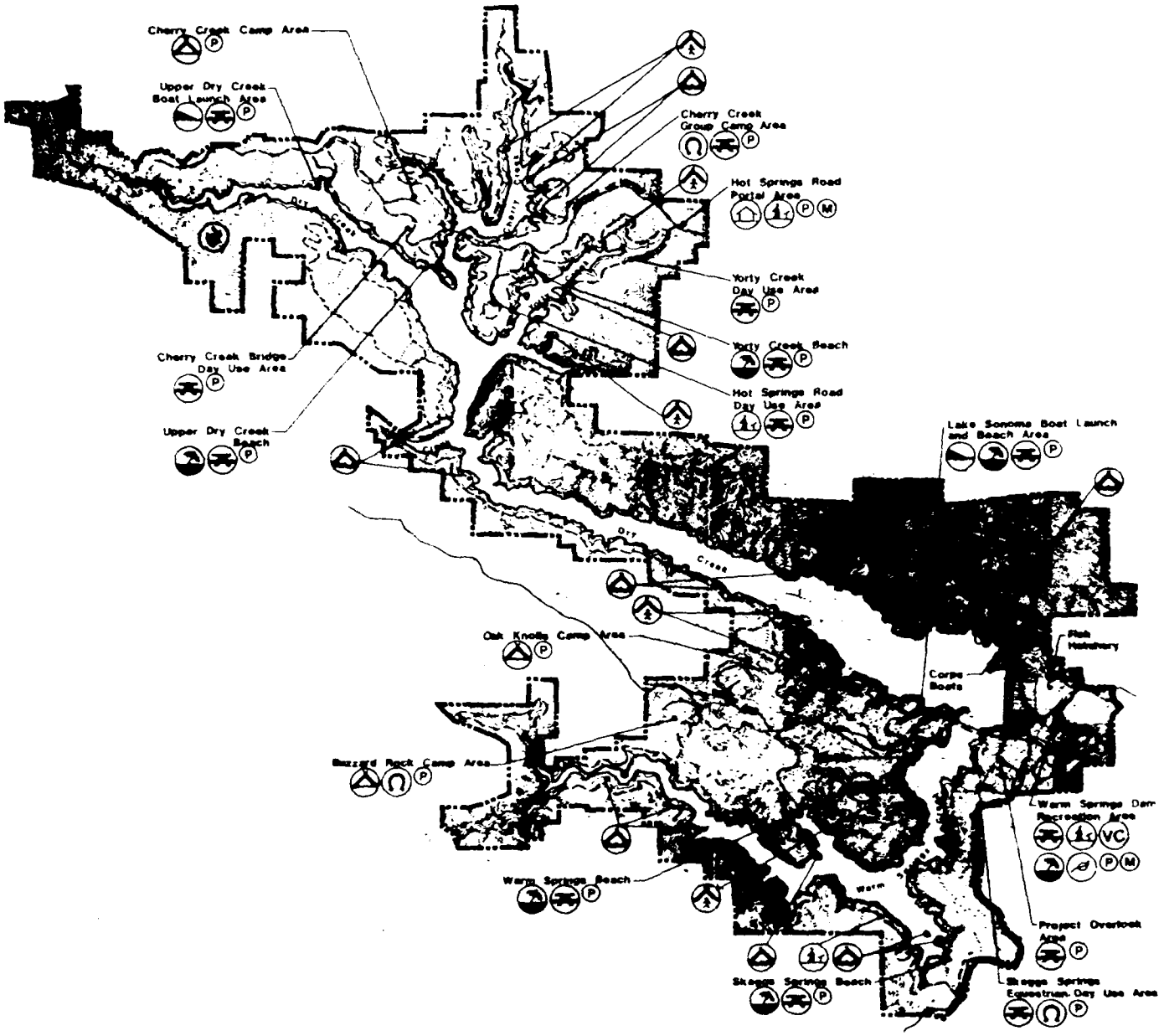
FINAL MASTER PLAN

Lake Sonoma Master Plan

Sonoma County, California

U.S. Army Corps of Engineers
San Francisco District

Royston Hanamoto Beck & Abey
Landscape Architects and Land Planners



Legend

- Marina
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- Camp Area
- Primitive Camp
- Equestrian Area
- Interpretive Area
- Information/Administration
- Visitor's Center
- Maintenance Area
- Native Plant Nursery
- Wildlife Management Area
- Trail System
- Restricted Trails
- Project Boundary
- Roads

DRAFT MASTER PLAN

Lake Sonoma Master Plan

Sonoma County, California

U.S. Army Corps of Engineers
San Francisco District

Royston, Hanamoto, Beck & Abey
Landscape Architects and Land Planners

2.37 Rancheria Creek CHZ.

A. Traffic Impact - To reduce disruption near the nesting habitat caused by diverting traffic from Kelly Road and Hot Springs Road onto Rockpile Road.

B. Trespass Impact - To protect peregrines which may attempt to take up residence in area against harrassment (either intentional or inadvertent) by trespassers due to increased activity and accessibility in area.

C. Development Impact - To eliminate disruption of the peregrine falcon caused by changes in land use in the Rancheria Creek CHZ.

D. Habitat Enhancement - To enhance the habitat in the Rancheria Creek CHZ for the peregrine falcon by eliminating disruption resulting from existing land use, and by managing the habitat specifically for the peregrine falcon.

E. Species Conservation - To enhance the nesting peregrines in the Rancheria Creek CHZ.

2.38 Dry Creek CHZ.

A. Trespass Impact - To protect nesting peregrines from disturbances caused by recreationists and hunters trespassing into the CHZ.

B. Recreation Impact - To eliminate disruption of the peregrine falcon caused by recreationists and activities in the Federally-owned portion of the CHZ.

C. Shooting Impact - To eliminate shooting in the Federally-owned portion of the Dry Creek CHZ and proposed buffer area, presently not within the existing project boundary.

D. Borrow Area Impact - To eliminate habitat destruction in the borrow area overlapping the Dry Creek CHZ.

E. Boat Noise Impact - To eliminate disruption of the peregrine falcon resulting from noise emitted by boats on the reservoir west of a line extending south from the eastern edge of the CHZ and outside of the CHZ.

F. Development Impact - To eliminate disruption of the peregrine falcon caused by changes in land use in the Dry Creek CHZ and proposed buffer area, presently not within the existing project boundary.

G. Habitat Enhancement - To enhance the habitat in the Dry Creek CHZ and proposed buffer area for the peregrine falcon by managing the habitat and eliminating disruption resulting from existing land use in that portion of the Dry Creek CHZ and proposed buffer area, presently not within the existing project boundary.

H. Species Conservation - To enhance the nesting peregrines in the Dry Creek CHZ.

2.39 Upper Dry Creek Candidate HZ.

A. Trespass Impact - To protect the peregrine falcon from disruption caused by recreational visitors who would trespass onto private property within the candidate HZ.

B. Development Impact - To eliminate disruption of the peregrine falcon caused by changes in land use in the candidate HZ not within the existing project boundary.

C. Habitat Enhancement - To conserve and improve the habitat in the Upper Dry Creek Candidate HZ for the peregrine falcon by eliminating disruption resulting from existing land use.

D. Species Conservation - To enhance the nesting peregrines for the upper Dry Creek candidate habitat zone.

3.00 ALTERNATIVES

3.01 FORMULATION OF MANAGEMENT MEASURES. The task of formulating alternatives provides for developing management systems that address the planning objectives. These management systems are comprised of compatible measures addressing one or more than one planning objective. This section describes the measures developed to address the planning objectives for each of the three areas identified in the biological opinion.

3.02 MEASURES CONTAINED IN THE BIOLOGICAL OPINION. The following list of measures were described in the May 29, 1979 biological opinion provided by the F&WS (See Appendix A). These measures are described in greater detail beginning with paragraph 3.12.

3.03 Rancheria Creek CHZ.

A. Divert Rockpile Road outside the CHZ and abandon Rockpile Road as a public road from the diversion.

B. Construct bridge and abandon Rockpile Road as a public road west of the project boundary.

C. Use a ferry system in lieu of bridge and abandon Rockpile Road as a public road west of the project boundary.

D. Realign Rockpile Road within the CHZ.

E. Acquire the CHZ in fee (about 1,820 acres).

F. Acquire environmental easement of the CHZ in lieu of fee (about 1,824 acres).

G. Implement habitat management program.

H. Implement nest monitoring.

I. Reduce reservoir size.

3.04 Dry Creek CHZ.

A. Eliminate plans for borrow area within the CHZ. (This has been accomplished.)

B. Continue annual monitoring.

C. Establish management zone, eliminating all recreation facilities and uses. (This has been accomplished in the Master Plan.)

D. Do not permit shooting or rock climbing in the CHZ. (This will be addressed in the wildlife management plan.)

E. Extend boat speed limit (10 mph) along lake adjacent to the CHZ. (This has been accomplished in the Master Plan. See Plate 4.)

F. Purchase lands within and adjacent to the CHZ not presently in the Corps ownership (about 2,013 acres).

G. Acquire environmental easement in lieu of fee purchase.

H. Implement a habitat management program.

I. Restrict public use of the existing private Kelly Road adjacent to the Dry Creek CHZ.

3.05 Upper Dry Creek Candidate Habitat Zone.

A. Eliminate public use of the upper Dry Creek arm beyond the confluence with Cherry Creek. (This has been accomplished in the Master Plan. See Plate 2.)

B. Abandon Hot Springs Road as public road beyond Cherry Creek.

C. Purchase about 9,455 acres of land encompassing the candidate zone.

D. Implement a habitat management program.

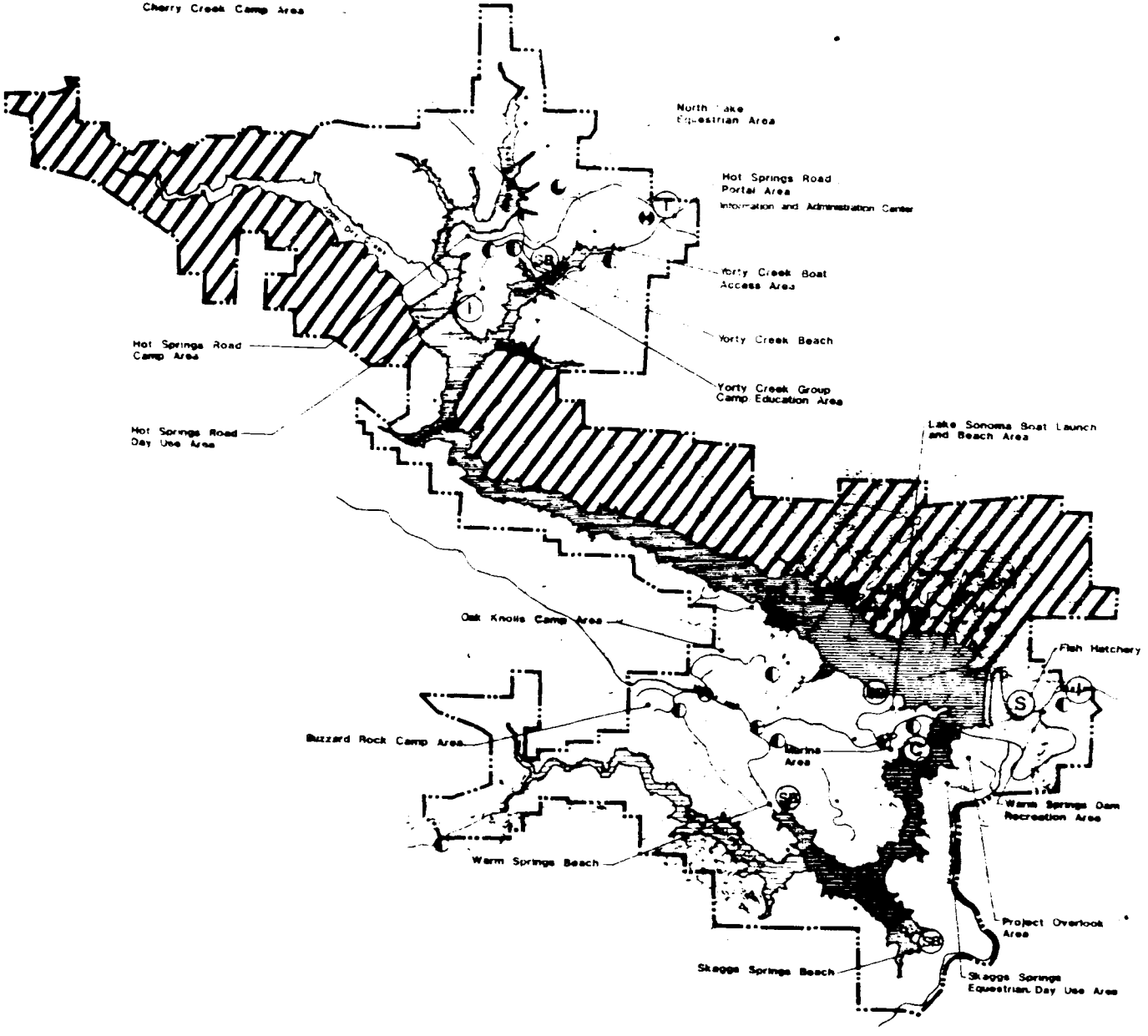
E. Acquire environmental easement to the 9,455 acres in lieu of fee purchase.

F. Implement a monitoring program.

G. Reduce reservoir size.

3.06 ADDITIONAL MEASURES CONSIDERED. The following measures were considered during continuing consultation and coordination to address the concerns indicated in the biological opinion. These measures are also described in greater detail starting with paragraph 3.08.

A. Maintain the existing road use agreement for use of Kelly Road on lands related to Dry Creek CHZ concerns. This measure was not identified in the initial rendering of the biological opinion. With rights to Kelly Road transferred to the Corps of Engineers, maintaining the road use agreements may minimize potential effects upon the falcons due to any future development.



Legend

Water Use Zones:

- No Motor (Electric Motor Permitted)
- 10 MPH/70 dBA Max.
- 70 dBA Max.
- Waterskiing Permitted (70 dBA Maximum)
- Restricted (No Boating)
- Wildlife Management Area (State Fish & Game Operated)
- Control Point (Staffed)
- Control Gate
- Access Road
- Service Road/Vehicular Trail
- (Sa) Swimming Beach
- (C) Concession Operated
- (I) Interpretive Management Area
- (S) State Fish & Game Operated

FINAL PROJECT MANAGEMENT PLAN

Lake Sonoma Master Plan

Sonoma County, California

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Landscape Architects and Land Planners

B. Relocate Hot Springs Road with features to address potential traffic and trespass from the public road into sensitive habitat areas. This was introduced by Corps staff as a measure that can be implemented under existing authority in lieu of abandonment of public use of the road. This measure was determined by the F&WS to be a reasonable alternative measures documented by letter dated 7 April 1982.

C. Implement a captive breeding program to supplement falcon populations at the nesting sites. This activity was initially identified by participants of the captive breeding program at the University of California, Santa Cruz, Predatory Bird Research Group facility and is an activity applicable to the three habitat areas.

D. Develop and implement an off-site nest program in conjunction with a captive breeding program (See Appendix B). This would provide some measure of assurance that the nesting territory would have solitude. This measure was initially described by F&WS staff.

E. Monitor potential development in the CHZ's and candidate habitat zone. This activity was introduced by the Corps during continued coordination regarding the concern of potential development.

F. A specific area plan Sonoma County to ensure that proposals for development are in conformance with General Plan policies including the open space element and protection for endangered species. Correspondence documenting procedures related to land use decisions has been provided by Sonoma County (see Appendix C, 16 December 1982 letter).

G. A negotiated settlement with landowners who were provided access by Hot Springs Road would resulted in either a cash settlement or provisions for a new access road near the western border of the project. These proposals were investigated by Corps staff to reduce the expenditure of funds for costly road relocation, and have been determined to be appropriate course of action to resolve the Federal liability for loss of access. Similar roadway features, excluding the clause governing potential future roadway expansion, shall be considered for the new access road alternative.

3.07 SUMMARY OF MANAGEMENT MEASURES. Tables 2, 3 and 4 indicate which of the planning objectives are addressed by each of the previously described management measures.

TABLE 2

RANCHERIA CREEK CHZ	Traffic	Trespass	Development	Habitat Enahancement	Species Conservation
Divert Rockpile Road (outside CHZ) and Abandonment	X	X	X		
Construct Bridge and Abandonment	X	X	X		
Establish Ferry System and Abandonment	X	X	X		
Realign Rockpile Road (within CHZ)	X	X			
Acquire CHZ in Fee			X	X	
Acquire Environmental Easement of CHZ			X		
Implement Habitat Management Program				X	
Implement Nest Monitoring		X			X
Reduce Reservoir Size	X				
Abandon Public Use of Rockpile Road		X	X		
Implement Direct-Fostering for On-site nesting					X
Off-site Nest Establishment 'Hacking)		X	X		X

TABLE 3

DRY CREEK CHZ	Trespass	Recreation	Shooting	Borrow Use	Boating Speed	Development	Habitat Enhancement	Species Conservation
Continue Nest Monitoring	X							X
Eliminate Recreation and Establish Management Zone		X						
Eliminate Shooting			X					
Eliminate Borrow Use				X				
Extend Boating Speed Limit					X			
Acquire CHZ and Proposed Buffer Zone in Fee						X	X	
Acquire Environmental Easement of CHZ and Buffer Zone						X		
Maintain use agreement of Kelly Road adjacent CHZ								
Implement Habitat Management Program						X		
Implement Direct-Fostering for On-site nesting								X
Off-site nest establishment (Hacking)	X	X	X	X	X	X		X
Monitor Potential Development						X		
General Plan Policies						X		

TABLE 4

UPPER DRY CREEK CANDIDATE ZONE	Trespass	Development	Habitat Enhancement	Species Conservation
No Recreation West of Cherry Creek -	X			
Abandon Public Road (County action)		X		
Relocate of Hot Springs Road West of Cherry Creek With Special Features	X	X		
New Access Road or Cash Settlement	X	X		
Implement Monitoring	X			X
Acquire Candidate Zone in Fee		X	X	
Acquire Environmental Easement of Candidate Zone		X		
Implement Habitat Management Program			X	
Implement Direct-Fostering for On-site nesting				X
Reduce Reservoir Size	X	X		
Off-site nest establishment (Hacking)	X	X		X
Monitor Potential Development		X		

3.08 DESCRIPTION OF MANAGEMENT MEASURES.

3.09 Rancheria Creek CHZ.

A. Divert Rockpile Road - Rockpile Road would be diverted, prior to entry into the CHZ along the eastern side of the ridge and connect to Kelly Road east of the CHZ. This action would remove traffic and potential trespass from the CHZ. Rockpile Road west of the diversion and within the CHZ would be abandoned from the County Road system and would become a private road. This would reduce potential development by eliminating public access along the road. Rockpile Road east of the diversion would remain a County-maintained road and would be constructed to County standards.

Cost of Diversion Road	$6,200,000
Annual Maintenance Cost of the Diversion	$6,000

B. Construct Bridge - A bridge would be constructed between the west segment of Kelly Road and the peninsula between Cherry Creek and Yorty Creek with a road then connecting to the relocated Hot Springs Road. This action would keep Kelly Road traffic off of Rockpile Road. The Corps would maintain or contract to maintain the bridge and the road links connecting the relocated Hot Springs Road with Kelly Road. Hot Springs Road east of the project boundary would be connected to Kelly Road, thereby avoiding Ferber Grade to accommodate Kelly Road traffic.

Cost of Bridge and Connecting Roads	$17,800,000
Annual Maintenance of Bridge and Connecting Roads Per Year	$63,000

C. Ferry System - A ferry system would be provided between the west segment of Kelly Road and Hot Springs Road near Yorty Creek and be operated by the Corps. This action would require constructing moorings for two terminals and the linkage between Kelly Road and the relocated Hot Springs Road. A suitable ferry would also be purchased. This action also would keep Kelly Road traffic off of Rockpile Road.

Ferry System	$14,500,000
Operation and Maintenance of Ferry	$500,000 per year

D. Rockpile Road Realignment - Realign Rockpile Road just over the ridge to the northeast, out of sight of the nesting cliff, but still within the CHZ. Such an alignment was planned subsequent to project authorization and was included in the Final EIS, December 1973. Design of the road alignment to resolve the concerns of the endangered falcons was developed in coordination with F&WS to insure that the realigned road is "out-of-sight" of the nesting area to minimize disturbances. Fencing and posting of signs would be provided along the road right-of-way through the CHZ to discourage trespass. By realigning Rockpile Road within the CHZ away from the nesting cliff, the trepass and traffic impacts would be addressed. The realignment would place the portion of Rockpile Road over to the northern face of a small ridge. An old lumber road located on this northern face of the ridge would be improved to serve as the realigned Rockpile Road. The cost of improvements to

this portion of the Rockpile Road improvements is estimated to be $1,100,000.

E. Environmental Easement - An environmental easement would be purchased for the following area:

T10N R11W W-1/2 of SW-1/4 Sec 6, W-1/2 of NW-1/4 Sec 6, NW-1/4 of NW-1/4 Sec 7

T10N R12W Sec 1, E-1/2 of NE-1/4 Sec 2, SW-1/4 of NE-1/4 Sec 2, SE-1/4 Sec 2, E-1/2 of SW-1/4 Sec 2, SE-1/4 of NW-1/4 Sec 2, N-1/2 of NE-1/4 Sec 11, NE-1/4 of NW-1/4 of 11,

N-1/2 of NE-1/4 Sec 12, N-1/2 of NE-1/4 Sec 12

T11N R11W SW-1/4 of SE-1/4 Sec 31, S-1/2 of SW-1/4 Sec 31

T11N R12W S-1/2 of SE-1/4 Sec 36, SE-1/4 of SW-1/4 Sec 36

An environmental easement would take the form of an easement on the property which would maintain existing or historical land uses. The easement would retain the existing Primary Agriculture zoning and would preclude changes in land use permitting any residential development. This action would eliminate potential disturbance resulting from residential development in the CHZ.

Environmental Easement of 1,824 Acres $475,000

F. Fee Purchase - The area described above would be purchased in fee. By acquiring lands, all uses could be effectively controlled.

Fee Purchase 1,824 Acres $941,000

G. Habitat Management - A habitat management plan with major emphasis on the peregrine falcon would be implemented. This plan would provide for management of lands to improve habitat for prey species and to modify, if needed, suitable nesting areas. This action could be implemented only in conjunction with fee acquisition and would result in habitat enhancement.

Management Program Cost $10,000 per year

H. Nest Monitoring - A cooperative agreement with the local landowner to implement an annual monitoring of the nest site would be established by the Corps. This program would involve 24-hour protection against undue disturbances to the falcons throughout the nesting season.

Monitoring Cost $20,000 per year

I. Reduce Reservoir Size - This proposed measure would limit permanent reservoir filling above the 330-foot contour so that the existing Kelly Road and Hot Springs Road would remain unchanged in character and use patterns. This would maintain traffic use on existing roads at present levels. The most cost effective way of accomplishing this alternative would be to maintain the dam and appurtenant facilities as designed but to modify operations. Some

cost savings would result from reduced recreation and relocation costs. However, none of the water supply benefits would be realized and adverse impacts on fishery mitigation and enhancement would occur due to insufficient releases. Access on Kelly Road and Hot Springs Road would be severed at times during the winter due to flood storage. Monetary losses and cost savings are undetermined.

J. On-site Captive Breeding Program - Since no existing nesting pair of falcons are presently using this site, it may be possible to reintroduce individuals to the area by hacking. Immediate occupancy of the nest site could be accomplished by a captive breeding program utilizing the historic nest site. This activity would be an enhancement feature involving the placement of individuals raised in captivity into the CHZ.

Cost of Captive Breeding (Minimum 4 year period)	$3,000 per year

K. Off-site Hacking - Specifically for the Rancheria Creek CHZ where nesting falcons have not been observed in recent years, an off-site program to replace an unproductive site is appropriate to maintain the population. Captive-bred young can be introduced into the wild to increase survival percentages. It is noted that the magnitude of success in establishing a population from captive breeding is relatively low (See Appendix B). This measure is, however, considered to be a practical and important activity specifically designed to promote conservation of the falcon species where appropriate conditions exist for long-term habitation as demonstrated by publicized efforts in other parts of the State and its inclusion in the Recovery Plan for the American peregrine falcon. By developing a new nest site and establishing a hacking program, the once productive Rancheria Creek CHZ could be effectively replaced. F&WS would determine an appropriate site and complete an agreement with the Federal agency administering the land.

Initial cost to establish nest site	$45,000
Monitoring (over 4-year period)	$20,000 per year

3.10 Dry Creek CHZ.

A. Continued Nest Monitoring - A monitoring program was established in the spring of 1979 at the request of the F&WS to protect and collect data from the nest site during construction of Warm Springs Dam. The present monitoring of the existing nesting location would continue annually as long as the peregrines nest in this CHZ. This would prevent undue disturbances in the CHZ and would permit data collection. The cost for this activity has been estimated to be $20,000 annually. Administration of the monitoring of the falcon nesting in the Dry Creek CHZ will be the responsibility of either F&WS or the Corps of Engineers.

B. Establish Management Zone and Eliminate Recreational Activities and Facilities Within the CHZ - Recreational activities were initially planned in the Dry Creek CHZ as described in the Draft Master Plan, December 1978. Hiking/equestrian trails, and boat-in camping have been eliminated from the CHZ. Some recreational development was relocated to other areas in the Final Master Plan, October 1979 (See Plate 2). A wildlife management zone has been established for this area to compensate for losses to wildlife resources, and management primarily for the peregrine falcon will be included in the

management plan for the area. This management zone will be administered by the State of California, Department of Fish and Game.

C. Preclude Shooting and Related Activities Within the CHZ - This measure is to be incorporated into the wildlife management plan for the management area around Pritchett Peaks. This restriction on shooting was to ensure that shooting-related fatalities are minimized in this high falcon use area.

D. Eliminate Borrow Area from CHZ - The initial construction plans of the Warm Springs Dam and Lake Sonoma project called for the use of land areas north and west of the dam as a source of borrow area. No excavation has been scheduled in the CHZ.

E. Extend Boating Speed Limit - The 10 mile per hour speed limit depicted for the northwestern part of the lake in the Draft Master Plan has been extended southeasterly along the lake to include the water surface adjacent to the CHZ management area in the Final Master Plan (See Plate 4). This has been accomplished to lessen noise levels near the nest site of the peregrine. No costs were associated with this measure.

F. Fee Purchase - All lands not currently in Corps ownership in T11N, R11W, Sections 33, 34, 35, and 36 and T10N, R11W, Sections 1, 2, 3, and 4 (about 2,013 acres) would be purchased in fee. The cost for fee purchase of these lands is estimated to be $1,730,000.

G. Habitat Managment - A habitat management plan with major emphasis on the peregrine falcon would be implemented on lands not currently in Corps ownership described above. The plan would provide for management of lands to improve habitat for prey species and to modify, if needed, suitable nesting areas. The management plan is estimated to be $10,000 per year. Actions outlined under the plan could only be implemented in conjunction with fee acquisition of non-Federal lands. This measure would result in habitat enhancement.

H. Environmental Easement - An environmental easement for those lands indicated in 3.09 E. above would be acquired. This area includes the CHZ plus a proposed buffer area. This action would remove potential future development from the CHZ. The cost for the easement is estimated to be $910,000.

I. Maintain Kelly Road Use Agreement - Since the Corps owns rights to the use of Kelly Road, the following conditions would remain in effect:

(1) Users cannot do anything to make Kelly Road a public road.

(2) The Corps as "Grantor" has no duty to maintain road.

(3) The Corps as "Grantor" has authority to lease and terminate road use in event users default in performance or observance of any of conditions in the agreement.

By maintaining the set of conditions of the road use agreement for the areas of the Dry Creek CHZ and adjacent lands serviced by Kelly Road, trespass may

be minimized. However, the rights to the road are transferrable and would not be effective in preventing development if local land use decisions allowed such development. No cost has been associated with this measure as this road use agreement is presently in effect.

J. On-site Captive Breeding Program - By implementing a captive breeding program, the existing production at the nest site can be augmented to increase potential for survival of the species. Concern about eggshell thinning due to accumulation of pesticides has been identified by F&WS in 1981, and in 1982 eggs laid in the wild were replaced. Two young birds were hatched in a controlled environment and returned to the nest during the spring of 1982 under the F&WS direct-fostering program. This activity is expected to continue based on a year-to-year need under the existing F&WS/State Fish and Game captive breeding program.

K. Off-site Hacking - Although off-site opportunities to increase the species population are available, implementing measures to take advantage of such opportunities in conjunction with this site would be considered enhancement and would require cost-sharing between the Federal government and a non-Federal sponsor. Since this site is actively used by nesting adult falcons, additional young peregrines introduced to the wild off-site would potentially increase the probability of the young surviving into adulthood. An off-site program may be considered at a later time in the event project conditions or related factors degrade production at the Dry Creek CHZ nest site.

Initial Cost to Establish Nest Site	$45,500
Monitoring (over 4-year period)	$20,000 per year

L. Monitor Potential Development in the CHZ - This activity would be performed by the Park Manager. The Park Manager would be responsible for keeping abreast of local plans or programs which would lead to development in or near this CHZ. Upon determining that development in the CHZ is likely to occur, F&WS will be contacted and notified of such proposed development. This will afford the opportunity for F&WS and the Corps of Engineers to provide direct input to the local planning entity. This would ensure that consideration for endangered species is given when the local land use decisions are being made. This task would fall within the operation and maintenance activities of the project office. Although this measure would not result in a direct action to limit development in the areas of concern, it does provide a adequate means for addressing the concerns of the endangered falcons in the local land use decision-making process. This would be a measure that can be implemented by the Corps of Engineers without seeking additional authority from Congress.

M. General Plan Policies - A planning effort specifically for the Dry Creek CHZ adjacent to the Warm Springs Dam and Lake Sonoma project to promote the conservation of the endangered falcons was determined not to be necessary by Sonoma County (See Appendix C - 16 December 1982 letter). The General plan provides for conditions necessary for protecting the endangered falcons and the Dry Creek CHZ. No cost is associated with this activity.

3.11 Upper Dry Creek Candidate HZ.

A. No Recreational Development - All public use of the Upper Dry Creek arm beyond the confluence with Cherry Creek would be eliminated, including any type of boating. The project area west of Cherry Creek would be managed basically for wildlife purposes. Recreational plans have been eliminated in the Final Lake Sonoma Master Plan to reduce potential for off-site trespassing which may disturb nesting falcons. No costs were associated with this action.

B. Abandon Public Use of Hot Springs Road - This measure would require County action to remove public use west of Cherry Creek from a relocated Hot Springs Road. This action would restrict traffic and access to the properties beyond the Warm Springs Dam and Lake Sonoma Boundaries. The relocated road could be used by property-owners, but the County would not necessarily be responsible for maintenance activities. The County must, however, be willing to accept responsibility for implementing abandonment procedures. A compensatory settlement of undetermined amount between the affected landowners and the County would probably be required. The cost of abandoning the road is undetermined.

C. Relocate Hot Springs Road - Hot Springs Road beyond Cherry Creek would be relocated to replace the public road used by the two existing landowners for their access. The road from the bridge west to the Cooley Ranch would be a two-lane road meeting the minimum standards acceptable to the County. No turn-outs would be constructed and a combination guard rail and high berm barrier would be placed along the roadway to prevent off-road parking. (These features would discourage trespass impacts.) This segment of road would be maintained by the County through the project area.

Total Estimated Cost $8,900,000

D. New Access Road - Instead of relocating Hot Springs Road, a new access road for the two affected landowners will be provided. The new road would connect Hot Springs Road with Kelly Road to the west of the Warm Springs Dam and Lake Sonoma Project. Measures to be incorporated into the new road design would include:

1) A minimum two-lane roadway width of 20-feet with 2-foot shoulders on each side.

2) Placement of guard railing and high berms where road cuts or fills are necessary.

3) Posting of "No Parking" and "No Trespassing" as appropriate along the roadway.

4) Monitoring of development proposals adjacent the Warm Springs Dam and Lake Sonoma project.

The need for Hot Springs Road west of Cherry Creek would be eliminated, thereby addressing the concerns for the upper Dry Creek candidate zone. Similarly, a cash settlement with the Landowners may be a plausible means to address the concerns of the peregrines. The potential for public access

through Federal Lands would be eliminated. Either of these measures would be less costly than the proposal described in C. and are within the present authority of the Corps of Engineers to implement.

Total Estimated Cost	$4,600,000

E. Implement Monitoring Program - A cooperative agreement for the implementation of a monitoring program would be procured by the Corps of Engineers. This program would involve 24-hour protection from trespass into the candidate zone throughout the nesting season.

Monitoring Program Cost	$20,000 per year

F. Fee Purchase - All lands in T11N, R12W, Sections 14, 15, 16, 17, 18, 19, 20, 21, 23, 26, 27, 28, 29, and 30 would be purchased in fee. Land acquisition would prevent or eliminate land use activities leading to deterioration of habitat values of the falcons. This measure would thereby provide solitude during the year maximizing conditions for successful reproduction.

Fee Purchase of 9,455 Acres (only lands within the candidate zone)	$9,800,000

G. Purchase Environmental Easement - The environmental easement for all lands described in F. above would be purchased. This would ensure that potential development would not occur in the candidate zone. Adverse impacts upon the falcons from such development would be prevented.

Development Rights to 9,455 Acres	$1,840,800

H. Habitat Management Program - A management plan with major emphasis on the peregrine falcon would be implemented. This plan would provide for management of lands to improve habitat for prey species and to modify, if needed, suitable nesting areas. Implementation of this program would require fee acquisition of the lands to be managed.

Management Program Cost	$10,000 per year

I. On-site Captive Breeding Program - A captive breeding program would augment the existing successful propagation of the local nesting falcons. Although this program is a highly useful technique to increase species numbers, it is not likely that such a measure would be introduced to a successful breeding pair to minimize disturbances to the falcons.

Cost of Captive Breeding	$3,000 per year

J. Off-site Hacking - An off-site program could be implemented. This measure would potentially increase the falcon population by the introduction of young birds into the wild. In order to undertake this measure in conjunction with the upper Dry Creek candidate habitat zone, a sponsoring agency is required to cost share since this action would be considered an enhancement activity.

Initial Cost to Establish Nest Site	$45,000
Monitoring (over 4-year period)	$20,000 per year

K. Reduce Reservoir Size - The reservoir would not be filled higher than approximately the 330-foot contour. This measure would eliminate recreation development in the northern portion of the project and eliminate the need for any relocation of Hot Springs Road. This would address the impact of trespass upon the peregrines and the project effects on development of the area would be eliminated.

L. Monitor Potential Development - This activity is similar to that described in 3.10 L.

3.12 Management Measures Costs. Table 5 summarizes all costs for the measures discussed.

TABLE 5
COMPARISON OF ESTIMATED COSTS

MANAGEMENT MEASURES	FIRST COST	O&M COST	TOTAL ANNUAL COST AT 3-1/8% 0.03276	TOTAL ANNUAL COST AT 7-7/8% 0.07879
Rancheria Creek CHZ				
Realignment Rockpile Road	1,100,000	6,000	42,000	93,000
Divert Rockpile Road	6,200,000	6,000	210,000	490,000
Construct Bridge***	17,800,000	63,000	650,000	1,470,000
Ferry System***	14,500,000	500,000	975,000	1,140,000
Environmental Easement*	475,000	-	16,000	37,000
Purchase & Management*	940,000	10,000	41,000	84,000
Monitoring Nest	-	20,000	20,000	20,000
Captive Breeding	-	3,000	3,000	3,000
Off-site Hacking	45,000	20,000	4,000	10,000
Dry Creek CHZ				
Monitoring Nest	-	20,000	20,000	20,000
Establish Management Zone	-	-	-	-
Kelly Road Use Agreement	-	-	-	-
Environmental Easement*	910,000	-	30,000	70,000
Fee Purchase & Management*	1,730,000	10,000	67,000	146,000
Captive Breeding	-	-	-	-
Off-site Hacking	45,000	20,000	4,000	10,000
Monitoring Potential Development	-	+	-	-
General Plan Policies	-	-	-	-
Upper Dry Creek Candidate Zone				
Abandonment of Road (County)	UNK	UNK	UNK	UNK
Road Relocation***	8,900,000	-	290,000	700,000
New Access Road*** /Cash Settlement	4,600,000	-	151,000	360,000
Environmental Easement	1,840,000	-	60,000	145,000
Fee Purchase & Management**	9,800,000	10,000	330,000	780,000
Monitoring Program	-	20,000	20,000	20,000
Captive Breeding	-	3,000	3,000	3,000
Off-site Hacking	45,000	20,000	4,000	10,000
Monitoring Potential Development	-	+	-	-
Lower Pool and Abandon Rockpile Road	UND	UND	UND	UND

*July 81 estimate
**July 82 estimate
***September 82 estimate
UND undetermined
+ Estimated cost is expected to be variable and included in Park Manager's functional responsibilities.

3.13 LIST OF MEASURES ADDRESSING CONCERNS OF THE FALCONS TO BE IMPLEMENTED. Of the measures contained in the biological opinion, some were considered administrative type actions and are to be or were implemented under the existing authority of the Corps of Engineers. These measures included (1) no consideration of the borrow area usage in the Dry Creek CHZ, (2) annual monitoring of nest in Dry Creek CHZ, and establishment of a management zone on existing Federal lands in the Pritchett Peaks area for the peregrines, (3) elimination of recreational development in and around the Dry Creek CHZ as proposed in the Draft Master Plan, (4) elimination of rock climbing and shooting in the Dry Creek CHZ, (5) extension of the 10 mph speed limit for boats, and (6) elimination of public use in the upper Dry Creek arm of the reservoir west of Cherry Creek. The establishment of a nest site on existing Federal Lands to replace the nest in the Rancheria Creek CHZ, the negotiated replacement road for loss of Hot Springs Road, the delineation of General Plan policies by Sonoma County, and monitoring development in the Dry Creek CHZ and upper Dry Creek candidate zone are other measures addressing the concerns of the falcons that have been developed subsequent to the May 29 biological opinion and have been confirmed by the F&WS by letter dated 7 April and 30 November 1982 (See Appendix E). All of the above measures have been or will be implemented without requiring additional authority. These measures will be assumed accomplished under the no-action condition. (See description of Plan A No-Action, Plans Considered in Detail)

3.14 MANAGEMENT MEASURES ELIMINATED FROM FURTHER CONSIDERATION. Several measures, most of which were provided in the 29 May 1979, F&WS biological opinion, were eliminated from further consideration. These include:

A. Divert Rockpile Road outside of the Rancheria Creek CHZ, while abandoning Rockpile Road within the CHZ.

B. Construct bridge and abandon Rockpile Road from the western edge of the project boundary.

C. Establish a ferry system and abandon Rockpile Road from the western edge of the project boundary.

D. Realign Rockpile Road within the Rancheria Creek CHZ.

E. Acquisition of environmental easement of Rancheria Creek CHZ.

F. Acquisition in fee of the Rancheria Creek CHZ.

G. Maintain Kelly Road use agreements.

H. Off-site Hacking (Dry Creek CHZ).

I. Abandon public use of Hot Springs Road west of Cherry Creek.

J. Relocation of Hot Springs Road with special features.

K. Acquire an environmental easement to 9,600 acres of land (candidate habitat zone).

L. Captive Breeding (Candidate Habitat Zone).

M. Off-site Hacking (Candidate Habitat Zone).

N. Reduce reservoir size.

3.15 Because of the existing degraded condition of the Rancheria Creek nest site, measures to protect or enhance the site would not achieve the desired results. All measures except the off-site hacking associated with the Rancheria Creek CHZ were eliminated in favor of the measure to establish a nest site on existing Federal lands where conditions would be more amenable to the productivity of the falcons than at the Rancheria Creek CHZ. The Kelly Road use agreement was determined to be ineffective in limiting potential development of the lands of the Dry Creek CHZ. The road abandonment measures cannot be carried out by the Corps, but could be accomplished by the County. To date the County has not indicated a willingness to initiate such action for Hot Springs Road or Rockpile Road. However, relocation of Hot Springs Road is eliminated from further consideration because a negotiated settlement with the two landowners has been determined to be the least cost measure to address the road relocation issue. With such settlement, the concerns of the falcons would be satisfied.

3.16 The management option involving the acquisition of an environmental easement for the 9,455 acres of private land in the candidate habitat zone was eliminated because it would not provide habitat improvement as would acquisition of lands by fee purchase. Easement acquisition would address a single objective (development) which has been adequately addressed by a measure already proposed for implementation. Therefore, this measure was removed from further consideration.

3.17 The measure of reducing the size of the reservoir has been eliminated from consideration because the primary purposes for which the reservoir was authorized would not be served. In addition, although some adverse impacts on the endangered species resulting from the project would be lessened, this measure would not provide for the needs of other fish and wildlife resource values including the mitigation and enhancement of anadromous fisheries. By itself this measure would address objectives which have been adequately addressed by other measures already proposed for implementation.

3.18 Due to the presently successful natural nesting and reproduction in the upper Dry Creek candidate habitat zone, captive breeding measures that may be implemented in conjunction with the candidate zone have not been included for further consideration at this time. Disturbances to the nest would be minimized and natural production is expected to continue. Due to a noticeable thinning in eggshell thickness at the Dry Creek nest, a manipulative program was successfully implemented by F&WS. Natural nesting at the Dry Creek CHZ is expected to continue. However, to facilitate production at this site, manipulation by F&WS may be continued under their program. Other captive breeding measures to augment the population are not desirable at this time.

3.19 PLAN FORMULATION RATIONALE. By combining the viable and compatible measures described previously, plans are formulated to address the planning objectives for the three zones. The following discussion describes the plans being considered for detailed evaluation and selection. Since every possible combination of the management measures would yield a very large array of alternative plans, specific goals have been set which are satisfied by specific combinations of management measures. All plans assume that the management measures included in the "no-action" alternative would be implemented unless otherwise specified. These measures and the objectives that they address are shown on Table 6. Table 7 depicts additional measures to be considered further.

TABLE 6

MANAGEMENT MEASURES TO BE IMPLEMENTED
IN PLAN A, THE "NO-ACTION ALTERNATIVE"

	Rancheria Creek					Dry Creek CHZ					Upper Dry Creek Candidate HZ	
	Traffic	Trespass	Development	Species	Conservation	Trespass	Recreation	Shoot./Climb.	Borrow Use	Boating Speed Development	Trespass	Development
Establish Nest Site on Existing Federal Lands for Rancheria Creek CHZ	X	X	X	X								
Continue monitoring in Dry Creek CHZ						X						
Eliminate Borrow Use in Dry Creek CHZ									X			
Eliminate Recreation and establish management zone for Dry Creek CHZ							X					
Eliminate Rock Climbing and Shooting in Dry Creek CHZ								X				
Extend 10 mph Speed Limit For Boats in Dry Creek CHZ										X		
Delineate General Plan Policies for Dry Creek CHZ										X		
Monitor Development in Dry Creek CHZ										X		
Eliminate Public Use in Upper Dry Creek Candidate Habitat Zone												X
New Access Road												X
Monitor Development in Upper Dry Creek Candidate Habitat Zone												X

TABLE 7

SUMMARY OF ADDITIONAL MEASURES
TO BE CONSIDERED*

MEASURES	Dry Creek CHZ			Upper Dry Creek Candidate HZ		
	Development	Habitat Enhancement		Trespass	Development	Habitat Enhancement
Acquire Lands Adjacent to & Including CHZ Lands Not Owned by Corps in Fee	X					
Implement Management for All Lands in Dry Creek CHZ		X				
Acquire Environmental Easement To Dry Creek CHZ Including CHZ not owned by Corps	X					
Implement Monitoring for Candidate Zone				X		
Acquire Candidate Zone in Fee					X	
Implement Management for Candidate Zone						X

*These measures address concerns which will result in enhancement for the endangered peregrines.

3.20 PLANS CONSIDERED IN DETAIL. Review of the reasonable and prudent alternatives as provided by the F&WS has resulted in the establishment of several plans that can potentially improve the habitat conditions supporting the American peregrine falcon population in the Dry Creek drainage basin. Since these plans involve acquiring an interest in lands, Congressional approval and authority would be required prior to implementation by the Corps. To address those concerns of the F&WS regarding actions causing jeopardy to the endangered falcons, actions within the existing authority of the Corps of Engineers shall be taken in relation to the Warm Springs Dam and Lake Sonoma project. In accordance with the Section 7 requirements, these actions shall be taken whether or not any of the enhancement plans are pursued and are described in Plan A-No Action.

3.21 Plan A. This plan describes the "no-action" alternative. This plan does not literally indicate that "no-action" would be taken. The "no action" description refers to the requirement for new or additional authority beyond the discretion of the Corps of Engineers. As mentioned earlier, several measures have been or shall be implemented within the existing authority of the Corps of Engineers that would satisfy the concerns regarding jeopardy to the endangered falcons expressed by the F&WS in their 29 May 1979 biological opinion. The measures which are listed in paragraph 3.13 and on Table 6, address all concerns identified in the 29 May 1979 biological opinion except opportunities to improve upon existing and future habitat conditions. The effects of this plan are described in Section 5, Environmental Consequences of Alternative Plans. Plan A is evaluated in consideration of four tests: completeness, effectiveness, efficiency and acceptability.

(1) Completeness. This plan includes all measures required to remove jeopardy to the endangered falcons that would result from the implementation of the Lake Sonoma Master Plan and related actions. This plan does not address the opportunities to provide enhancement to the falcon population residing in the Dry Creek drainage system. Although no land acquisition authority is necessary, an agreement between the Federal agency administering the lands where the proposed nest site would be established and the F&WS is necessary to undertake this activity. All other actions proposed are within the authority of the Corps of Engineers.

(2) Effectiveness. This plan addresses all of the objectives to remove jeopardy. While the measures are effective in eliminating project induced jeopardy, the effectiveness of preserving the endangered falcons is uncertain due to the many actions which could occur independent of the Corps project. Potential development that may occur in the Dry Creek CHZ and candidate habitat zone will be monitored by the Park Manager. This activity will allow timely notification to F&WS in order to bring plans or proposals for development in these areas to the attention of F&WS. Although the County's General Plan allows for special consideration for endangered species in the Open Space Element, F&WS and the Corps would be able to provide input to the local planning process through the County's referral process.

This would insure that appropriate consideration is given to the needs of the endangered falcons residing in the area. In the event local land use decisions were not responsive to the concerns of the endangered falcons, the Corps would lend its support, if desired, to either the State or the F&WS in acquiring the affected properties, either by Section 5 acquisition authority or by Section 6 pursuant to the Cooperative Agreement with the State, whichever is most expedient. If the existing productive nest sites were adversely affected by increased development, establishment or additional off-site nests could also be considered as a last resort.

(3) Efficiency. The funds to implement this plan and remove jeopardy to the falcons is included within the Corps of Engineers budget request. Costs associated with the new access road (settlement) are not included since it is the least cost alternative of compensating local landowners for the loss of Hot Springs Road.

First Costs	$45,500
O&M Costs (4 years)	$19,500 per year
Total Annual Costs	$11,400 @ 7-7/8%

(4) Acceptability. This plan is compatible with existing laws as summarized in Table 1. This plan has also been accepted by F&WS as reasonable and prudent to remove jeopardy to the falcons by letter dated 7 April 1982.

3.22 Plan B. This plan has been formulated to improve the Dry Creek CHZ without fee acquisition. Included in this alternative would be all of the measures in Plan A. This plan would also include the acquisition of an environmental easement on lands of the Dry Creek CHZ, and buffer area outside of the existing Federal ownership. This alternative addresses the potential problem of land use changes in the Dry Creek CHZ. The effects of this plan are further discussed in Section 5, Environmental Consequences of Alternative Plans. This plan would require local cost sharing (66-2/3 Federal; 33-1/3 non-Federal) and Congressional approval and funding. Plan B is also evaluated in considerationn of the four tests: completeness, effectiveness, efficiency and acceptability.

(1) Completeness. To be implementable a non-Federal entity must be identified to cost-share (33-1/3%) for the acquisition of an easement. Since a local sponsor has not been identified, this plan is considered incomplete (no local agency has been approached at this time). As with Plan A, the F&WS must enter into an agreement with the Federal agency administering the lands where the proposed nest site would be established.

(2) Effectiveness. This plan further addresses the objective of eliminating disruption to the peregrines caused by the potential introduction of new development in the Dry Creek CHZ. While allowing for protection to the Dry Creek CHZ, this plan does not provide for habitat enhancement or take advantage of opportunities to further protect and improve the candidate habitat zone. This plan would eliminate disruption of the falcons resulting from potential development in the Dry Creek CHZ, but would not eliminate disruption from existing land uses such as hunting. Therefore, the effectiveness of preserving the falcons would remain uncertain.

(3) Efficiency. In order to acquire easements to provide the additional protection for the Dry Creek CHZ, it is estimated that the following costs would be incurred:

First Costs	$955,700
O&M Costs (4 years)	$ 19,500 per year
Total Annual Costs	$ 81,000 @ 7-7/8%

(4) Acceptability. This plan is compatible with existing laws as summarized in Table 1. This plan would remove jeopardy as indicated in the 29 May 1979 biological opinion. However, landowners have not had an opportunity to comment on this plan.

3.23 Plan C. This plan has been formulated to address concerns of the Dry Creek CHZ without fee acquistion and provide monitoring to protect the upper Dry Creek candidate habitat zone. This alternative would also allow for the public use of a larger portion of the lake while affording adequate protection to the Upper Dry Creek candidate habitat zone. This plan consists of all of the measures in Plan A. This plan also involves acquiring an environmental easement of the lands of the Dry Creek CHZ. In addition, an annual monitoring program involving 24-hour protection throughout the nesting season would be implemented to protect the upper Dry Creek candidate habitat zone. This alternative would allow limited public use of the upper Dry Creek arm of the reservoir (i.e. fishing). The efforts of this plan are further described in Section 5, Environmental Consequences of Alternative plans. This plan would require local cost sharing and Congressional authority and funding. This plan is also evaluated in consideration of the four tests: completeness, effectiveness, efficiency and acceptability.

(1) Completeness. Like Plan B, a local sponsor must be identified to cost-share (33-1/3%) in the acquisition of the easement and provision of the monitor.

(2) Effectiveness. This plan would provide for a more active measure to protect the upper Dry Creek candidate habitat zone from trespass, inadvertent or otherwise by establishing a full-time monitor during the falcon nesting season. This plan would protect the Dry Creek CHZ and would actively limit potential trespass into the sensitive wildlife area and candidate habitat zone. Existing land uses would still influence the quality of the habitat.

(3) Efficiency. Although similar to Plan B, an additional $20,000 annually would be needed for the full-time monitor to operate in the upper Dry Creek arm of the Warm Springs Dam and Lake Sonoma project.

First Costs	$955,700
O&M Costs	$ 39,500 (first 4 years)
	$ 20,000 (thereafter)
Total Annual Costs	$101,000 @ 7-7/8%

(4) Acceptability. This plan is compatible with existing laws as summarized in Table 1. This plan has been accepted by F&WS as reasonable and prudent to remove jeopardy as indicated in their 29 May 1979 biological opinion. Landowners have not commented on this plan.

3.24 Plan D. This plan has been formulated to maximize conservation of the endangered species in the Dry Creek CHZ by protecting, preserving and managing the habitats. It would improve the habitat conditions of the CHZ to the greatest extent of all alternatives. This plan involves all of the measures included in Plan A. This plan also includes the fee acquisition of the Dry Creek CHZ. Along with fee acquisition of the above lands (about 2,000 acres of privately owned lands), habitat management plans with major emphasis upon the endangered falcons would be prepared and implemented for the respec- tive areas acquired in fee. The effects are further discussed in Section 5, Environmental Consequences of Alternative Plans. Non-Federal cost sharing and congressional approval and funding would also be required. This plan is also evaluated in consideration of the four tests:

(1) Completeness. Similar to Plan B, this plan will also take advantage of the opportunity to improve habitat conditions in the Dry Creek CHZ through the acquisition of CHZ lands outside of the project boundary. In addition, a management program specifically designed to promote the conservation of the endangered falcons would be developed and implemented. The State of California is a candidate sponsor, since the program would be an expansion of their management responsibility. The State has not been asked for a statement of interest. The sponsor would be required to cost-share (33-1/3%) in the acquisition and management program.

(2) Effectiveness. This plan is similar to Plan B. This plan offers further protection and habitat improvement by eliminating human activities from the CHZ and instituting a habitat management program in the Dry Creek CHZ.

(3) Efficiency. Funds required to implement this plan to accomplish maximum conservation of the species residing in the Dry Creek CHZ are as follows:

First Costs	$1,773,000
O&M Costs	$ 29,500 (first 4 years)
	$ 10,000 (thereafter)
Total Annual Costs	$ 155,800 @ 7-7/8%

(4) Acceptability. This plan is compatible with existing laws as summarized in Table 1. This plan has been accepted by F&WS as reasonable and prudent to remove jeopardy as indicated in their 29 May 1979 biological opinion. However, landowners have not had an opportunity to comment on this plan.

3.25 Plan E. This plan is identical to Plan D with the additional provisions for fee acquisition of all lands in T11N, R12W, Sections 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, and 30. Also in addition to the above acquisition, this plan would include the preparation and implementation of a wildlife management plan with emphasis on the endangered falcon for the 13,300 acres contained in the above sections in private ownership; and the implementation of a monitoring program involving 24-hour protection throughout the nesting season. This alternative would also allow fishing and boating in the upper Dry Creek arm of the reservoir. The effects of this plan are further described in Section 5 Environmental Consequences of Alternative Plans. This plan would also require non-Federal cost-sharing and Congressional approval and funding. This plan is also evaluated in consideration of the four tests:

(1) Completeness. This plan would provide maximum protection and enhancement for the endangered peregrines of the Dry Creek CHZ and the upper Dry Creek candidate habitat zone. A non-Federal entity would be required to cost-share (33-1/3%) for all items not included in Plan A.

(2) Effectiveness. As mentioned this plan offers the maximum level of protection and enhancement for the peregrines.

(3) Efficiency. Funds required to implement this plan to accomplish maximum conservation of the species are as follows:

First Costs	$11,573,000
O&M Costs	$ 39,500 (first 4 years)
	$ 20,000 (thereafter)
Total Annual Costs	$ 938,000 @ 7-7/8%

(4) Acceptability. This plan is compatible with existing laws as summarized in Table 1. This plan is accepted by F&WS as indicated in their 29 May 1979 biological opinion. Landowners have not commented on this plan.

3.26 Summary. A summary of measures contained in each of the above plans is depicted Table 8. Objectives that are satisfied by the alternative plans are shown in Table 9. Impacts of the alternative plans are displayed on Table 10.

3.27 RATIONALE FOR SELECTED PLAN. Plan A has been designated the selected plan based on the following considerations:

(1) Plan A responds to the concerns expressed in F&WS 29 May 1979 biological opinion in the most timely and cost effective manner.

(2) Plan A would not preclude options to improve conditions for the continued existence of the endangered falcons at a later time.

(3) Plan A would not result in displacement of local residents.

(4) Plan A provides for orderly development compatible with General Plan policies while affording adequate protection to the need of the endangered falcons.

TABLE 8

SUMMARY OF MEASURES INCLUDED IN THE FINAL PLANS

MEASURES/PLANS	A	B	C	D	E
Acquire Lands Adjacent To & Including Dry Creek CHZ Lands Not Owned by Corps in Fee				X	X
Implement Management for All Lands in Dry Creek CHZ				X	X
Acquire Environmental Easement To Dry Creek CHZ Including CHZ not owned by Corps		X	X		
Implement Monitoring for Candidate Zone			X		X
Acquire Candidate Zone in Fee					X
Implement Management for Candidate Zone					X

TABLE 9

OBJECTIVES ADDRESSED BY THE FINAL PLANS

PLANNING OBJECTIVES/PLANS	A	B	C	D	E
Dry Creek CHZ					
Development		X	X	X	X
Habitat Enhancement				X	X
Upper Dry Creek Habitat Zone					
Trespass			X		
Development					X
Habitat Enhancement					X

TABLE 10

SUMMARY OF IMPACTS

	PLAN A	PLAN B	PLAN C	PLAN D	PLAN E
Endangered Species	removes jeopardy opinion	provides enhancement for Dry Creek CHZ	provides enhancement for Dry Creek CHZ & establishes monitoring program for Upper Dry Creek habitat zone	provides significant enhancement for Dry Creek CHZ	provides maximum enhancement for both Dry Creek and Upper Dry Creek zones
Wildlife Resources	some lands in the 3 zones may be developed	lands in Dry Creek CHZ would remain relatively undeveloped at existing levels	Similar to B	habitat in Dry Creek would be conserved	habitat in Dry Creek and Upper Dry Creek zones would be preserved
Land Uses	changes determined by local decisions in conformance with General Plan	limited to existing uses in Dry Creek CHZ	Similar to B	present and potential uses would be restricted in the Dry Creek CHZ	present and potential uses would be restricted in the Dry Creek and Upper Dry Creek zones
Local Government Finance	about $400,000 are generated from 3 zones	no lands removed from tax rolls; potential increased revenue from the Dry Creek CHZ would be limited	Similar to B	about 1,800 acres removed from tax rolls	about 11,400 acres removed from tax rolls
Population	presently low density in the three zones	no residents displaced	no residents displaced	residents of the Dry Creek CHZ would be relocated	residents of the Dry Creek and Upper Dry Creek zones would be relocated
Cultural Resources	low density trends would not have significant effects; potential for disturbances with increased development	no new significant construction in Dry Creek CHZ	Similar to B	Similar to B	lands of both zones would remain in natural state

4.00 AFFECTED ENVIRONMENT

4.01 LOCATION AND EXTENT OF STUDY AREA. The critical and candidate habitat zones are not isoloated entities distinct from their general environment; they are segments of land which share characteristics typical of their region, with boundaries imposed solely for habitat recognition. Local vegetation types include redwood and Douglas fir forests, mixed evergreen forests, oak woodland and oak savanna, chaparral, riparian woodland, and grassland. In general, the more forested lands are found in areas containing deeper soils on northfacing slopes or patterned along drainages. Oak-dominated woodland and savanna are more widely distributed on various aspects and along broad ridges. Chaparral and scrub, dominated by manzanita and chamise, appear in shallower soils on south-facing slopes. Extensive grasslands also occur throughout the region primarily as a result of Euro-American settlers. From the last half of the nineteenth century to the present, timber harvesting and the removal of trees and scrub to create grazing land have greatly modified the region's vegetation. There was widespread use of resources in the area by the Southern Pomo and Kashaya Pomo groups. Clusters of habitation sites have been identified throughout the Warm Springs Dam and Lake Sonoma project area.

4.02 RANCHERIA CREEK CHZ. The Rancheria Creek CHZ is one of the three zones which have been formally designated by the F&WS in August 1977 as critical habitat for the American peregrine falcon in the Lake Sonoma area. This zone is located approximately 6.5 miles southwest of the town of Cloverdale. It encompasses an area of about 1,820 acres with its easternmost boundary about a mile from the western shore of the lake. This CHZ is not located within the present Warm Springs Dam and Lake Sonoma project boundaries. The Rancheria Creek CHZ is sparsely populated with five residential structures located within its wide expanse. Two of the structures are on the Sky Hawk Ranch and three are hunting cabins located along Rancheria Creek and its tributaries. There are only five major land holders in the CHZ.

4.03 A rugged region, the CHZ is characterized by mountainous terrain with limited access roads and few utilities and other amenities. The aesthetic quality of the land is enhanced by a dominance of oak, Douglas fir and redwood trees. Timber production now occurs on approximately 120 acres in the southwest portion of the CHZ. Rockpile Road provides the only major access to this zone and crosses through the CHZ for about a mile in the northeastern corner. In addition, there are a few private jeep trails.

4.04 The current traffic volume through the Rancheria Creek CHZ is fairly light. Traffic through the zone is expected to increase after traffic from Kelly Road and Hot Springs Road is diverted to the upgraded Rockpile Road, the main public route that traverses the zone.

4.05 Hunting in the Rancheria Creek CHZ occurs on private lands. Deer and wild pig are the major game species that are hunted in the local area of the Rancheria Creek CHZ. Since these areas are not within the Warm Springs Dam Project boundaries, hunting is administered under regulations of the State Department of Fish and Game. The hunting periods and bag limits are fixed by the State Fish and Game Commission.

4.06 DRY CREEK CHZ. The Dry Creek CHZ is the second designated zone in the Lake Sonoma area for the endangered peregrine falcon. The zone partially overlaps the project area with its southern and eastern boundaries intersecting Lake Sonoma. Located about three miles southwest of the town of Cloverdale, the CHZ encompasses about 2,400 acres of rugged hills with vegetation dominated by oak woodland, chapparal and grassland types. The area of CHZ that falls within the Warm Springs Dam project is about 1,200 acres. The region of the CHZ is generally mountainous with elevations ranging from 300 to 1,900 feet above sea level. The environment, characterized by oak woodland and mixed Douglas fir forests continues to support limited timber and grazing practices. Presently, about 260 acres in the CHZ and another 140 acres to the east of the CHZ are used for timber production. About 35 acres of Section 36 adjacent to the CHZ are used for pasture. Limited hunting occurs on lands in the eastern portion of the CHZ and lands adjacent to it.

4.07 Access to the CHZ is limited to one major roadway adjacent to the CHZ and a number of jeep trails scattered through the CHZ. Kelly Road cuts a serpentine course through the northern portion of the CHZ outside of the project boundaries. Meandering through about two miles of the CHZ, Kelly Road, an unimproved dirt and gravel road, is the main access servicing the northern and western regions contiguous to Lake Sonoma, but it will be severed by inundation upon filling the reservoir. Jeep trails on project lands provide the only access to the southern portion of the zone which lies within the project boundaries.

4.08 The region outside of Federal ownership is dominated by ranches with the land adjacent to project boundaries used primarily for sheep grazing. Three land holders own land in the CHZ outside of the Warm Springs Dam and Lake Sonoma project boundaries. Five other land holders own lands in the area adjacent to the CHZ under study.

4.09 UPPER CRY CREEK CANDIDATE HABITAT ZONE. The Upper Dry Creek candidate habitat zone (HZ) was designated as such by the F&WS in their 29 May 1979 biological opinion. The candidate HZ is located about seven miles west of Cloverdale. The zone encompasses an area of approximately 9,600 acres with its easternmost boundary overlapping the extreme northwest corner of the Warm Springs Dam and Lake Sonoma project lands (about 145 acres). In addition, the candidate zone overlaps about 1,120 acres of the third listed CHZ in the Dry Creek drainage. An additional 560 acres of the listed CHZ lies outside the southwest corner of the candidate HZ. An extremely rugged region, the topography is characterized by mountainous terrain that is inaccessible to vehicles other than motorcycles or four wheel drive jeeps and trucks.

4.10 Rockpile Road and Hot Springs Road (both public roads) are the main means of access to the candidate zone. Rockpile Road meanders along Thompson Ridge which is the highest ridge in the area. In several locations along Rockpile Road northwest of the intersection with Kelly Road, the roadway is only wide enough to permit passage of one vehicle. At other points, the hairpin turns would prove hazardous to frequent users owing to blind spots to other vehicular traffic. Hot Springs Road provides access into the northern region; the road is paved up to Cooley Ranch and becomes a jeep trail thereafter. Access into the other regions of the zone are also provided by jeep trails. There are five major land holdings in this area.

4.11 The only utility into the zone is a telephone service along Rockpile Road. A single telephone wire runs the length of Rockpile Road within the area. Phone and electrical service are also provided to the eastern edge of the area.

4.12 The Upper Dry Creek candidate zone is used primarily for timber production and grazing sheep. The three primary owners conduct sheep ranching and timber operations. The hills are too steep to accommodate other livestock although limited cattle grazing does occur. About 6,000 acres in the candidate habitat zone are utilized for timber production.

4.13 Historically, hunting, mainly for deer and wild pig, has been permitted in the candidate habitat zone by landowners through private clubs. Hunting in this area has been more prevalent than in the Rancheria Creek area, although no recent surveys of hunting activities have been conducted rights have been leased to about 3,000 acres of this area for hunting. This has also served to discourage trespass. Leased hunting activities are expected to continue.

4.14 SIGNIFICANT RESOURCES. The following resources and other study area characteristics which are specified by Section 122 of the 1970 Rivers and Harbor Act, Public Law 91-611, were not found to be significantly impacted by implementation of the alternative plans: Community Cohesion, Noise, Public Services, Employment/Labor Force, Business and Industrial Activity, Displacement of Farms, Man-made Resources, Natural Resources, Air Quality, Water Quality and Desirable Community Growth. The following significant resources and study area characteristics have been identified as being either significant or required for the assessment of impacts in this report.

4.15 Endangered Species. The actions being considered are attributable to needs of the endangered peregrine falcons and opportunities to improve critical habitat for this species. The Endangered Species Act calls for protection and conservation of those listed species whose existence would likely be jeopardized and of their necessary habitat which would be adversely modified. The Act also provides for Federal agencies to further the purposes of the Act by carrying out programs for the conservation of the species. For this reason, the actions being considered would generally be beneficial to the well being by the falcons.

4.16 Wildlife Resources. All land provides wildlife habitat, the quality of which ranges from poor to excellent for different species of wildlife. Since this action involves protection and conservation of an individual species, other wildlife species could indirectly benefit from the measures being considered. Although protection of habitat is primarily directed to the endangered falcons, an attempt is made to discuss benefits to other wildlife.

4.17 Land Use. Existing land use is governed by the Sonoma County General Plan. Zoning for the area provides a basis for orderly and controlled development. The ability to accurately forecast the extent of the changes in land use does not exist. Local planning for potential future development of the study area may be impacted by conditions arising from the concern for protecting the endangered falcons. Most lands are in private ownership. Several private hunting clubs are operating in lands adjacent the project area. Although no large scale recreational development exists in these

remote, rugged areas which are privately-owned, private hunting has occurred over many years in the study area and has become a traditional area for such use. It is assumed that present land use in the study area may change. The magnitude of the changes and its impact upon the endangered falcon are of concern (See Appendix C).

4.18 Local Government Finance. Local government finance is measured primarily in terms of income from tax revenue and other sources which are balanced against the expenditure of funds for public facilities and services. Property values within the study area are of concern since taxable lands as sources of income to local government may be affected.

4.19 Population. Any action that may involve land acquisition affects residents of those lands. This is of concern because of the disruption to individual residents that may result from imposed relocation. Although economic losses may be compensable (under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970), there are human impacts that are not easily reduced or mitigated.

4.20 Cultural Resources. A preliminary overview of the study areas for cultural resources has been undertaken (Appendix F - available upon request). The actions being considered may provide additional opportunities to discover and document cultural resources that may be present in the study area. Appropriate coordination would be undertaken as necessary in conjunction with the actions now being considered related to the endangered falcons in accordance with Executive Order 11593 and the National Historic Preservation Act of 1966.

4.21 Aesthetic Quality. Lands located in the critical habitat zones and candidate habitat zone are relatively untouched by man-made features. Although steep and rugged, the terrain in its natural state has scenic value and natural beauty. Occasional structures such as existing residential ranches and barns have not detracted from the aesthetic character of the open lands.

5.00 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE PLANS

5.01 The purpose of this section is to describe and assess impacts which would result from the implementation of each alternative plan in the final array. For each alternative, significant impacts are identified and assessed. Table 10 summarizes the effects described below for each plan.

5.02 ENDANGERED SPECIES.

5.03 Plan A. By taking administrative actions as described, jeopardy to the continued existence of the American Peregrine Falcon would be eliminated. The potential for future local decisions regarding land use affecting the endangered falcons, however, would not be affected. Local County planning activities related to the three zones have not previously raised such concerns for the welfare of the endangered falcons because information about the their presence was considered privy prior to 1974. The low intensity land uses traditional to the area inadvertently contributed to the present level of protection. However, with the designation of the CHZ's and recognition of the candidate habitat zone, the public at large and concerned agencies have been alerted to the presence of the endangered falcons and their critical habitat. Although local planning activities are subject to periodic revisions, the conservation of endangered species in the public arena is expected to carry equally significant weight as economic conditions do when considering land use activities. The State of California's endangered species conservation program should also provide some measure of protection against arbitrary land use decisions by the local planning body. Development proposals are governed by the policies and guidelines of the General Plan.

5.04 Plan B. Plan B would provide for enhancement of the Dry Creek CHZ. Although Plan B would not eliminate potential development in areas adjacent to the Dry Creek CHZ outside of the project boundary, the potential for increased development inside the Dry Creek CHZ would be eliminated. The easement would prevent potential development on lands of the Dry Creek CHZ. This plan would, however, assure minimal disturbances over a long term period.

5.05 Plan C. This plan is expected to provide a somewhat greater degree of enhancement for the endangered falcons than Plan B. By acquiring the environmental easement to Dry Creek CHZ, potential future development would be eliminated. In addition, fishing would be permitted in the Dry Creek arm of the reservoir. A monitoring program would be established to effectively limit access into the candidate habitat zone from the Dry Creek arm of the project. Existing land uses would be permitted to continue.

5.06 Plan D. This plan would provide significant benefits to the endangered falcons. With fee acquisition, lands designated as the Dry Creek CHZ would be managed specifically to benefit the welfare of the falcons. Potential disturbances to the nest sites could be eliminated. Management measures would be established to provide supplemental food species and habitat requirements conducive to productivity, but would result in replacing existing land uses. This plan would ensure the future productivity of the nesting site.

5.07 Plan E. This plan would provide the most beneficial conservation measures to protect the productive habitat of the endangered falcons in the drainage. The Dry Creek CHZ and the Upper Dry Creek candidate habitat zone would be purchased in fee. Present land use activities would be eliminated and a falcon management program that would be beneficial to the endangered falcons would be established for the CHZ and the candidate habitat zone.

5.08 WILDLIFE RESOURCES.

5.09 Plan A. As mentioned previously, the lands of the critical habitat zones and candidate area have remained in a relatively low density land use. Under the no-action condition, the habitat afforded by the open, undeveloped lands of the three zones would continue to support wildlife. As in the case of the endangered peregrines, the potential impact of reduced or disturbed habitat that may result from development in the critical habitat zones and candidate area would be applicable to wildlife as well. If large-scale development were to occur, changing the character of the region, existing wildlife habitat values would be degraded, if not lost.

5.10 Plan B. The habitat of conditions for the Dry Creek CHZ would be maintained over a long term period.

5.11 Plan C. The habitat of open, relatively undeveloped lands of the two zones would continue to support wildlife, ensured by easement acquisition of the Dry Creek CHZ.

5.12 Plan D. The present level of disturbances in the Dry Creek CHZ would be eliminated. This would permit the lands to revert to wild lands which would benefit wildlife resources. Wildlife would also benefit indirectly from the implementation of management activities for the falcons in the Dry Creek CHZ.

5.13 Plan E. Wildlife resource would directly benefit from land acquisition and habitat protection. Habitat areas of the Dry Creek CHZ and the candidate zone would also benefit from management activities, although management activities would be performed specifically for the peregrines.

5.14 LAND USE. (See Appendix C)

5.15 Plan A. Existing land use is governed by the Sonoma County General Plan. Zoning for the area provides a basis for orderly and controlled development and must be consistent with the General Plan. Much of the zoning was established before the adoption of the General Plan and is currently being brought into conformance with land-use categories as defined by the General Plan. Zoning variances are based on local desires and can be implemented by a majority vote of the 5-member County Board of Supervisors. However, any variance must still be consistent with the General Plan. Presently, the County General Plan does permit limited development in the critical habitat zones and candidate habitat zone, although the region in which the CHZ's are located is assigned an "undeveloped" land-use category. This category is characterized by low intensity human activity. The critical habitat zones and candidate habitat zone are presently sparsely populated and are generally used for grazing with some timber production and recreational hunting. No significant farming activity has been identified for these areas. However, as

mentioned previously, local zoning decisions may permit higher intensity uses than presently exists.

5.16 Current trends in land use indicate that affluent owners are attracted to hold rustically developed ranches or retreats of a few hundred acres. Some long-term owners might maintain large parcels for multiple-use purposes. Some livestock raising might continue as long as tax advantages are available for agricultural preserves, but most sheep ranches and their cattle ranch alternatives would disappear over time.

5.17 Greater returns from the harvesting of the timber preserve lands, continued leasing of hunting rights and, possibly, summer rentals could be expected. Harvesting of hardwoods may become an important income source.

5.18 Most of the Dry Creek CHZ has been zoned as agricultural preserve. Current use includes cattle ranching, private hunting and recreation, leasing of hunting rights, and a vineyard. These uses can be expected to continue.

5.19 The most conservative land ownership of the three areas appears to exist in the Rancheria Creek CHZ. No subdivision plans were reported although trailer pads have been constructed. Timber harvesting has been carefully managed and will continue to be a source of revenue, although harvesting was limited by the California Department of Forestry during the summer of 1981.

5.20 The two largest properties have been active sheep ranches, and both have expressed interest in switching to cattle. Private hunting is an important activity in the zones, and presently, one owner leases hunting rights. This activity is expected to continue. Subdivision of the land in the Upper Dry Creek candidate zone is planned. While most of the area is zoned agricultural or timber preserve, the Upper Dry Creek candidate habitat zone is the only area of the three that is zoned A-2, which permits extensive parcelization. Timber harvesting, leased hunting rights, and sheep and cattle ranching are the other major uses.

5.21 Plan B. The land use of the Dry Creek CHZ would be limited to existing uses with the easement.

5.22 Plan C. As with Plan B, any new development in the Dry Creek CHZ would be prevented, thereby retaining the present low density character of the lands (Speculators with holdings in a 220-acre parcel situated in the southwest corner of the CHZ may be affected if not exempted. However, this area was not identified as a problem.) There would be no change in land uses in the candidate habitat zone.

5.23 Plan D. The acquisition of lands of the Dry Creek CHZ would discontinue present land use activities and would restrict potential development in this area.

5.24 Plan E. This plan would eliminate potential development and existing ranches in the Dry Creek CHZ and Upper Dry Creek candidate habitat zone. These areas would become essentially peregrine preserves held in fee title with no future development occurring in them.

5.25 LOCAL GOVERNMENT FINANCE.

5.26 Plan A. Presently, about $400,000 are generated from revenues of the critical habitat zones and candidate zone. Under a minimum growth condition, similar revenues would be maintained. Potential increased revenues would be high if lands were permitted to develop.

5.27 Plan B. The revenues to be generated under this plan would differ from the potential revenues that could be generated in the no-action condition. The land use in the Dry Creek CHZ would be limited to existing levels with the easement, thereby maintaining existing tax revenues. No lands would be removed from the tax rolls.

5.28 Plan C. The tax revenues to be generated over the long-term by this plan is expected to be somewhat less than under the no-action condition due to the elimination of potential development in the Dry Creek CHZ. No lands would be removed from the tax rolls.

5.29 Plan D. Present and potential increased revenues from new development permitted in the Dry Creek CHZ would be foregone; About 1,800 acres of land would be removed from the tax rolls.

5.30 Plan E. This plan would remove about 11,400 acres of land from the tax rolls. Tax revenues would be reduced.

5.31 POPULATION.

5.32 Plan A. No local residents would be displaced under the no-action condition. Resident population may increase in response to land use changes.

5.33 Plan B. No displacement of population would occur. No substantial resident population increases would occur in the Dry Creek CHZ.

5.34 Plan C. No displacement of population would occur. No substatial resident population increases would occur in the Dry Creek CHZ.

5.35 Plan D. The present residents of the Dry Creek CHZ would be relocated.

5.36 Plan E. The residents of the Dry Creek CHZ and the Upper Dry Creek candidate habitat zone would be relocated under this plan.

5.37 CULTURAL RESOURCES

5.38 Plan A. A minimal growth scenario would result in little damage to prehistorical and historic archaeological resources. On the other hand, moderate to maximum growth permitted by local decision-making processes would bring about increased population density and greater accessibility to and visibility of cultural properties in the Rancheria Creek CHZ and the Upper Dry Creek candidate habitat zone. In the event of intensified development, the cultural sites' locations, primarily along roads and drainages would make them particularly vulnerable to destruction. Improved accessibility provided by new or better roads would act as an inducement to souvernir hunters. Use of off-road vehicles could cause severe damage to cultural sites, especially

pre-historic deposits. Cultural sites could also be disturbed or destroyed through construction of new dwellings, additional utilities and improvements to existing or construction of new roads.

5.39 Plan B. Effects of this plan upon cultural resources would be essentially the same as described for the no-action plan. However, easement acquisition to the Dry Creek CHZ would limit potential development in the Dry Creek CHZ, thereby eliminating adverse impacts that may result from new construction.

5.40 Plan C. Conditions similar to Plan B would occur.

5.41 Plan D. If lands are acquired, cultural inventories may be performed to identify resources found in the CHZ, in consultation with F&WS. This activity would indirectly benefit existing cultural resources of the area. Appropriate coordination would be undertaken with the State Historic Preservation Officer.

5.42 Plan E. Adverse impacts that could result from new construction would be eliminated in both the Dry Creek CHZ and the Upper Dry Creek candidate HZ. Cultural inventories may be performed to indentify resouces in both the CHZ and candidate habitat zone. Appropriate coordination would be undertaken with the State Historic Preservation Officer.

5.43 AESTHETIC QUALITY.

5.44 Plan A. Existing lands of the critical habitat zones and the candidate habitat zone are relatively untouched by man-made features. Essentially two public County roads traverse the three zones. These roads as they relate to the three areas of concern are generally narrow and relatively insignificant to the general public. Only a few houses and fences are evident. The region can be considered a remote, rural, mountainous setting of great natural charm. Under the no-action condition, potential for large-scale development that could ultimately alter the present scenic values would remain governed by local decisions.

5.45 Plan B. No change would occur in the Dry Creek CHZ.

5.46 Plan C. No change would occur in the Dry Creek CHZ.

5.47 Plan D. No significant change in the character of the area compared with existing conditions would result from this plan. Lands presently occupied in the Dry Creek CHZ would become vacant, open space.

5.48 Plan E. Lands of the Dry Creek CHZ and Upper Dry Creek candidate habitat zone would be left in their natural state. Presently occupied lands in the two areas would become vacant.

6.00 PUBLIC INVOLVEMENT

6.01 PUBLIC INPUT. Public involvement was initiated during the development of the Draft Master Plan in the summer of 1978. Appendix A of the Final Master Plan described the public involvement program established for that activity. Public and agency input to the Master Plan was generated and the Draft Master Plan was completed in December 1978. Subsequent to its review, F&WS rendered its biological opinion on 29 May 1979. The Final Master Plan was completed in October 1979.

6.02 After District review of the biological opinion, meetings were held with individual parties and agencies to discuss the array of alternatives available to address jeopardy to the endangered falcons and to enhance the conditions for their survival. Meetings were conducted with representatives of the U.S. Predatory Bird Group, the Santa Cruz Captive Breeding Facility, the California Department of Fish and Game, the U.S. Fish and Wildlife Service (See Appendix D of this report for a detailed description of the continuing coordination for Section 7 consultation), and the Sonoma County Department of Public Works (Road Division).

6.03 Public input was also generated through consultants contracted to investigate the socio-cultural background of the areas of concern. This contracted work has established a resource base related to the areas under study. (See Appendix F - available upon request).

6.04 SYNOPSIS OF THE SECTION 7 CONSULTATION. Consultation was initiated on 15 April 1977 after F&WS notified the Corps that a pair of peregrines were nesting in the now named Upper Dry Creek Candidate Habitat Zone. On 16 August 1977 F&WS indicated that every precaution should be taken to prevent disturbance to these nesting falcons during construction of the dam and regulation of public use after filling of the reservoir. In addition, the letter indicated that cost of monitoring of the falcons off the project boundaries should be made a project cost. Since the falcons were known to nest outside the project boundaries, and it was determined that activities related to construction of the dam would not affect the off-site nest, the cost for this monitoring was not made a part of project costs since the monitoring responsibility of existing sites belongs to F&WS, or the State through a cooperative agreement with the F&WS.

6.05 On 3 March 1978 the Corps initiated a second consultation on the potential for effects of project activities on the Dry Creek CHZ. F&WS indicated on 16 May 1978 that no falcons occupied the CHZ and that certain actions be taken in event the CHZ were re-occupied.

6.06 When the Draft Master Plan was completed and circulated for review in December 1978, F&WS requested that a third consultation be initiated. The consultation was initiated 20 February 1979. In March 1979, a nesting pair of falcons was observed in the Dry Creek CHZ. A monitoring program for the Dry Creek CHZ was established at Federal expense. On 29 May 1979 F&WS indicated that based on the Draft Master Plan and related activities, jeopardy to the continued existence of the peregrine falcons would result. Actions that could

be taken to resolve specific concerns of the falcons and that were within the scope of the Master Plan were included in the Final Master Plan, and were still being developed after the Final Master Plan was completed in October 1979. Further investigations to resolve those concerns not within the scope of the Master Plan were undertaken in January 1980 when the Corps and F&WS entered into a cooperative agreement to prepare this Special Office Report. On 7 April 1982 F&WS provided concurrence with additional alternative measures to address the jeopardy opinion (Appendix E). On 30 November 1982 F&WS provide no objections to the Corps proposal to replace the severed access with the new road between the terminus of Hot Springs Road and Rockpile Road as long as measures were taken to minimize potential for adverse trespass and development. On 11 March 1983 F&WS concurred with the Corps of Engineers determinations related to the new access road and the need for a Special Area Plan (Appendix E).

7.00 RECOMMENDATIONS

I have given consideration to all significant aspects in the overall public interest and adopt Plan A (nest establishment) to satisfy the concerns as expressed in the U.S. Fish and Wildlife Services 29 May 1979 biological opinion. No recommendation is made at this time for actions outside of existing authority.

The total first cost associated with Plan A is $45,500. A presently estimated annual operation cost of $20,000 over a four-year period to be funded by the Corps of Engineers is also required for introduction of young peregrines to the newly established nest. Continued annual monitoring of the Dry Creek CHZ nest shall be implemented by the Corps of Engineers until an agreement to transfer adminstration and funding of this activity to the F&WS is accomplished.

Edward M. Lee, Jr.

DATE: 13 May 1983

EDWARD M. LEE, JR.
LTC, CE
Commanding

APPENDIX A

U.S. FISH AND WILDLIFE SERVICE

29 MAY 1979 BIOLOGICAL OPINION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
LLOYD 500 BUILDING, SUITE 1692
500 N.E. MULTNOMAH STREET
PORTLAND, OREGON 97232

In reply refer to:
AFA-SE (1-1-79-F-33)

Colonel John M. Adsit
District Engineer
San Francisco District
Army Corps of Engineers
211 Main Street
San Francisco, California 94105

Dear Colonel Adsit:

This Biological Opinion responds to your request dated February 20, 1979, for formal consultation pursuant to Section 7 of the Endangered Species Act of 1973 as amended in 1978 (Public Law 95-632). At issue is the draft Lake Sonoma Master Plan (LSMP) which, when implemented, may affect the endangered American peregrine falcon (Falco peregrinus anatum).

The Warm Springs/Lake Sonoma project was authorized by the Flood Control Act of 1962 (Public Law 87-874) and approved by Congress on October 23, 1962, for the purposes of flood control, water supply, and recreation. The earth-filled dam, which is presently under construction, will create Lake Sonoma covering 3,600 surface acres at spillway crest or 2,700 acres at conservation level. The entire project area encompasses 17,615 acres. Within the project boundary are plans for two interpretive centers, two boat launching areas, 25 overnight camping areas, 11 day use areas, a marina, fish hatchery, hiking/equestrian trails, observation points and innumerable support facilities. The LSMP estimates a daily visitation figure of 9,800, a project annual visitation of 1,695,000 in 1985, and a projected annual visitation of 2,479,000 by the year 2020.

By letter dated April 15, 1977, you requested formal consultation on the recently discovered nesting peregrines located near

the Upper Dry Creek arm outside of any published Critical Habitat Zones (CHZ). Our Biological Opinion dated August 16, 1977, pointed out that although the proposed reservoir would flood some forage area, it would not be of sufficient magnitude to appreciably diminish the habitat. Our greatest concern was that public use of the Madrone arm (now known as the Upper Dry Creek arm) could jeopardize the peregrines. We also recommended a monitoring program of this area as the project gets underway and becomes operational.

Your consultation request dated March 3, 1978, requested guidance for the Master Plan concerning the published Dry Creek CHZ (FR 42: 40685-40689) which partially overlaps the project area. Our Biological Opinion of May 16, 1978, recommended no camping in the CHZ, a recreational closure from January 1 to September 1 (if this historic nesting location were reoccupied) and a restriction on unmuffled motorboats.

On January 18, 1979, our Sacramento Endangered Species Office (SESO) received a copy of the draft LSMP, with comments requested by February 11, 1979. Preliminary review by our staff of the LSMP revealed that its implementation and associated impacts to existing land use patterns around the project may affect the endangered peregrine falcon and its Critical Habitat. This conclusion and in accordance with agreements between our respective staff representatives at a meeting on September 11, 1978, prompted our letter of February 13, 1979, requesting that you initiate formal consultation.

By letter dated February 20, 1979, you requested subject consultation. We appreciate your concern that this opinion be complete and as specific as possible. In the earlier consultation, we have elucidated recommendations for particular portions of the project area. However, consultation requests were accompanied by little project information since project development plans were in formulation. Now with the LSMP, proposed development is clearly presented so that we can formulate our opinion in a more exhaustive and concise manner.

In preparation of the opinion, we have reviewed: (1) the draft LSMP; (2) applicable sections of the Warm Springs Dam and Lake Sonoma Project EIS, dated November 1973; (3) the Sonoma County Board of Supervisors Staff Report, "Review of

Lake Sonoma Master Plan," dated March 13, 1979; and (4) "Warm Springs Dam and Lake Sonoma Master Plan, Fish and Wildlife Elements," by Biosystems Analysis. Our SESO staff representative met with your staff on March 28, 1979, to discuss aspects of the consultation as well as implementation of the peregrine study funded by your office and administered by our Sacramento Area Office. A second meeting between our respective staff representatives occurred on May 9, 1979, to primarily discuss the issue of road plans and their effects on the peregrine and its habitat.

Critical Habitat for the peregrine in California was proposed on August 30, 1976 (FR 41:35616-35618) and finalized August 11, 1977 (FR 42:40685-40689). One CHZ overlaps part of the project area and a second CHZ lies within 1 mile of the western boundary (see attached map). A new nesting location was located by our staff in the spring of 1977 associated with the Upper Dry Creek arm of the reservoir. To date no Critical Habitat has been officially proposed for this newly discovered nesting area, but we consider it a candidate habitat zone to which any adverse impact could jeopardize the continued existence of the species. Table 1 shows the known reproductive history for the three peregrine nesting territories to be considered in this opinion.

We wish to point out that, particularly in the case of the peregrine falcon, it is impractical to publish Critical Habitat which will completely protect all aspects of the ecosystem upon which they depend. This is particularly the case with foraging areas. These subject CHZ's primarily function to alert Federal agencies to the presence of the species, provide adequate solitude for the peregrines to raise their young and provide some of the prey base to support a successful nesting pair.

The American peregrine falcon historically nested throughout most of North America, south of the boreal forest, wherever suitable nesting habitat and prey species occurred together. In the first half of this century, the peregrine population in the western United States was declining due to direct and indirect impacts (most notably habitat loss and shooting) of an increasing human population (Bond 1946). Herman, Kirven, and Risebrough (1970) estimated the breeding population in California to be about 100 pair prior to 1947. A rapid decline in peregrine populations occurred throughout most of Europe and North America during the years following World

War II due to widespread use of chlorinated hydrocarbon pesticides (Hickey 1969). By 1970 the California peregrine population was estimated to be less than 10 reproductive pair (Herman, Kirven, and Risebrough 1970). By this time the peregrine was extinct as a breeding species in Canada, south of the boreal forest and in the United States east of the Rockies. In the Rocky Mountains, breeding numbers continue to decline (Enderson pers. comm.).

In 1978, the 23 known pair of peregrines in California fledged an average of 1.38 young, with the North Coast Range population fledging an average of 1.82 young (Harlow 1978). Although still suffering from occasional reproductive failures, the North Coast breeding peregrines are likely the healthiest population remaining of this formerly widespread species. This year the reoccupation of the historic nesting site located within the project boundary is an indication that population recovery in this immediate vicinity may be occurring.

The peregrine is famous for its nonpariel mastery of the sky, preying almost totally on other bird species. In California they are known to prey on a wide range of avian species, ranging from the white-throated swift to the California gull (Harlow unpub. data). Peregrines in California have a propensity for large cliffs usually no less than 150 feet high that provide adequate nesting ledges or potholes and are oriented in a southerly direction varying in aspect from easterly to westerly (Harlow unbpub. data). These specific nesting requirements effectively limit the peregrine breeding populations in many areas of its range. Such is the case in the southern portion of the North Coast Ranges, including Sonoma County where few adequate nesting cliffs exist.

The vagaries of the hunting peregrine during the nesting season may cover large expanses of landscape. The hunting territory of a male during the breeding season in Alaska was determined to be over 120 square miles (White 1974). A female instrumented with a radio transmitter while feeding fledged young frequently ranged within 3.13 miles of her eyrie but, on many occasions, she ranged more than 5.63 miles with a maximum distance of 11.5 miles (Enderson, et al. 1977).

In analyzing the possible effects of the project actions on the peregrine falcon, we have chosen to separate the opinion

into three sections to deal with the two CHZ's and one candidate habitat area. We will offer our analyses individually by area and then summarize what may be the most reasonable and prudent alternatives for the Corps to implement on a project-wide basis to eliminate adverse actions to this listed species.

In our analysis of the effects of implementation of the LSMP, we have considered those actions directly related to the project and the inevitable cumulative impacts perpetrated by the creation of an attractive recreational area within an easy drive from major metropolitan areas. A Department of Interior Solicitor's opinion on cumulative impact considerations in Section 7 consultations states, "The 'rule of reason' test should be used to evaluate impacts which can reasonably be anticipated to occur from projects before or after the completion of the project under consultation or on which administrative discretion remains." (Solicitor 1978).

In this regard, we have a fundamental concern that the development of Lake Sonoma and implementation of the LSMP will have a profound and inevitable effect on the land use patterns adjacent to the project and including much of those lands harboring and supporting the subject peregrine nesting territories. The present environment supporting this peregrine breeding complex is characterized by oak-woodlands and mixed Douglas fir forests which support timber and grazing practices. The area is dominated by extensive ranches as large as 16,000 acres. These land uses are highly compatible with the peregrine population by providing food, nesting habitat, and solitude. The project will introduce, and indeed has already introduced, socioeconomic pressures which will create an environment less propitious for grazing interests and compel land use changes which may affect the peregrines. We take issue with paragraph 9.07 of the LSMP which states:

> "Based on these existing conditions (Present zoning) and plans for the future (General Plan) secondary growth near the project will not, in all likelihood, have a dramatic effect on the existing land use patterns, at least in the unincorporated areas of the County."

We consider it highly probable that the project will significantly alter property values and degrade grazing values to the extent that development is likely. Local county

planning is subject to periodic revisions as economic conditions and population pressures change.

The following statement on the growth-inducing impact of Lake Sonoma is from a report prepared by the Sonoma County Planning Division:

> "The construction of Warm Springs Dam with the recreational proposals shown by the Lake Sonoma Master Plan will have a profound effect on the sparsely-populated Dry Creek Valley, the hills surrounding the valley, and indeed, the entire northwest section of the county. A 1972 report prepared by the Planning Department on the Dry Creek Watershed study district recognized that the proposed dam and lake was already having a significant impact on land within and beyond the study district. 'As the lake comes closer to reality, pressures to divide the land into smaller parcels are increasing as more people become interested in buying land close to the lake for cabins, second homes, private recreation, etc.'"

The existing Primary Agriculture zoning which dominates the project boundary allows campgrounds, recreational vehicle parks, commercial stables, noncommercial clubs, golf courses, and similar developments.

Opinion--Rancheria Creek CHZ

It is our Biological Opinion that implementation of the LSMP and the associated planned improvements of Rockpile Road will likely adversely modify this CHZ.

Prior to the activities of the Corps, Rockpile Road was an exceedingly minor county road used by a few resident ranchers. With its realignment and construction of a Class A road to the project boundary, access was significantly increased. In fact, the Corps' action may have contributed to the abandonment of the nest in recent years. Present plans are to divert existing traffic on Kelley Road onto Rockpile Road after inundation by Lake Sonoma. Kelley Road was formerly a private timber haul road also used by some ranchers and residents of Annapolis. Diverting the traffic will significantly increase traffic flow on Rockpile Road and plans are to upgrade the road to deal with this increase. Traffic will also increase as people drive from the recreational developments in the southern portion of the project located

just 4 miles away. Rockpile Road passes through the CHZ in plain view of the peregrine nesting cliff. The solitude once enjoyed by the resident peregrines likely began to deteriorate in the early 1970's as indicated by the reproductive records (Table 1).

We believe that jeopardy may be avoided if one of the following reasonable and prudent alternatives to proposed action is implemented.

1. Divert Rockpile Road prior to entry into the CHZ along the eastern side of the ridge and connect to Kelley Road well east of CHZ. The remainder of Rockpile Road must be abandoned as a county public road. Cooperation of the county will be required to implement this alternative.

2. Construct a bridge connecting the west end of Kelley Road to the peninsula between Cherry Creek and Yorty Creek with a road then connecting to the new Hot Springs Road. Thus, the traffic need not be diverted onto Rockpile Road. Rockpile Road must be abandoned beyond the project boundary. Cooperation of the county will be rquired to implement this alternative.

3. Use a ferry system to accomplish No. 2 in lieu of a bridge.

4. Realign Rockpile Road just over the ridge to the northeast out of sight of the nesting cliff, but still within the CHZ. Purchase the CHZ to prevent development along this stretch of Rockpile Road and implement a yearly monitoring program involving 24-hour protection throughout the nesting season. This monitoring program would be comparable to that presently underway in the Dry Creek CHZ. In lieu of purchase of CHZ, Corps may choose to purchase development rights and procure cooperative agreement for implementation of monitoring program. Upon purchase, the Corps should prepare and implement a wildlife management plan in cooperation with FWS and California Department of Fish and Game (CFG) for the area with major emphasis on the peregrine falcon.

Opinion--Dry Creek CHZ

It is our opinion that implementation of the LSMP and associated inevitable cumulative impacts will likely jeopardize the continued existence of this endangered species and likely adversely modify its Critical Habitat.

In our previous two opinions dealing with the reservoir only, we expressed that the reservoir alone would not appreciably diminish the ecosystem quality and jeopardize the peregrines. However, it is now clear that the total habitat impact of the LSMP implementation and cumulative impacts will in time alter the environment to the point that the peregrines could no longer successfully nest and fledge young. The combined habitat loss due to the reservoir, borrow pit, parking lots, campgrounds, hiking trails, interpretive center, support facilities, and shifting land use patterns outside the project boundary will erode the ecosystem until it will no longer support reproductive peregrines.

New biological information since our consultation of May 15, 1978, has led to some modification of our earlier recommendations. This information includes: (1) the CHZ is now occupied by a reproductive pair of peregrine falcons; and (2) new evidence shows that peregrines in the Coast Ranges remain in the vicinity of their nesting territories year round and may display defensive behavior at any time of year, although not as intense as during the nesting period (Harlow unpubls. notes, Thelander 1977).

It is our belief that jeopardy will be avoided if all of the following reasonable and prudent are implemented:

1. Eliminate the plans to utilize a portion of the CHZ as a borrow area.

2. Continue the annual monitoring program of this area as funded by the Corps this year and implemented by our Sacramento Area Office. The costs of monitoring will naturally increase with inflation.

3. Establish a zone for management purposes by extending the southern and eastern CHZ boundary south to where it intersects the proposed Lake Sonoma (see map). Within this area all project activities should be eliminated except for those activities expressly for the conservation of the peregrine falcon. Those to be eliminated include but are not limited to the proposed hiking/equestrian trail, proposed beach access point, and the proposed primitive campground. Hiking/equestrain trails should terminate before entering the CHZ.

The trails at the eastern and western ends of the CHZ can end in loops (see attached map trail marked in blue). The above constraints can be disregarded for the hiking/equestrain trail on the western shore of the lake which passes through the published CHZ (southwest corner).

4. Purchase all lands not currently in Corps ownership in T. 11 N., R. 11 W., Sections 33, 34, 35, and 36 and T. 10 N., R. 11 W., Sections 1, 2, 3, and 4. In lieu of full pruchase, Corps may elect to purchase development rights. Upon purchase, the Corps should prepare and implement a wildlife plan management with the cooperation of FWS and CFG for the areas with major emphasis on the peregrine falcon.

5. Do not allow shooting or rock climbing at any time in the CHZ.

6. Extend the 10 mph speed zone in the northern half of the lake south to the point where a line extending south from the eastern edge of the CHZ transects the lake. There are presently no data concerning peregrine sensitivity to noise levels. This minor change in water use zoning, combined with the 70 dBA maximum noise level, will likely insure that boating activities will not adversely affect the nesting peregrines.

Opinion--Upper Dry Creek Candidate Habitat Zone

It is our Biological Opinion that implementation of the LSMP in the Upper Dry Creek Arm will likely jeopardize the continued existence of the endangered peregrine falcon.

The intent of our Biological Opinion of August 16, 1977, was to restrict public utilization of this particular arm of the reservoir.

Although confusion obviously prevailed over the interpretation of this opinion due to the lack of information concerning road realignments and area names, the report prepared by Biosystems Analysis (1978) entitled "Warm Springs Dam LSMP--Fish and Wildlife Elements," clarified the concerns of FWS and CFG after personal contacts with representatives of these agencies. The report states: "These agencies . . . recommend that no public access be allowed In the Dry Creek arm of the reservoir west of its confluence with the Cherry

Creek arm;" and "they recommend that Hot Springs Road be closed to public use and be used by project related maintenance vehicles." The LSMP has not incorporated these recommendations. The human impact from the proposed campgrounds, boat launch, and day use areas and the cumulative impacts on lands off the project (pressures for land use changes, development, trespass into peregrine candidate habitat zone etc.) will adversely impact the resident peregrines.

We believe that jeopardy may be avoided if one of the following reasonable and prudent alternatives is implemented:

1. Eliminate public use of the Upper Dry Creek arm beyond the confluence with Cherry Creek. This would include elimination of all public facilities, abandonment of Hot Springs Road as a county/public road beyond the Cherry Creek bridge, and eliminating boating into this arm.

2. Purchase all lands in T. 11 N., R. 12 W., Sections 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, and 30. Implement a yearly monitoring program involving 24-hour protection throughout the nesting season. This monitoring program would be comparable to that presently underway in the Dry Creek CHZ. The costs of monitoring will naturally increase with inflation. In lieu of full purchase, the Corps may choose to purchase development rights and procure cooperative agreement for implementation of monitoring program. Upon purchase, the Corps should prepare and implement a wildlife management plan in cooperation with FWS and CFG for the area with major emphasis on the peregrine falcon.

Summary Opinion

In summary, it is our Biological Opinion that implementation of the LSMP and the associated accumulative impacts will likely jeopardize the continued existence of the American peregrine falcon and likely adversely modify its Critical Habitat.

We believe that jeopardy may be avoided on a project-wide basis if one of the following two reasonable and prudent alternatives is implemented. The Corps should:

1. Implement: a) one of the four listed reasonable and prudent alternatives provided for the Rancheria Creek CHZ; b) all reasonable and prudent conditions listed for the Dry Creek CHZ; and c) one of the two reasonable and prudent alternatives provided for the Upper Dry Creek candidate habitat zone; or

2. Do not fill the reservoir higher than approximately the 330-foot contour so that the existing Hot Springs Road and Kelley Road can remain unchanged in character and use patterns. At no time in the future allow the county to upgrade or expand Hot Springs Road across Corps property beyond necessary maintenance. Eliminate all recreational plans for the northern lake section (all those reached by the proposed new Hot Springs Road). Reduce recreation intensity in the southern lake section (all recreation planned south of Dry Creek CHZ) to a level that the reduced reservoir will support. Implement all the reasonable and prudent conditions listed above for the Dry Creek CHZ. Abandon Rockpile Road as a county/public road beyond the project boundary.

This concludes consultation for the present time. Your staff has notified us that the Corps now owns Kelley Road and plans are to excess those portions not needed for the project. This activity is not included in the LSMP. Federal action concerning that portion of the road east of the project boundary which passes near or through the Dry Creek CHZ will require formal consultation. We also believe that other aspects of the total Corps project not included in the LSMP may affect the peregrine falcon and, therefore, may require consultation. Application of pesticides for mosquito abatement may be such an action. The Corps should review their entire involvement and fulfill the requirements of Section 7 of the Endangered Species Act.

If you choose to purchase those lands recommended as reasonable and prudent alternatives and conditions, we wish to participate with your staff in formulating management plans through the informal and formal consultation processes. Please keep us informed of your chosen actions.

We wish to extend our appreciation for the cooperation of your environmental branch personnel throughout this

consultation period and the cooperation of your Park Ranger and other staff in implementing the Dry Creek CHZ monitoring program.

Sincerely yours,

William H. Meyer

Acting Regional Director

Enclosures

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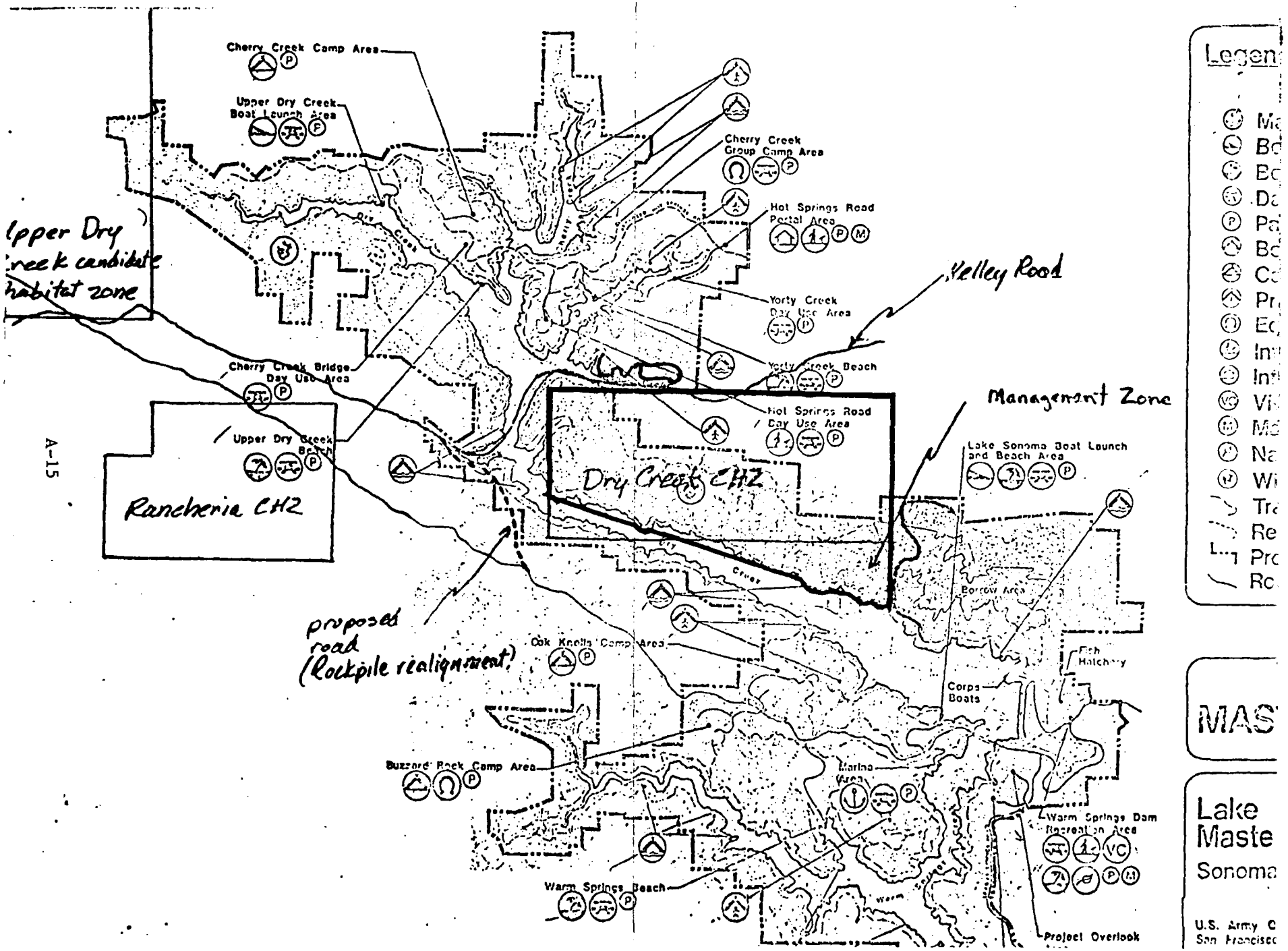
Table 1

Known Reproductive History

	Rancheria CHZ
1969	2 young fledged
1970	3 young fledged
1971	3 young fledged
1972	pair present--no reproductive data
1973	pair present--eggs broken in scrape
1974	pair present--no reproduction
1975	pair present--eggs broken
1976	pair present--no reproduction
1977	limited observations--no reproduction
1978	lone adult observed at cliff
1979	limited observations, no reproduction
	Dry Creek CHZ
	No authenticated observations prior to 1974
1974	3 young fledged
1975	pair present-no reproduction
1976	no activity
1977	no activity
1978	no observations
1979	3 young in scrape
	Upper Dry Creek Candidate Habitat Zone
1977	discovered 2 young fledged
1978	2 young fledged
1979	no observations as of this writing


Cherry Creek Camp Area
Upper Dry Creek Boat Launch Area
Cherry Creek Group Camp Area
Hot Springs Road Portal Area
Upper Dry Creek candidate habitat zone
Yelley Road
Yorty Creek Day Use Area
Cherry Creek Bridge Day Use Area
Yorty Creek Beach
Hot Springs Road Day Use Area
Management Zone
Upper Dry Creek Beach
Rancheria CH2
Dry Creek CH2
Lake Sonoma Boat Launch and Beach Area
proposed road (Rockpile realignment)
Oak Knolls Camp Area
Borrow Area
Fish Hatchery
Corps Boats
Buzzard Rock Camp Area
Marina Area
Warm Springs Dam Recreation Area
Warm Springs Beach
Project Overlook
Legen
Lake
Maste
Sonoma
U.S. Army C
San Francisc

APPENDIX B

PEREGRINE FALCON BACKGROUND DATA

prepared by

U.S. FISH AND WILDLIFE SERVICE
SACRAMENTO
ENDANGERED SPECIES OFFICE

APPENDIX B

PEREGRINE FALCON BACKGROUND DATA

I. Introduction

A. Historical Status

The American peregrine falcon (Falco peregrinus anatum) historically nested throughout North America from the boreal forest south into Mexico wherever suitable nesting and foraging habitat occurred. Grinnell and Miller (1944) considered the peregrine in California to be a fairly common falcon found nesting on coastal and insular sea cliffs, and inland cliffs. Herman, et al. (1970) compiled and in 1973 verified, suspected and rumored nesting locations from Bond (unpublished notes) and other sources. Based on an analysis of these data they estimated that California supported about 100 peregrine pairs yearly prior to 1947.

B. Decline

The decline of peregrine falcon populations in many parts of the world has been well documented (Hickey and Anderson 1969; Beebe 1969; Nelson 1969; Ederson 1969; Ratcliffe 1969). Populations began to decrease in the United States starting in the early 1950's in the East, where by 1953 virtually 100 percent of the peregrines in some areas were unsuccessful in nesting (Hickey and Anderson 1969). The decline in California began in the late 1950's reaching a point where no more than five pairs were successfully reproducing (Herman et al. 1970).

While other factors have been suggested (loss of habitat, changing climate), there is little doubt now that the proliferation of organochlorine pesticides was the most significant factor (Ratcliffe 1969) causing the diminishing population of peregrines. The decline in population levels is strongly correlated with both the timing and location of use of these pesticides (Ratcliffe 1969). High levels of these chemicals and their metabolites were found in the tissues of peregrines, and significantly thinner eggshells were postively correlated with pesticide levels in the tissues of the parent birds (Cade et al. 1971), and with the presence of DDE in the eggshells (Peakall 1974).

The level of chlorinated hydrocarbons in peregrines may determine the type of physiological effect. This syndrome is usually seen, at the lowest levels of contamination, as a thinning of the eggshells produced by the female. Microscopic studies show this thinning to be due to reductions in the component layers of the shell (mammillary, palisade and crystalline) (Kiff et al. 1979). This may affect the transmissivity of the eggshell to water (Cooke 1979; Kiff pers. comm.). At higher levels of pesticide load the shells may become even thinner, so that the likelihood of breakage is increased. At still higher levels of the eggs become so thin that it is impossible to incubate them normally without breakage occurring (Cooke 1979).

Other less-understood aspects of this syndrome are behavorial (Peakall et al. 1975). Parents may eat the eggs, may fail to complete one or more phases of the reproductive cycle, may become less territorial and less attentive to the nest, or may fail to attempt nesting entirely. At the highest levels of pesticide contamination, death to the adult peregrine occurs.

C. Limiting Factors

1. DDT and related compounds

Even though banned in California in 1969, DDT still occurs in the food chain of the peregrine falcon. Their diet consists almost entirely of birds. Birds are highly mobile, and a great many species in California migrate during the winter to Central and South America. Since DDT is still being used in many of these wintering areas, the migrants may pick it up and bring it back to California. The diet of individual peregrines is therefore important in determining their exposure to DDT. Coastal peregrines are particularly prone to pesticide contamination, as they tend to eat a high proportion of shorebirds, most of which migrate south and which have very high levels of pesticide contamination (Cade et al. 1968). Few coastal peregrines in California are currently reproducing naturally (Harlow 1978; Boyce 1979). Inland birds are also exposed to some chlorinated hydrocarbon contamination from migrating birds, but their preferred food items (band-tailed pigeons, rock doves, mouring doves) tend not to migrate out of the State (Small 1974; Grinnell and Miller 1941) and so constitute a "clean" food source, when present.

The diet of peregrine falcons in the Warm Springs Dam area is high in pigeons, doves, and other non-migratory birds (Weinstein 1979; Kirven et al. 1977) and may be presumed to be relatively clean. Breeding success and measured eggshell thicknesses (8.2 percent thin at the Dry Creek nest site) support this hypothesis. However, this level of thinning does indicate a potential for reproductive loss with increased exposure to contaminated prey species.

2. Nest site availability

Availability of nest sites may be a limiting factor in some areas. For example, peregrines historically nested along the coast in southern California. Today houses and other buildings are located on the tops of these sea cliffs and recreation abounds in their vicinity to such an extent that few areas are left which are suitable for nesting. Partly as a result of this, peregrine falcons now do not nest anywhere along the coast from near Santa Barbara south to the Mexican border (Banks 1969; Harlow pers. comm.). Thus, even though the present breeding population is insufficient to occupy all of the historical eyries in the State as a whole, all the suitable eyries in a particular area may be occupied. Under these conditions young from previous years may become "floaters" (birds which lack a nesting area and mate) rather than breeders. Therefore, suitable nesting cliffs, whether currently occupied or not, should be protected so that as the population recovers there will be nesting areas into which it can expand.

The Warm Springs Dam-Lake Sonoma project area and environs contain few suitable nesting cliffs. This can be seen from the fact that the occupied eyries in 1979 were only marginally suitable to peregrines. The Dry Creek site has a very poor selection of pot-holes and shelves (peregrines rarely nest in successive years in the same hole, possibly due to sanitary considerations). The Upper Dry Creek and Rancheria sites are very low cliffs, much below the height peregrines traditionally perfer. High, sheer cliffs are preferable, as they afford better protection from mammalian predators. Fly-over and on-site inspections of the area have so far failed to disclose additional suitable nesting cliffs outside of the published and candidate Critical Habitat Zones (CHZ).

Nesting on buildings and other man-made objects has been recorded but is extremely rare and does not constitute a significant contribution to reproduction. It apparently has never become established due to its very poor success rate. Ratcliffe (1969) states that he knows of only five nestings on buildings in 100 years in Great Britain. During this period there were approximately 650 nesting attempts per year, so that nesting on buildings constituted only 0.0077 percent of all nestilng attempts.

3. Transmission lines

Collisions of birds with power and telephone lines and their supporting structures is a common occurrence. Kills of hundreds or even thousands of birds along a short stretch of wire have been recorded (Avery 1978). These collisions are known to occur in peregrine falcons, but their significance as a mortality factor is hard to assess. Six peregrines are known to have been killed or severely injured in California in the past eight years from such collisions (Walton pers. comm.). How many more are killed but not found is moot.

Elsewhere in the world collisions would also appear to be a problem for peregrines. White (pers. comm.) mentioned one which took place in Montana and another four to fi which he knew of in Australia. Jenkins (per. comm.) mentions several incidents. A workshop on the impacts of transmission lines on birds (Avery 1978) concluded, "Raptors that actively pursue prey in flight are probably more vulnerable to a collision with transmission lines than those that do not, but such factors as size of bird, wing span, and maneuverability (erratic or straight flight) are also important. The workshop group agreed that when birds pursue prey, engage in courtship flights, defend a territory, or escape from a predator, they are particularly prone to colide with a power line because they are preoccupied and not very alert to the hazards that transmission lines pose." The habits of peregrines would therefore seem to make them especially susceptible to such collisions and much anecdotal information appears to confirm this, but the actual significance of these collisions to the mortality rate of the population in California is difficult to assess.

Electrocutions of peregrines on power lines is also known to occur (White pers. comm.) but is relatively rare due to the small size of the bird in relation to the spacing of the wires. However, three of the Cornell-bred releases were found to have been electrocuted out of 35 known deaths (Cade and Dague 1977).

The placement of telephone and electrical lines proposed in the 1973 EIS for the Warm Springs project area do not appear to pose special problems to the peregrines at the present time. As the lake fills, however, foraging patterns of the peregrines may change in ways which could bring them into areas which would increase the chance of collisions.

4. Shooting

Shooting of peregrines may prove to be limiting to their recovery if unchecked. Apparently two types of shootings occur - intentional and inadvertent.

Through fluoroscoping a dead bird can reveal that it was shot, knowing the intent of the shooter is not always possible.

Another incident in New Jersey may be even more indicative of the cavalier attitude many people have about shooting peregrines. A Cornell-bred peregrine was shot by a pigeon hunter in New Jersey. This bird had both numbered tags and the Cornell color band and was also equipped with a radio transmitter. The bird was shot, kept in a freezer for a year, and then mounted by a taxidermist with the bands and radio transmitter still in place (Cade and Dague 1977).

Inadvertent shooting may also be a problem, particularly as the prime peregrine food items (band-tailed pigeons and mourning doves) are also prime quarry for hunters in California. A falcon slicing through a flock of pigeons may inadvertently fall victim to a hastily fired shot by a hunter.

Whether intentional or not, approximately 50 percent of all known fatalities to adult peregrines in California are from gunshot wounds (Walton pers. comm.; Risebrough pers. comm.). In the East the figures are somewhat lower (11 to 14 percent), based on reintroduced captive-bred fledglings (Cade and Dague 1977). In Great Britian Newton (1979) found that a minimum of 56 percent of recovered peregrines had been killed by man. This figure dropped to 22 percent after protective legislation was enacted in 1954. In Finland 62 percent of the recovered peregrines had been shot or trapped.

5. Falconry

Falconry has existed as a sport for thousands f years. Peregrine falcons have always been one of the most sought-after birds. Over the years a large number of peregrines have been taken from the wild, and undoubtedly some are still being taken.

Most raptor biologists, many of whom were falconers themselves, feel that the majority of falconers do no harm. Much of the research done on peregrines has been done by falconers, and many have donated their birds for use in captive breeding projects (Ratcliffe 1969; Snow 1972). However, there are individuals who are determined to get a peregrine falcon whatever the cost.

AD-A130 139 SPECIAL OFFICE REPORT FOR WARM SPRINGS DAM AND LAKE SONOMA SECTION 7 CONSULTATION ON ENDANGERED SPECIES(U) CORPS OF ENGINEERS SAN FRANCISCO CA SAN FRANCISCO 2/2

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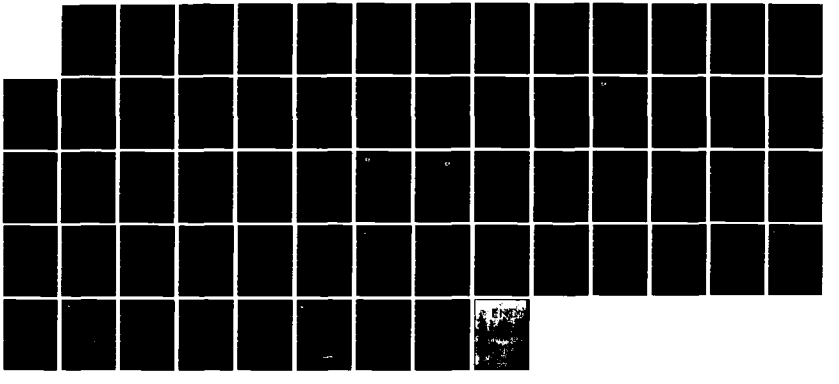

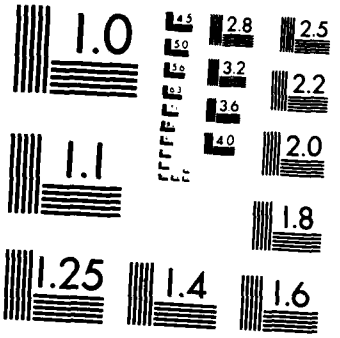

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

In the past, when peregrine populations were healthy, losses to falconers were not a problem. Ratcliffe (1969) reports that out of 49 eyries known to falconers between the 16th and 19th centuries 42 were still occupied between 1930 to 1939. However, this assumes a large population of floaters which are available to replace the birds lost to falconers. The population levels of peregrines in many areas have become so low, however, that any losses to falconers would significantly hinder the recovery of the species.

6. Disturbances

The peregrine falcon is particularly sensitive to disturbance near the nest cliff during the breeding season. The effects of disturbances vary with the timing and proximity to the eyrie. Many disturbances can be tolerated quite well during the non-breeding season. In late winter and early spring, during the courtship period, the birds are particularly liable to desert an area. Part of the courtship ritual involves ledge displays by the male, in hopes of attracting the female to a particular ledge for use as a nest site (Nelson 1970). The female will accept or reject the ledge, based largely on the protection it offers from predators. If too much disturbance occurs near the ledge the female will reject the ledge and will look for a better one. If human activities are centered generally throughout the nest area, the entire territory may be abandoned, and the pair may not nest (Hickey 1942; Bond 1946; Fyfe and Olendorff 1976).

Ratcliffe (1969) reports "Two Lakeland peregrine crags have been deserted since at least 1930 because of the continual presence of rock-climbers during the breeding season." Peregrines may, in fact, abandon their nests and territories after a single short visit by a human (Fyfe and Oledorff 1976). After eggs are laid the parents are less likely to abandon their nest, but many still do so. After the eggs are laid the parents are hatched and before the young have fledged, the parents will "sit tight" and defend vigorously, rather than abandon, their nests. Another critical period occurs just prior to fledging by the young. Disturbances at the nest may cause the nestlings to fledge prematurely, which may result in injury or death, or at the least may expose them to predators.

Ratcliffe (1969) discusses the effect the cliff may have in determining the peregrine's tolerance to disturbance. "Proximity to roads, buildings, recreational sites, and other casual human disturbances do not deter peregrines from breeding when a cliff is high and the nesting ledges inaccessible. But, as Hickey (1942) found in eastern North America, when cliffs are low or broken, with more easily accessible nest sites, such proximity to human activity affects regularity of occupation, and may determine whether a rock is ever used by peregrines at all." With the exception of the Dry Creek site the cliffs in the Warm Springs Dam area lack the height and sheerness needed to promote tolerance of human disturbances.

Aerial disturbances may also be a problem. Helicopters and airplanes are sometimes responsible for peregrine mortality. This can occur in several ways. If a plane comes too close to a cliff, particularly if it does so suddenly, the incubating or brooding parent may flush suddenly off the

nest, precipitating eggs or chicks out of the nest. This can happen because the feet of the parent are often placed under or very close beside the eggs or chicks. Normally the parent walks very carefully away from the nest scrape before flying, often taking as much as a minute to do so. If departure is sudden, injury to the nest contents may easily occur (Nelson 1979; Fyfe and Olendorff 1976).

Another source of peregrine mortality caused by planes may occur if the adult peregrine views the plane as an intruder into its territory and attempts to defend against it. Collisions of planes with peregrines do occur (Cade and Dague 1977), occasionally resulting in the peregrine being killed. Planes are apparently no problem if they fly at least 1,500 feet above the nest (Fyfe and Olendorff 1976).

Sonic booms may pose some problems, too. Though Glading and Hickey (in Hickey 1969) dismiss the effects of sonic booms on egg breakage, their information comes solely from the eggs of commercially raised poultry and pheasants. The effects of sonic booms on pesticide-thinned peregrine eggshells may be quite different. In addition, sonic booms may also cause incubating parents to flush hurriedly, which may precipitate eggs or young out of the nests.

During the latter stages of incubation and the early stages of brooding, it is important that the parents not spend too much time off the nest, as eggs and chicks must be protected from extremes in temperatures. They are also subject at any time to predation while the parents are gone. Any type of disturbance which results in the parents being away from the nest for more than a few minutes has the potential for catastrophe (Fyfe and Olendorff 1976).

7. Foraging habitat

Loss of foraging areas, through adverse modification of habitat, may also be a serious problem, though it is a difficult one to assess. In many areas human encroachment has caused nests to become unproductive or abandoned, but it is difficult to separate the effects of habitat loss from the effects of disturbances to the birds themselves. Peregrines are known to forage over wide areas (White 1974) but also to hunt primarily in a few select spots within the entire foraging area. Habitat loss could probably be tolerated, as long as the preferred spots were maintained. Determination of these spots may, however, be difficult. Certainly, if large-scale alterations occur within the foraging area of a peregrine falcon, problems can be expected to develop.

Peregrine falcons perfer to nest near water (lakes, rivers, oceans). The presence of water generally increases the prey base and provides an open area where prey cannot hide or dodge peregrine attacks. The impoundment of water by Warm Springs Dam may enhance, rather than hurt, the peregrine's foraging habitat. It is the land use changes and associated impacts which may result from the Lake Sonoma recreation and secondary growth to the area which has the potential of degrading the habitat.

8. Predators

Predators can be a significant cause of mortality or serious injury for the first year of life. Of 35 known deaths or injuries to the 101 captive-bred peregrines released in the East by Cornell, seven or more were killed by great horned owls and two more by raccoons. A number of otherwise unexplained losses were probably also due to great horned owls, so the figures may be considerably higher (Cade and Dague 1977).

Other known predators of peregrine falcons which occur in the project area are: prairie falcon, coyote, fox, golden eagle, raven, crow, bobcat, opossum and striped skunk.

9. Diseases

Diseases also account for peregrine falcon mortality. Some diseases known in wild peregrines are: trichomoniasis, botulism, cestodes, myiasis, filaria, tapeworm, mallophagia, mites, ticks, fleas, herpesvirus, pericarditis, leucocytozoonsis, and pneumonia. Additional diseases known only from captive peregrines, but possibly affecting wild ones as well are: aspergillosis, coccidiosis, capillariasis and "bumble-foot" (Jenkins pers. comm.). There is no information currently available to suggest that disease is a problem in the Warm Springs Dam-Lake Sonoma area. Monitoring of nests should disclose any problems so that management measures, where applicable, can be initiated in a timely manner.

II. Determination of Significance

A. Present Population

A rapid decline in peregrine populations occurred throughout North America during the years following World War II (Hickey 1969). In the eastern United States, where 408 historic nesting locations were known, none were occupied in 1964 (Hickey 1942, Berger et al. 1969). As a consequence of this precipitous decline, peregrines are now extinct as a breeding species east of the Rockies and south of the boreal forest. In the Rocky Mountains, numbers continue to decline with only four pairs known in Colorado in 1979.

In the Pacific Northwest States where the peregrine was once relatively common, only one pair is known recently in Washington and none in Oregon.

Thelander (1976), under contract with the California Department of Fish and Game, surveyed California in 1975 and 1976 to determine peregrine status. He found seven pairs which fledged an average of 2.0 young per pair in 1975. Nine pairs fledged 1.6 young per pair in 1976. Based on an analysis of these data, Thelander (1977) estimated the population at 22-40 reproductive pairs statewide. Beginning in 1977 field surveys were undertaken by the U.S. Fish and Wildlife Service, in cooperation with California Department of Fish and Game, the Santa Cruz Predatory Bird Research Group, U.S. Forest Service, and the Bureau of Land Management. Ten known occupied territories in 1977 fledged 18 young (1.8 young per pair) (Harlow 1977), and 23 known territories

fledged an average of 1.38 young per pair in 1978 (Harlow 1978). In 1979, 31 pairs fledged an average of 1.2 young per pair (Boyce 1979). This California peregrine population is the largest extant population of the American peregrine falcon.

B. Significance of Local Population

Harlow et al. (1979) have shown that nest sites from the northern interior of California have significantly greater reproduction than coastal California nest sites. This interior population is apparently recovering, as is evident from the reoccupancy of several historic nesting locations. The Warm Springs area is on the southern edge of this northern interior population of peregrines and, hence, will play a significant role in recovery of the species in California by supplying young for future occupancy of sites to the west and south. This population will also likely serve to provide captive breeding stock which will supply young for reestablishment programs throughout the Pacific States.

The existing two peregrine pairs in the Lake Sonoma vicinity compose approximately eight percent of this important northern interior California population. They also accounted for fifteen percent of all known productivity in the state. They are actually of greater significance than these percentages suggest, considering their role for assisting recovery in areas to the south and west due to their peripheral location in the population. Loss of these pairs would jeopardize the species by reducing their already small breeding population. Considering how widespread this species was formerly and considering the relative numerical importance of the northern California population to the remnant anatum subspecies, any further losses will likely jeopardize the continued existence of the species.

C. Captive Breeding Program

In addition to establishing Critical Habitat Zones, protecting foraging areas against adverse modification, and monitoring nest sites deemed vulnerable to human trespass, various State and Federal agencies have been involved in efforts to directly increase the numbers of peregrine falcons in California. These efforts have involved studying the biology and ecology of peregrines, testing management techniques on related species, and finally utilizing this knowledge on the management of peregrine falcons.

Studies of the biology and ecology of peregrines (Nelson 1970; Hickey and Anderson 1969; Cade 1960) and experimental testing of management techniques on other species of raptors (Walton 1977; Cade and Temple 1975) have been conducted, and captive breeding programs involving peregrine falcons are well underway at the Peregrine Fund facilities (at Cornell University and Fort Collins, Colorado), the Santa Cruz Predatory Bird Research Group in California, and the Canadian Wildlife Service. The captive breeding program consists of techniques involving fertilization, incubation and reintroduction of pregrine falcon eggs and chicks.

1. Captive breeding and reintroduction by "hacking"

This method is used to reintroduce peregrines into an area where they no longer nest and where no appropriate related species exists. It is, therefore, the sole method used in eastern North America.

In this technique captive birds produce all eggs, either naturally or by artificial insemination. Eggs are incubated initially by captive falcons, then in incubators. Nestlings are brooded and fed for approximately one month, several weeks prior to fledging. They are then transported to the hacking station, which consists of a "hack-box" located in appropriate habitat. One wall of the hack box is covered with chicken wire or bars so that the nestlings can see out. The chicks are given food for several weeks, until judged ready to fledge. Food is then withheld for a day prior to opening the box. Sometimes food is placed outside the hack-box to entice the young to leave the box when it is opened. After the young have fledged they continue to receive food at the hack-box until they are able to hunt for themselves.

2. Augmentation

This technique consists of adding eggs or young to the nests of a wild pair of peregrines in an attempt to increase their productivity. The clutch size of wild peregrines varies naturally, and some eggs may be added, unfertilized, or too thin to be hatched. By augumenting clutches the productivity can be raised to optimum levels (the maximum number which can be successfully raised by the parents). Under normal circumstances this would be four to five young.

3. Fostering

This technique is similar to augmentation, except that the young are placed in the nest of a wild pair whose own nesting attempt has failed completely. Usually this is due to broken, unfertile, or addled eggs. These eggs are removed at the point when they would normally have hatched and replaced by captive-bred young.

4. Cross-fostering

This is identical to fostering except that the foster parents are of a different species. The usual species used to cross foster peregrines is the prairie falcon.

The eggs used in the preceding techniques may come from captive breeding projects, from wild pairs whose eggs are too thin to be incubated normally and so are incubated artificially before being returned to the wild, and from nests which have eggs that have failed or are failing due to any of a number of problems.

5. Double-clutching

This technique involves taking the first set of eggs produced by a pair of falcons, incubating them artificially or under other pairs (augmentation, fostering, cross-fostering), and letting the parents "recycle" or lay a second set of eggs. This technique can approximately double the productivity of a pair of birds but must be used in conjunction with one of the previously discussed techniques of incubation, brooding, and reintroduction.

Each of the foregoing techniques have strengths and weaknesses which must be considered before they are used. Hacking is probably the safest method to the existing wild population as it does not involve any manipulation of active sites. It is, however, the least effective method of reintroduction, at least in the East where it has been tried extensively since 1974. This is because the young falcons are easy targets for predators, there being no parent birds to defend them. Over 50 percent of falcons introduced in the East by this method died before reaching one year of age, mostly due to predation (Cade and Dague 1977). In the West the figures are more encouraging (Cade and Dague 1979). Most of the functions of peregrine falcons (e.g., hunting, courting, incubating, etc.) are instinctual to a large degree, but some refinements come through learning through trial and error and also by training from the parents. Some of the problems of hacked birds may result from this lack of parental guidance, though it is difficult to prove. But observations based on six years of reintroduction in the eastern United States show that these birds do not behave normally in all respects.

Besides increased vulnerability to predation, hacked out peregrines have also had problems with reproduction. To date, after several hundred releases, not a single successful nesting has occurred (Cade and Dague 1979). One nesting attempt in 1979 was nearly successful, with fertile eggs laid, but the eggs disappeared mysteriously a few days before they were due to hatch. In New Jersey three pairs were found, one composed of an adult male and an immature female, the other two composed of immature males and females. There are no known instances of immature males and females pairing in wild populations (Cade and Dague 1979). In another attempt to get reintroduced birds to breed, a male was hacked out carefully within the territory of Scarlet, the female which has taken up residence on a building in downtown Baltimore. After about three weeks of daily visual contact and food exchanges, the male was released from the hack-box. The two falcons flew together for a while, disappeared, and when Scarlet returned 10 minutes later the male had disappeared. Neither it nor another male released later was ever seen again (Cade and Dague 1979).

These instances of highly abnormal behavior show some of the weaknesses of the "hack" method of reintroduction. However, in some areas this is the only method available and it probably can do no harm.

All of the other techniques (augmentation, fostering, cross-fostering, and double-clutching) are inherently risky as they involve direct human contact with wild peregrines and trespass into their nest sites. Fostering and cross-fostering involves less risk, since the adults would not

be productive at all without intervention. The parents may, however, suffer physical injury or mental stress or may abandon the territory completely as a result of this manipulation (Fyfe and Olendorff 1976). Results in the West (Cade and Dague 1979) show fostering to be an effective method of release, as 72 percent (59 of 82) of the chicks fledged. Cross-fostering was much less successful at 40 percent (10 of 25), all cross-fostered with prairie falcons.

The most risky techniques are augmentation and double-clutching, since these pose the additional hazards of loss of natural productivity. In the process of introducing additional eggs or young into the nest, the manipulation may cause the entire nest to fail. This may be due to any of several factors (Fyfe and Olendorff 1976). The following data come from the Cornell University facility in Fort Collins, Colorado (Burnham 1978). Of the 41 eggs removed from the wild for incubation, eight died before arrival at the lab and six more died during incubation. Twenty-four eggs hatched. This is much lower than what normally happens in the wild, but as these were all thin-shelled, it is possible that these figures are the best that could be expected.

Regarding the reintroduction program, Cornell reports, "Everything has not gone perfectly. We lost three of twelve reintroduction sites and have had two young killed by predators. Two eyries where we removed thin-shelled eggs and substituted dummies failed. At one in Colorado the birds stopped incubating and at the second, in New Mexico, the falcons evidently removed the eggs from the scrape," (Burnham 1978). The report goes on to say that one of the three sites manipulated in New Mexico failed when the falcons removed and dropped the dummy eggs over the edge of the eyrie. A hack-box was then constructed in a further attempt to have young fledge. The adults ignored the young while they were in the box but attacked them when they tried to fly. A coyote killed one fledgling before it could be recaptured.

Two cross-fostering attempts were made. One fledged young normally, the other site was infested with bedbugs (prairie falcon nests are apparently prone to this, while it is unknown in peregrines). The young peregrines were forced to fledge prematurely, and one was eaten by a great horned owl before it could be recaptured.

On the whole, Cornell considers the program to be successful, as very few or no peregrines would exist in the wild in many areas without these efforts. However, the program is not without problems and should not be considered a cure-all. Normally reproducing wild peregrines are still the best hope for the recovery of this species, and efforts to safeguard them, their reproduction, and their habitat should be the first priority in any management program. Captive breeding is at best only a means for achieving a goal (a healthy, naturally breeding population of peregrines), not an end in itself.

III. Rancheria Creek CHZ

A. Rancheria Creek CHZ consists of areas of land, water, and airspace in Sonoma County, with the following components (Mt. Diablo Base Meridian): T10N R11W W-1/2 of SW-1/4 Section 6, W-1/2 of NW-1/4 Section 6, NW-1/4 of NW-1/4 Section 7; T10N R12W Section 1, E-1/2 of NE-1/4 Section 2, SW-1/4 of NE-1/4 Section 2, SE-1/4 Section 2, E-1/2 of SW-1/4 Section 2, SE-1/4 of NW-1/4 Section 2, N-1/2 of NE-1/4 Section 12, N-1/2 of NW-1/4 Section 12; T11N R11W SW-1/4 of SE-1/4 Section 31, S-1/2 of SW-1/4 Section 31 T11N R12W SE-1/2 [SIC; should be SE-1/4] of SE-1/4 Section 36, SE-1/4 of SW-1/4 Section 36, as published in the Federal Register 42:40688-40689.

The CHZ is a steep, rugged area. The dominant vegetation is Douglas fir, mixed conifer, and savannah.

B. The existing land uses are hunting andd sheep grazing. There are five residential structures in the CHZ. County zoning for this CHZ permits a maximum density of one residential structure for each 160 acres. There are approximately 1,760 acres in the CHZ.

Access into the area is via Rockpile Road, which runs across the northeastern corner of the CHZ. There are also four-wheel drive roads in the CHZ providing access to hunting cabins. Water, gas, and septic tanks are provided by residents. A cooperative of homeowners provides telephone service.

C. Rancheria Creek CHZ has had a long history of peregrine falcon activity. Two young were known to have fledged in 1969 and three in 1970 and 1971. From 1972 through 1976 a pair of peregrines was present, but no reproduction was versified. Broken eggs were found in two of these years, and DDT and human disturbances were suspected to have been the causes. There were only limited observations from 1977 through 1979, but no reproduction is known. A lone adult was observed at the cliff in 1978.

Because of this history of occupancy by peregrines this area was listed as a CHZ.

D. The existing status of the CHZ is imperfectly known due to limited observations. No nesting activity was verified in 1979. It has not been checked in 1980 as of this writing.

IV. Dry Creek CHZ

A. Dry Creek CHZ consists of areas of land, water, and airspace in Sonoma County, with the following components (Mt. Diablo Base Meridian): T10N R11W NW-1/4 of SW-1/4 Section 1, W-1/2 of NW-1/4 Section 1, N-1/2 Section 2, N-1/2 of SE-1/4 Section 2, N-1/2 of SW-1/4 Section 2, N-1/2 Section 3, N-1/2 of SE-1/4 of Section 3, N-1/2 of SW-1/4 Section 3, NE-1/4 Section 4, N-1/2 of SE-1/4 Section 4, NE-1/4 of SW-1/4 Section 4, E-1/2 of NW-1/4 Section 4; T11N R11W E-1/2 of SE-1/4 Section 33, S-1/2 Section 34, S-1/2 Section 35, W-1/2 of SE-1/4 Section 36, SW-1/4 Section 36, as published in the Federal Register

42:40688-40689. In addition, a zone for management purposes is proposed with the following components: T10N R11W SW-1/4 of SW-1/4 Section 1, S-1/2 of SE-1/4 Section 2, S-1/2 of SW-1/4 Section 2, SE-1/4 of SE-1/4 Section 3, N-1/2 of NE-1/4 Section 11, NW-1/4 of NW-1/4 Section 12. The CHZ is a steep, rugged area, composed of chaparral, oak woodland, savanna, and mixed conifer.

B. The primary land use for those portions of the CHZ not under Corps ownership is sheep grazing. Kelly Road, which is now owned by the Corps, runs through the northern portion of the CHZ. Numerous four-wheel drive roads run through the area, though most dead-end.

C. There were no authenticated observations of peregrine nesting in the area prior to 1974. In that year, three young are known to have fledged. Although a pair was present in 1975, there was no reproduction. No activity took place in 1976 or 1977, and no observations were made in 1978. In 1979 nesting again took place. Two young fledged. Because of its history with successful nesting the Dry Creek area was listed as a CHZ.

D. In 1979 a two-year old female paired with an adult male. This was probably her first nesting attempt (based on her age and behavior) determined by a monitoring survey performed between March and July 1979. The eggshells were 8.2 percent thinner than normal pre-DDT shells, which is not usually associated with reproductive failure. Three eggs hatched and two young fledged. It is expected that this pair will continue to occupy the site for some years to come. In 1980 the pair again nested on the cliff and one male fledged.

V. Upper Dry Creek Candidate Habitat Zone (HZ)

A. Upper Dry Creek candidate HZ consists of areas of land, water, and airspace in Sonoma County with the following components (Mt. Diablo Base Meridian): T11N R12W Section 14, Section 15, Section 16, Section 17, Section 18, Section 19, Section 20, Section 21, Section 22, Section 23, Section 26, Section 27, Section 28, Section 29 and Section 30. The candidate HZ contains all but the western one-third of the listed CHZ, as described in the Federal Register 42:40688-40689. The candidate HZ is very rugged terrain. Access into the area is by Rockpile Road and Kelly Road, which enter the area in the southernmost sections, and Hot Springs Road, which enters on the east side where it quickly becomes a four-wheel drive trail as it heads toward the northern portion of the candidate HZ.

B. The exiting land uses are ranching, timber harvesting, and sheep grazing. Current Sonoma County zoning calls for a maximum density of one structure for every 160 acres. There are approximately 9,600 acres in the candidate HZ.

C. Nesting activity was discovered in the candidate HZ in 1977, when two young peregrine fledglings were discovered. In 1978 another two young fledged from this site. In 1979 three young fledged. Observations have shown that the peregrines have utilized two different cliffs in three years.

D. The listed CHZ was based on historical records, which showed a history of nesting activity in this area. Since the CHZ was published, observations have shown that peregrines are currently using an area which partially overlaps the listed CHZ but extends further north and east.

E. The process of listing an area as a CHZ is complex and time-consuming. It is considered a low-priority item by the U.S. Fish and Wildlife Service at this point. Therefore, no steps are currently contemplated for the establishment of the candidate zone as a listed CHZ. However, the presence of the peregrines nesting in this area is documented.

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APPENDIX C

POTENTIAL FOR DEVELOPMENT IN THE FALCON HABITAT NEAR LAKE SONOMA

APPENDIX C
DEVELOPMENT IN CRITICAL HABITAT ZONES NEAR LAKE SONOMA

1.00 INTRODUCTION

The purpose of this appendix is to assess the potential development within three zones in the Lake Sonoma Area. Two of the three zones have been designated by the Department of the Interior's Fish and Wildlife Service as critical habitat zones for the peregrine falcon; the third zone has been designated as a candidate habitat zone (HZ).

The two critical habitat zones (CHZ) are designated as Dry Creek and Rancheria Creek. The portion of the Dry Creek CHZ outside of the present project boundary plus the buffer recommended by the U.S. Fish and Wildlife Service contains an area of approximately 1,934 acres. Rancheria Creek CHZ is an area of about 1,760 acres with its easternmost boundary about a mile from the western shore of Lake Sonoma.

The upper Dry Creek candidate HZ encompasses an area of approximately 9,600 acres with its easternmost boundary overlapping the extreme northwest corner of project lands.

This appendix addresses the task of projecting development for a 100-year period in the designated zones. It should be noted that such a task is not without difficulties, and the projection of development in an area over a 100-year period is, by nature, hypothetical.

1.01 EXISTING POPULATION PROJECTIONS

The State of California Series E-150 population projection for Sonoma County indicates a 1980 population of 270,000 and a 2020 population of 565,500. According to the Sonoma County General Plan, adopted January 10, 1978, the population of Cloverdale was 3,590 in 1975 and is projected to increase 98 percent of 7,100 by the year 2000. Cloverdale's land area is expected to increase from 770 acres in 1975 to 1,600 by the year 2000. In contrast, the population of Geyserville, closer to Lake Sonoma than Cloverdale, had a population of 420 with 210 acres in 1975; the population is projected to increase 19 percent to 500 by 2000 A.D. The acreage of the city of Geyserville is not expected to increase over the next twenty years. It is evident from projected growth in these two cities that the Sonoma County Planning Department expects the majority of growth around the Lake Sonoma Area to be absorbed by the city of Cloverdale.

1.02 COORDINATION WITH LOCAL AGENCIES AND OFFICIALS

This study has been the result of discussions conducted with various agencies and officials at the local level as well as with private individuals and institutions. It incorporates an amalgum of the views and opinions of those agencies, individuals and institutions.

The following is a list of agencies, institutions and individuals contacted as part of the basic research for this study:

Department of Interior, Fish & Wildlife Service
Sonoma County Planning Department
Sonoma County Appraiser's Office
Mayor's Office, City of Cloverdale
Planning Department, City of Cloverdale
City Manager's Office, City of Cloverdale
Cloverdale Revelry
Healdsburg Tribune
Local Real Estate Companies
Local Landowners

1.03 BASIC ASSUMPTIONS AND METHODOLOGY

Development in an area will occur when certain basic conditions are satisfied. Some of these conditions are the provision of adequate access to allow ingress and egress of the premises by conventional modes of transportation; the topography of the land must be amenable to the building of residential structures; utilities such as water, electricity, and telephone service must be provided; the location of the prospective structures must be near enough to centers of economic activity to allow the resident to commute to his place of employment, and local, State and Federal Governments must allow development to occur.

The fewer of these conditions that are satisfied by a prospective residential area, the less likely development will occur. In the critical habitat zones and the candidate HZ examined, few of these conditons are satisfied.

Conversations with real estate and other professionals servicing the Lake Sonoma region indicate that most felt there would be little if any residential demand from commuters. This is due primarily to the high cost of gasoline and to the high cost of establishing a residence in the rugged regions.

According to local real estate representatives, increased demand for second homes in the Lake Sonoma vicinity is not anticipated because very few people are able to afford the high costs of two homes; presently, most people are barely able to meet costs associated with buying one home on two salaries. The ruggedness of the terrain would increase the costs of establishing new residential structures and would price most people out of the residential market; consequently, there would be very few individuals with the desire and financial ability to establish a place of residence in the rugged regions near Lake Sonoma.

The methodology employed in this report involved soliciting the advice and opinion of numerous individuals and agencies with an intimate knowledge of the affected regions. It is difficult to accurately assess the long-term impact of development in a region as the result of the creation of an

artificial lake; however, a reasonably accurate assessment can be made by an integration of the judgement of seasoned professionals living and working in the area with existing theories of regional development.

The analysis and conclusions of this study are based upon a "worst case" situation.

2.00 RANCHERIA CREEK CHZ

The Rancheria Creek CHZ is located approximately 6.5 miles southwest from the town of Cloverdale. A mountainous area encompassing about 1,760 acres of rugged terrain, this CHZ is used primarily as grazing land for sheep. The dominant species of timber within the CHZ are oak, douglas fir and redwood. The CHZ contains about five residential structures: two of which are on the Sky Hawk Ranch and three of which are hunting cabins located along Rancheria Creek and its tributaries.

Rockpile Road provides the main access and cuts through the CHZ for about a mile in the northeastern corner. A light duty dirt road, it provides access into the more remote mountainous regions. Although Rockpile Road is county owned, use of the road is generally restricted to residents of the Rancheria Creek and Upper Dry Creek areas. Private gates located at various places along Rockpile Road restrict recreational traffic. A small jeep trail provides the only access to the hunting cabins located along Rancheria Creek.

A private homeowners group composed of the resident users provide local telephone service, which is the only utility into this zone. Other utilities such as water, septic tanks, gas, etc. must be supplied by the resident.

Other than the aesthetic quality of the land, amenities of the area are few. For example, access into this zone from Rockpile Road is only with a four wheel drive jeep or truck. The general lack of access, the rugged terrain, the lack of most utilities and other amenities would restrict development within this CHZ.

3.00 DRY CREEK CHZ

The Dry Creek CHZ is located about three miles southwest of the town of Cloverdale. The CHZ outside of the present boundary plus the buffer area recommended by the U.S. Fish and Wildlife Service encompasses about 1,930 acres of rugged hills with thick vegetation of oak woodland, brushland and grassland. The CHZ is generally mountainous with elevations ranging from 500 to 1,860 feet above sea level. The land outside of government ownership is used primarily for the grazing of sheep.

Kelly Road, an unimproved dirt and gravel road owned by the Corps of Engineers, cuts a serpentine course through the upper third of the CHZ. Meandering through about two miles of the CHZ, Kelly Road is the main access servicing the northern and western regions contiguous to Lake Sonoma. Jeep trails provide the only acess to the southern portions of the CHZ and are limited to four wheel drive vehicles.

The general lack of access, the ruggedness of the terrain, the lack of utilities and other amentities would restrict developmenmt in this CHZ.

4.00 UPPER DRY CREEK CANDIDATE HZ

The candidate HZ is located about seven miles west of Cloverdale. An extremely rugged region, the topography is characterized by mountainous terrain that is inacccessible to vehicles other than motorcycles or four wheel drive jeeps and trucks. The candidate HZ encompasses an area of approximately 9,600 acres of aesthetically pleasing scenery. Rockpile Road is the main means of access. The road meanders along Thompson Ridge which is the highest ridge within the candidate HZ. In several locations along Rockpile Road northwest of the intersection with Kelly Road, the roadway is only wide enough to permit passage of one vehicle. At other points, the hairpin turns would prove hazardous to frequent users owing to blind spots to other vehiclular traffic. Hot Springs Road currently provides access into the northern region; the road is paved up to Cooley Ranch and becomes a jeep trail thereafter. Access into the other regions of the candidate HZ are also by jeep trails. The residents are primarily ranchers and sheep farmers.

The only utility into the candidate HZ is telephone service along Rockpile Road. A single telephone wire runs the length or Rockpile Road within the candidate HZ. The land is generally used as grazing land for sheep. The hills are too steep to accommodate cattle or other livestock.

The general lack of access, the rugged terrain, and the lack of most utilities and other amenities would restrict development within this zone.

5.00 PHYSICAL FACTORS INFLUENCING GROWTH

In general, the roughness of the terrain is not suitable to the establishment of residential stuctures. This is primarily true because the mountainous nature of the zones precludes easy access. Development in each of the three zones would occur under less than favorable conditions. The roughness of the terrain and the steep mountainous hills would not permit access by conventional modes of transporation. Few prospective buyers of residential units would be willing to relocate into an area that would require that they use a four wheel drive jeep in order to get to and from their home. It is true that paved roads could be provided into the remote regions of the zones, but only at great cost to the residents.

6.00 INSTITUTIONAL FACTORS INFLUENCING GROWTH

a. The impact of development in an area designated by the Department of the Interior as a CHZ under authorization of the Endangered Species Act of 1973, as amended, may be regulated by several, governmental agencies at the Federal, State and local levels. The Sonoma County General Plan restricts residential density in the Cloverdale Planning Area (which includes Lake Sonoma) to a maximum densities of 20 to 160 acres, depending upon the "slope"

of the residential site, in the Dry Creek CHZ, Rancheria Creek CHZ and the candidate habitat zone. According to the General Plan, "environmental, considerations strongly influence planning conclusions about urban and rural land use in this area...steep slopes, landslide and fire hazards, severe constraints on on-site sewage-disposal systems, and poor access for motor vehicles are dominant characteristics of the mountainous areas."

The two CHZ's and candidate zone are affected by three different county zoning ordinances: a portion is a timber preserve with a 160 acre density; portion is classified AEBST45; the remainder is classified AIBST40. Maximum allowable residential density for each of the "T" zones is based upon the "slope" of the residence site. According to the Sonoma County General Plan, current county policy dictates a 500 acre density based upon the "undeveloped" land use category.The 20 acre density used in this analysis represents a "worst case" situatiuon as indicated by the Sonoma County Planning Department.

b. Local government agencies specifically and private institutions generally follow the County General Plan in formulating their own policies toward growth and land use. Consequently, it is reasonable to assume that government policies toward restricting developlment in environmentally sensitive areas will continue over the economic life of the Warm Springs Dam project.

c. The Department of Housing and Urban Development (HUD) is one agency whose actions in insuring residential loans might negatively impact upon the peregrine falcon (if loans were insured for structures within the CHZ's). If any of HUD's proposed actions are interpreted by that agency to threaten the continued existence of the peregrine falcon, it would appear that Section 7(a) of the Endangered Species Act of 1973, as amended, would require HUD to either stop its action, modify its action, or apply for an exemption (16 USC 1536).

7.00 EVALUATION OF RESIDENTIAL COSTS

The purpose of this evaluation is to determine whether or not a prospective homeowner would locate in the vicinity of Cloverdale rather than in the rugged regions of Lake Sonoma. The following analysis demonstrates the high cost of establishing a residence in the critical habitat zones.

The Sonoma County Planning Department has proposed a "worst case" situation in which residential density would consist of one structure per 20 acres in each of the affected zones. This would result in the establishment of 88, 96 and 480 dwelling units in the Rancheria Creek CHZ, Dry Creek CHZ and the Upper Dry Creek Candidate HZ respectively.

The analysis involved using a "least-cost" solution to determine the optimal location of the units; thus, it is assumed that if residential units are to locate on 20-acre parcels, their physical locations would be such that the maximum number of units would share in common utilities such as electricity, water, sewage, etc. Minimization of costs would require that they locate in clusters of 4 residential units evenly spaced throughout the two CHZ's and the Candidate HZ.

ROADS:

Spacing of housing clusters necessary to reduce roadways to a minimum would still require many miles of road construction. For example, a "best estimate" of minimal construction of roadways would require construction of 35 miles in the Rancheria Creek CHZ, 38 miles in the Dry Creek CHZ and 191 miles in the Upper Dry Creek Candidate HZ. It should be stressed that jeep trails would be environmentally unacceptable for such high residential densities. According to the Sonoma County Engineering Department, the minimal acceptable roadway for residential usage would be an 18-feet wide roadway with "2-A.C. over 6 Aggregate" composition. The current construction cost of such a roadway is approximately $500,000 (1979 price level) per mile. The following table shows the total construction cost of roads in each affected zone, and the average road construction cost that each homeowner would be required to absorb.

Location	Road Construction Cost	Cost Per Residential Unit
Rancheria Creek CHZ	$17,500,000	$199,000
Dry Creek CHZ	19,100,000	199,000
Upper Dry Creek Candidate	95,000,000	199,000

ELECTRICITY:

Representatives of the Pacific Gas & Electric Company (PG&E) state that the costs of stringing electrical cable to each unit in an area of 20-acre residential density would be very costly as the homeowners would be required to absorb most of the cost of construction. A least-cost alternative would therefore be to establish common generator facilities for each of the housing clusters. Each unit would require approximately 15 kilo-watt-hours (KWH) of power to meet peak-loading requirements. Four residential units would require a common generator providing about 60 KWH of power. Purchase and installation of a 60 KWH generator and construction of protective housing would cost about $30,000. Each residential owner would therefore be required to absorb approximately $7,500.

WATER:

The Sonoma County Planning Department states that the current policy requires that water must be found on each land parcel before building permits will be issued. The area surrounding Lake Sonoma is primarily Franciscan rock: water is generally scarce in this kind of material. Assuming for analysis that water could be found, a common well and pump for each of the 4-unit clusters would be a least-cost solution. According to best estimates, the cost of drilling a water well 50 feet deep and installing pump, housing, lines, etc. with holding tank would be approximately $54,000. Each residential homeowner would be required to absorb one fourth of this cost, or $13,500.

SEWAGE:

The soil in much of the area around Lake Sonoma is variable in both composition and slope, Much of the area is unacceptable to the Sonoma County Health Department for establishment of septic tank systems. Assuming for analysis, however, that soils around each residential home would be acceptable to the County, the cost of establishing a septic tank system per residential unit would be approximately $7,500.

SUMMARY AND CONCLUSIONS:

The following tables presents the basic costs beyond the normal purchase price of land and structure that would have to be borne by each homeowner with a residence in the CHZ's or candidate HZ.: It should be noted that these costs include neither operation nor maintenane expense:

	Cost Per Homeowner
Roads	$199,000
Water	13,500
Electricity	7,500
Sewage	7,500
Total	$227,500

According to local real estate representatives, the purchase price of a new 3-bedroom home in the Cloverdale area is from $70,000 to $80,000: The construction cost of the same structure in the hilly areas around Lake Sonoma would be approximately 10 percent greater and would result in purchase prices for comparable land and structure, exclusive of infrastructure of $77,000 to $88,000. The land value is somewhat less in thee rugged regions than in Cloverdale, so the decreased land value might offset the increased cost of construction in the rugged regions. Assuming a mid-point for the price of a home in Cloverdale of $75,000, a comparable home in the rugged regions would cost $75,000 + $227,500 = $302,500: The cost of establishing a residence in the rugged regions is more than four times greater. As stated previously, the high cost of establishing a residence in the rugged regions of Lake Sonoma would be a major deterrant to most homeowners; therefore, the assumption that most potential homeowners would choose not to locate in the CHZ's or the candidate HZ appears reasonable.

8.00 PROJECTED DEVELOPMENT

a. The general ruggedness of the terrain, the lack of access roads, the remoteness of the region, the general lack of utilities, and the existence within the zones of an endangered species will operate to severely restrict development. Incentives to subdivide are lacking due primarily to the physical features of the land.

It is true that additional acccess roads could be built, but only at great cost to the residents. The historical pattern for roads in remote regions is for the initial road to be constructed and funded by local

residents with an interest in its construction. Later, when the road is brought up to county standards, maintenance of the road is assumed by the county.

The existence of land near Cloverdale that is more suitable to building residential structures will mitigate demand to build in the three zones. Any increase in demand for residential structures resulting from the creation of Lake Sonoma will likely be satisfied by increased building around Cloverdale.

Even without growth limiting measures, such as zoning or general plan restrictions, little residential development will occur in either of the two CHZ, or in the candidate HZ. This is because the mountainous terrain and general lack of access would severely restrain prospective developers from building in these zones. Based on current zoning by the Sonoma County planning department, it would be possible (though not probable) that 96 residential units could be constructed in the Dry Creek CHZ, 88 units in the Rancheria CHZ, and 480 units in the candidate HZ. These would represent the maximum number of units permissible under current zoning.

b. Timing: It is very difficult to determine the specific timing of development within the affected zones; a projection of this kind involves numerous variables, many of which can not be adequately anticipated. It is unlikely, however, that any development will occur within the affected zones over the next twenty years. Beyond the year 2000, there may be some development. If development does occur, the level of development will probably be one or two structures in each of the three zones within the first fifty years and an additional three to five over the next fifty years. Based on the assumption that some development will occur, it is doubtful that more than seven additional structures would be built within each of the CHZ's during the 100-year project period of economic evaluation.

9.00 SUMMARY AND CONCLUSIONS

The conclusion of this study is that little or no development will occur within the affected CHZ's during the economic life of the project. If development should occur, it would involve no more than seven new structures in each of the three zones over the next hundred year period. The reasons for the conclusion are that the ruggedness of the terrain, the general lack of utilities and other amenities, the increased costs of establishing a new residential unit in the rugged regions of Lake Sonom as well as strict government regulation of the land use and residential density, will make the land in the affected zones unattractive to potential buyers wishing to establish a residence. Other land in the region that is more suited to the establishment of residential structures will absorb any increase in demand for residential homes resulting from the creation of Lake Sonoma.

The Corps assumption about the primary factor regulating residential development is at variance with the Sonoma County Planning Department whose position is that development in the CHZ's and the candidate CHZ is primarily in response to county zoning, and not to the physical features of the land.

SONOMA COUNTY

DEPARTMENT OF PLANNING

Pranab Chakrawarti, Director

Mr. Lester Tong
U.S. Army Corps of Engineers
Project Evaluation Section
211 Main Street
San Francisco, CA. 94105

December 16, 1982

Dear Mr. Tong:

The purpose of this letter is to respond to an inquiry by your office pertaining to the status of Sonoma County's planning activities and policies relating to a group of parcels located within the boundaries of the Dry Creek candidate critical habitat zone (hereafter "Dry Creek CHZ"). The concerns expressed in that inquiry involved the following matters:

1. identification of policies or other provisions of the Sonoma County General Plan which are related to preservation of endangered species and/or critical habitat;

2. administrative and legislative procedures for determining whether or not land development proposals are consistent with the adopted Sonoma County General Plan;

3. the relationship of specific plans to the General Plan; and

4. a general assessment of the magnitude of development opportunity (which is provided by the General Plan) within the area encompassed by the proposed Dry Creek CHZ.

The following comments represent the Department's assessment of these questions. It should be pointed out, however, that the ultimate resolution of these matters, especially item four above, involves legislative determinations or decisions and the future course of these decisions could vary from staff's technical evaluation.

1. General Plan Policies Related to Endangered Species/Critical Habitat

Several sections of the Sonoma County General Plan provide policy guidance for matters relating to rare or endangered species and ciritcal habitat areas. The sections include a statement of the general goal and policies on natural resources on page 12 of the Plan and the goal and policies related to plant and animal life on page 17. Copies of these two pages along with the section of the Plan's Land-use Element pertaining to the Cloverdale Planning area, in which the Dry Creek candidate CHZ is located, are enclosed as Attachment 1.

575 Administration Dr., Room 105A. ■ Santa Rosa, California 95401 ■ (707) 527-2412

2. Administrative/Legislative Procedures for Determination of General Plan Consistency Status

Under Sections 65860 and 66473.5 of the California Government Code, a legislative body of a county or city shall not approve rezonings and subdivision maps if it makes a finding that such actions are not consistent with the adopted General Plan of the jurisdiction. In essence, the General Plan represents a collective judgement about the allocation of development opportunities throughout the County which is made prior to decisions about the zoning map that specifies the regulations and restrictions applicable to individual parcels of property. Under California law precedence is required to be given to this prior collective judgement in the adoption and administration of development regulations. Soon after adoption of the General Plan by the Sonoma County Board of Supervisors in January 1978, the County instituted a procedure for making a determination of the consistency status of development proposals with the General Plan. The following comments provide a brief overview of this procedure as it presently operates, although the details of the procedure may vary in particular cases.

All development proposals submitted to the Planning Department are reviewed by staff for consistency with the General Plan prior to formal acceptance of an application for the appropriate permit. In some situations, including all proposals located in areas which are not included within a Specific Plan such as the proposed Dry Creek CHZ, proposals are referred to the General Plan staff for completion of a report of administrative findings on its consistency status, which is mailed to the prospective developer/owner. If the administrative determination is that the proposal is inconsistent, the Department cannot accept and process an application for the department at that time. However, the prospective developer/owner may appeal the administrative determination to the Planning Commission and ultimately to the Board of Supervisors, where the issue becomes a legislative decision.

Upon noticing and public hearing before the Planning Commission, the Commission may deny the appeal, approve the appeal thereby finding the proposal consistent and directing staff to accept and process an application, or deny the appeal but recommend that a General Plan Amendment be considered in order to accommodate the project. If the appeal is denied by the Commission, the prospective developer/owner may appeal the decision to the Board of Supervisors which would then conduct its own hearing. The decision of the Board, which has the same options as the Planning Commission, is the final determination. If the appeal is upheld by the Board of Supervisors, staff accepts and processes the application for the proposed development. If the appeal is denied, the development proposal is effectively denied.

3. Relationship of Specific Plans to the General Plan

Sections 65450 et seq. of the Government Code of California defines the authority for and scope of specific plans. This section, which has been law since 1965, states:

"The planning agency may, or if so directed by the legislative body shall, prepare specific plans based on the general plan and drafts of such regulations, programs, and legislation as may in its judgement be required for the systematic execution of the general plan and the planning agency may recommend such plans and measures to the legislative body for adoption."

The essential points to note are: 1) specific plans are discretionary rather than mandatory; and 2) such plans as are adopted shall be based on the General Plan and shall include all detailed regulations, conditions, programs, and legislation which may be necessary or convenient for the sysrematic implementation of each element of the General Plan. Any zoning or other regulations which are adopted as part of the specific plan must be consistent with the General Plan and cannot provide, for example, any greater density of human habitation than is indicated by the General Plan for a particular area.

Sonoma County has prepared, or is in the process of preparing, more than 20 specific plans which will ultimately extend over the majority of the county's 1,600 square miles of land area. The County does not intend at the present time to prepare a specific plan which would include the area encompassed by the proposed Dry Creek CHZ. If the County were to decide to prepare a specific plan for this portion of its territory in the future, such a plan would of course have to be consistent with the adopted General Plan.

4. Development Potential in the Proposed Dry Creek CHZ Under the General Plan

A review of the area within the proposed Dry Creek CHZ indicates that it contains 18 individual parcels as shown on the assessor's parcel maps. The number of owners is less, however, since individual owners may have deeds to more than one parcel. Although parcels shown on the assessor's parcel maps are not necessarily legal building sites under the California Map Act and Sonoma County's Subdivision Ordinance, for purposes of the analysis herein it is assumed that each parcel is a legal residential building site.

The land-use designation shown on the land-use map of the Sonoma County General Plan for the entire area of all parcels within the proposed Dry Creek CHZ is the "undeveloped" category. The General Plan text, on page 29, defines the "undeveloped" land-use category as follows:

"Undeveloped land is characterized by a low density of human utilization and includes forests, grasslands, mountainous areas, and other open lands not predominantly used for agriculture, except for such extensive activities as the grazing of sheep or cattle. Residences are related primarily to the use of the land; they are scattered at a very low density throughout these areas (the density averages one dwelling unit per 450 acres countywide). A greater density (as much as one unit per twenty acres) may be permitted in certain areas. Most of the people in undeveloped areas live at these higher densities, whereas large areas of land remain essentially uninhabited. Open land is located predominantly on hills and mountains; the northwest part of the county is largely classified as undeveloped."

In administrative evaluations of development proposals in areas designated as "undeveloped", staff interprets building sites of 20 to 40 acres as consistent with the Plan in "ideal" situations where serious environmental constraints do not exist. In less than "ideal" circumstances characterized by geological hazards or important environmental resources, however, 40 to 100 acres or more are considered as the appropriate minimum size for a residential building site. The latter position governs the administrative determinations within the proposed Dry Creek CHZ. The Board of Supervisors, however, has not established a general policy in this regard and there are few precedents to be found in Board decisions on individual cases in the Dry Creek area. However, in a May 11, 1982 decision on an appeal of an administrative determination of inconsistency with the General Plan for proposed subdivision of a parcel on Kelly Road in the vicinity of the proposed CHZ, the Board found, as expressed in Resolution No. 71742, that 10-100 acre density was inconsistent while densities of 120 acres or more would be consistent with the General Plan. If this precedent were to be applied in the area encompassed by the proposed Dry Creek CHZ, and given the current pattern of parcelization, about 23 residential building sites would constitute the development potential within the proposed CHZ. Only three of the 18 existing parcels could be subdivided, with an additional five lots created through these subdivisions. Thus the existing pattern of parcelization plays the dominant part in defining the future development potential of the area. Furthermore, two of the parcels which could potentially be subdivided, given the analysis above, currently are under Williamson Act agricultural preserve contract. These contracts would essentially prevent the subdivision of these parcels unless it were demonstrated that each lot created by a subdivision would individually meet the income requirement in the contract. Therefore, until these contracts expire, effectively only one existing parcel could be subdivided with a net gain of one residential building site over the current situation.

The present zoning, although it might allow greater development potential, is considered to be inconsistent with the General Plan, which would be the governing document when development applications are reviewed.

Concluding Comments

In conclusion, it should be restated that decisions relative to future development potential in the proposed Dry Creek CHZ are ultimately legislative decisions which would be made by the Board of Supervisors. The preceding evaluation has been based upon staff interpretation of the Sonoma County General Plan and extrapolation of a previous Board decision on an appeal of a General Plan consistency determination for a parcel in the vicinity of the proposed CHZ. As with any legislative action, these positions are subject to change over time.

I trust that the foregoing comments will help your office to resolve the concerns which were expressed to the Department. If you have any questions please feel free to contact me at any time.

Sincerely,

PRANAB CHAKRAWARTI
Planning Director

PC/KC:rl

d. Promote affordable replacement housing for residents of housing subject to abatement procedures.
e. Encourage methods to conserve the existing housing stock in ways that protect health, safety, and welfare.
f. Explore methods for rehabilitating existing housing.

2. It shall be the goal of Sonoma County that dwelling units designed for vacation or seasonal occupancy and converted to permanent occupancy be encouraged to meet health and safety standards.

E. Housing Discrimination:

1. It shall be the goal of Sonoma County to eliminate racial, ethnic, sex, and age discrimination from the housing market in Sonoma County.

Policies:

a. Instruct all county department staff members to report cases of housing discrimination to the proper authorities.
b. Request the housing industry, including real estate, to continue and increase self-policing of discrimination in housing
c. Work with the Multiple-Listing Board and other groups to inform them of any discrimination that takes place in Sonoma County.

F. Countywide Coordination Regarding Housing:

1. It shall be the goal of Sonoma County to promote education, communication, and coordination between the public and private sectors regarding housing.

Policies:

a Encourage the public and private sectors to support home owners and tenants in home maintenance.
b Encourage local government to work closely with the building industry in implementing the county's goals for housing.
c. Require county departments to use census tracts, or some other common geographic unit, to record, publish, and make available information to the public and to other government agencies.
d Encourage city and county coordination on housing matters.

G. Housing Regulation:

1. It shall be the goal of Sonoma County to give special attention to code reassessment, innovative concepts, and the reduction of bureaucracy as means to facilitate the production of adequate housing consistent with the community-centered concept.

V. **The General Goal on Natural Resources:** It shall be the goal of Sonoma County to identify natural resources that are of significant long-term social, economic, and environmental importance and to establish a comprehensive resource-management program in order that these resources are managed for human benefit so as to avoid needless and careless depletion of the resource; the replenishment of renewable resources is promoted; the harvesting and use activities of individuals so engaged are directed towards the most progressive and forward-thinking methods in these activities; the resources of the county are not damaged or lost through careless exploitation, and the needs of future generations for the use of the land and other resources are a paramount, compelling, and continuing consideration. short-term action will not irreparably limit future options, and developers are required to pay for the cost of resource extraction.

Policies:

a. Determine the environmental suitability of land for specific types and intensities of use.
b. Support and aid in studies of the ecological relationships among and within natural resources, managed resources, and human activity.
c. Identify agencies at all levels of government that are involved with the regulation of managed resources; coordinate the implementation of related county goals and policies with these agencies
d. Continue to coordinate and evaluate land-use decisions and resource-management programs that involve the natural and managed resources of Sonoma County.
e. Coordinate an ongoing program for open space around and within cities in order to provide visual relief from urban densities

A. Historic and Archaeologic Sites:

1. It shall be the goal of Sonoma County to preserve significant archaeologic and historic sites representing all the ethnic, cultural, and economic groups that have lived and worked in Sonoma County.

Q. Plant and Animal Life:

1. It shall be the goal of Sonoma County to assure that its biological diversity is preserved and restored for its scenic and educational value.

Policies:

a. Review all proposed developments with regard to possible adverse or beneficial effects on plant and animal life.
b. Establish a system of permanent wildlife-habitat areas that are representative of Sonoma County floral and faunal communities. Human uses of these areas should be adequately regulated to protect these communities, and land uses should be restricted to those that are compatible with the perpetuation of these communities. These habitat areas shall include but not be limited to the following: (i) remaining natural stream or river courses, (ii) natural fresh-water and salt-water marshes, (iii) estuaries, bays, and mudflats, (iv) coastal dune areas and other coastal areas having unique values, (v) habitats necessary for the preservation of rare or endangered species, and (vi) areas of unique biogeographical significance to North America, California, and Sonoma County.
c. Give special consideration to the preservation and management of timber areas that have unique biotic or scenic characteristics.
d. Encourage the use of appropriate vegetation where planting is used to enhance the natural beauty of the county.
e. Minimize future damage to fisheries, fish habitats, and spawning grounds, and, as far as possible, repair past damage.
f. Work with other agencies to enhance hunting and fishing opportunties in the county.
g. Support the maintenance and wise management of adequate populations of game and fish.
h. Encourage the use of natural areas for educational purposes.
i. Treat landscaping as an integral part of transportation construction, and emphasize the use of native trees and plants.
j. Encourage the use of native plants for screening and landscaping.

R. Geothermal Resources:

1. It shall be the goal of Sonoma County to provide for a planned production within geothermal-resource areas. A program of planned geothermal production should focus on maximum long-term utilization of the resource and on the mitigation of adverse environmental impacts.

Policies:

a. Consider action by the Board of Supervisors to initiate a comprehensive geothermal resource-management program.
b. Apply high standards governing all phases of geothermal exploration and production, including restoration of all such areas to acceptable conditions once the resource becomes nonproductive.
c. Encourage compatible, comprehensive multiple-use programs for geothermal leaseholds.
d. Ensure that undesirable effects of by-products and waste produced in the geothermal areas are minimized.
e. Support monitoring of the geothermal resource by appropriate Sonoma County departments and other relevant agencies.

S. Scenic Resources:

1. It shall be the goal of Sonoma County to protect and maintain its diverse scenic resources.

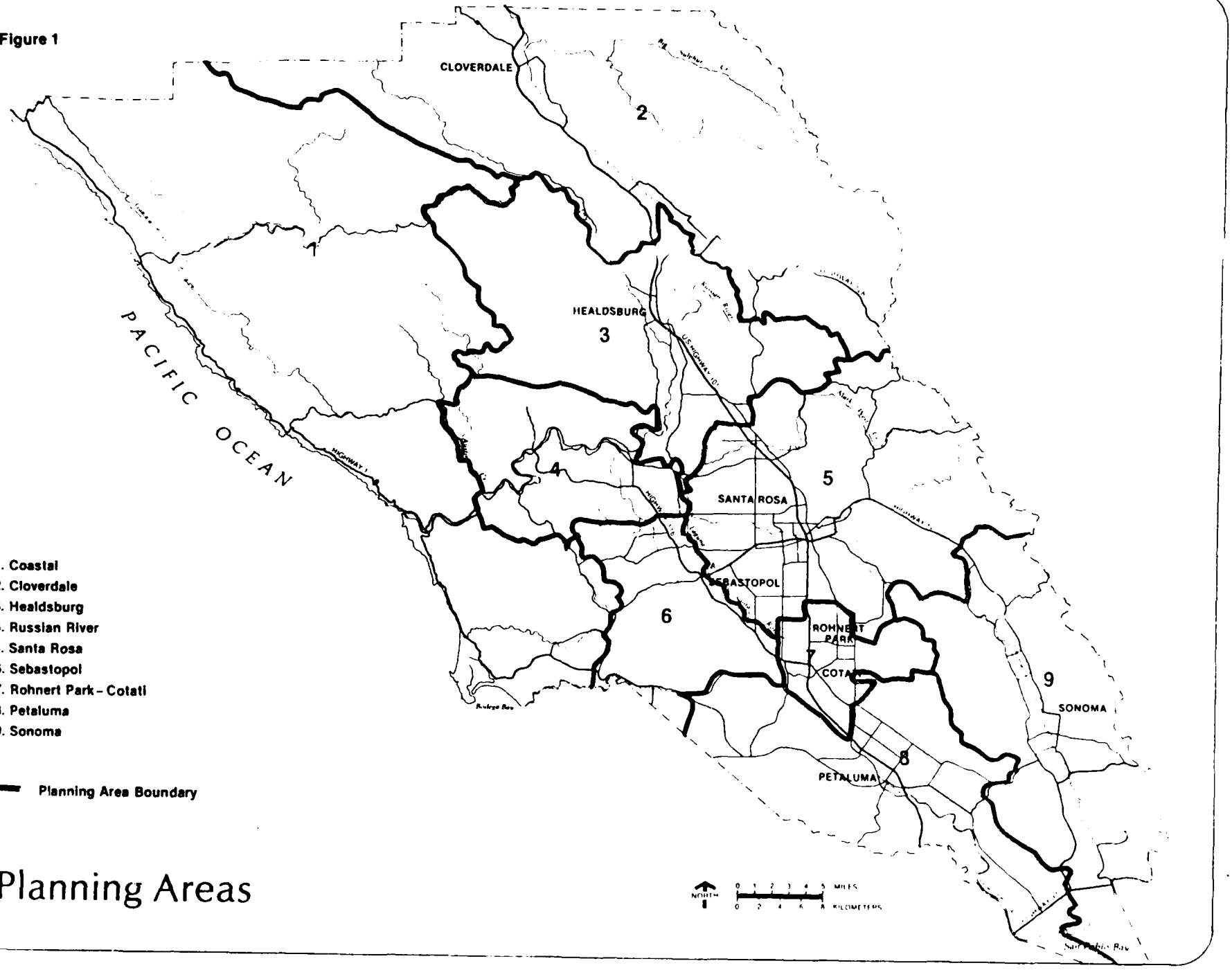
Policies:

a. Protect the visual quality of unique scenic resources
b. Identify and protect scenic areas important for visual and psychological relief from urban environments.
c. Protect and maintain scenic areas essential for defining community separation and community form.
d. Protect visually vulnerable landscapes, such as ridgelines.
e. Review new developments to ensure that landscape integrity is maintained.
f. Maintain scenic resources as an attraction for tourism and recreation.
g. Review new developments to minimize their impact on scenic quality.

T. Soils:

1. It shall be the goal of Sonoma County to preserve and main-

Figure 1



Planning Areas

3.39. The coastal area should be regarded as a special-permit area, and guidelines should be established to address unique concerns.

3.40. Resource-management techniques should be applied as recommended in the conservation and the open-space elements.

3.41. Review and revision of the *Stewarts Point-Gualala General Plan*, the *County Service Area No. 4 Plan*, and the *Bodega Bay Area Plan* should be incorporated into the coastal-element program.

TABLE 11

The Coastal Planning Area. Socioeconomic Information

Housing			
Category	*Occupied in 1975*	*Construction Needed 1975–2000*	*Increase, 1975–2000, in percent*
Dwelling units	1,597	1,850 (net)	116

Employment			
Category	*Number of Persons Employed in the Year*		*Change, 1975–2000, in percent*
	1975	*2000*	
Agriculture and mining	110	80	-27
Manufacturing	100	110	10
Wholesaling	0	0	0
Retailing	180	410	128
Services	220	530	141
Utilities and transportation	30	70	133
Government	110	330	200
Recreation	200	500	150
Total	950	2,000	111

Manufacturing and Commercial Land Use, in Acres [n.a., data not available]

Type of Use	*Year 1975*	*Projected Need in Year 2000*	*Designated in Local Plans*	*Sewer and Water Available (estimated)*
Manufacturing	50	50	n.a.	n.a.
Heavy commercial	25	75	n.a.	n.a.
Light commercial	n.a.	n.a.	n.a.	n.a.

Commercial and Industrial Zoning, in Acres, in the Year 1975

Location	*Commercial*	*Industrial*
Incorporated areas	[insufficient information]	
Unincorporated areas		
Total		

THE CLOVERDALE PLANNING AREA

The Cloverdale planning area has an economy based on natural resources Agriculture is located in the Dry Creek, Alexander, and Oat Valleys and on hillsides overlooking these valleys. Geothermal-resource activity associated with the Geysers dominates the eastern part of the planning area. Forest products continue to be a major contributor to the local economy

Environmental considerations strongly influenced planning conclusions about urban and rural land use in this area. The Russian River floodplain limits the eastward expansion of Cloverdale and Geyserville. Steep slopes, landslide and fire hazards, severe constraints on on-site sewage-disposal systems, and poor access for motor vehicles are dominant characteristics of the mountainous areas.

Phasing the Urban Expansion of Cloverdale

The Sonoma County *General Plan* is consistent with the *Cloverdale Specific Plan*. An approximate doubling of Cloverdale's present population by the year 2000 is projected, but this increase in population could be accommodated with minimal annexation by the city. (See tables 12 and 13.)

Recommendations:

3.42. LAFCO should consider adopting the land-use-plan recommendations for the year-2000 city boundary as the sphere of influence of Cloverdale.

3.43. Cloverdale should formulate a public-services policy that phases the provision of services so as to assure infill of existing urban areas.

Geyserville and Its Rural Environs

The land-use plan is consistent with a sewer-service study for Geyserville, which projects a modest increase in the town's population and the retention of the present scale and character of the community. The primary issue to be addressed, therefore, involves rural land-use determinations to the east of Geyserville.

Recommendation:

3.44. Undeveloped lands east of Geyserville between that community and Asti should be zoned conformably to the agricultural characteristics of the area.

TABLE 12

The Cloverdale Planning Area: Population Projections

Place of Area	Number of People, in the Year			
	1975	1980	1990	2000
Urban				
Cloverdale	3,590	4,000	5,200	7,100
Geyserville	420	400	500	500
Other urban	640	600	500	300
Subtotal	4,650	5,000	6,200	7,900
Rural				
Rural residential	880	1,000	1,200	1,400
Other rural	2,420	2,500	2,600	2,700
Subtotal	3,300	3,500	3,800	4,100
Planning-area total	7,950	8,500	10,000	12,000
Urban, in percent	58	59	62	66
Rural, in percent	42	41	38	34

Rural-Residential Development: Palomino Lakes and Vineyards Subdivisions and the Foothill Development Area

Most rural development in the planning area is projected to be in the Palomino Lakes and Vineyards Subdivision areas and in an area west of Cloverdale's boundary. These areas are generally suitable for low-density development and, with attention to environmental factors, can accommodate the projected population growth.

Recommendation:

3.45. *The Palomino Lakes and Vineyards areas should be considered for rezoning to parcel sizes consistent with the environmental characteristics of the area.*

Other Rural-Development Areas

The land-use plan proposes a small amount of rural development in unspecified areas. Such development should be subject to environmental-suitability guidelines and open to innovative development concepts.

Recommendations:

3.46. Environmental suitability and public-service impacts of proposed development should guide land-use determinations.

3.47. Clustering of development should be encouraged.

TABLE 13

The Cloverdale Planning Area: Socioeconomic Information

Housing			
Category	*Occupied in 1975*	*Construction Needed 1975-2000*	*Increase 1975-2000 in percent*
Dwelling units	2,817	1,800 (net)	64

Employment			
Category	*Number of Persons Employed, in the Year*		*Change 1975-2000 in percent*
	1975	*2000*	
Agriculture and mining	990	710	-28
Manufacturing	970	1,100	13
Wholesaling	90	160	78
Retailing	300	870	190
Services	470	770	64
Utilities and transportation	220	330	50
Government	240	320	33
Recreation	15	80	470
Total	3,290	4,300	31

Manufacturing and Commercial Land Use, in Acres [n.a., data not available]

Type of Use	*Year 1975*	*Projected Need in Year 2000*	*Designated in Local Plans*	*Sewer and Water Available (estimated)*
Manufacturing	280	290	850	10
Heavy commercial	120	140		
Light commercial	80	130	170	n.a.

Commercial and Industrial Zoning, in Acres, in the Year 1975

Location	*Commercial*	*Industrial*
Incorporated areas	170	90
Unincorporated areas	0	470
Total	170	560

Impacts of Lake Sonoma

Warm Springs Dam could have a significant impact on the Cloverdale and Healdsburg planning areas and on the county as a whole, not the least impact would be the pressure for recreation-related residential development. The land-use plan does not designate any specific areas for such development, but it does recognize the opportunity for some low-density

development in the area. However, large-scale development along access routes to Lake Sonoma would be inconsistent with environmental, resource, and transportation-system considerations.

Recommendations:

3.48. **Any proposed development along access routes to Lake Sonoma should be located in environmentally suitable areas and should not generate a strip-development effect.**

3.49. **Productive agricultural lands along access routes to the lake should be retained in large parcels.**

Resource Management and Other Environmental Concerns

Recurrent Russian River flooding is a problem in this planning area. The Geysers geothermal area is a large source of electric power in the region, but it requires careful management to avoid environmental degradation.

Recommendations:

3.50. **Floodplain zoning should be established on the 100-year floodplain.**

3.51. **A specific plan for the geothermal resource should be prepared and adopted; zoning ordinance provisions governing the utilization of this resource and its relationship to other land uses should be written.**

THE HEALDSBURG PLANNING AREA

The Healdsburg planning area is environmentally diverse. Natural-resource uses, such as vineyards, orchards, gravel extraction, and recreation, dominate the landscape and economy. Healdsburg and Windsor are the two urban centers in the planning area, and each is expected to grow significantly during the next twenty-five years. Windsor may become the county's ninth incorporated city. (See tables 14 and 15.)

Agriculture in the Healdsburg Peninsula Area

The land-use plan designates the area known as the "Healdsburg Peninsula" as agricultural, because of its productivity and its environmental limitations to urban development. The fact that the peninsula could be serviced by the sewer lines that cross it could complicate implementation.

Recommendation:

3.52. **The county should work with the City of Healdsburg to reach agreement on urban-boundary designations and to maintain densities compatible with agricultural use.**

The Western Boundary of Healdsburg

Presently Highway 101 forms a barrier to Healdsburg's urban growth to the west. Three roads, Chiquita, Dry Creek, and Westside, cross that barrier, and some form of residential development occurs west of the freeway along the three roads. The land-use plan recognizes the existing residential development by designating certain areas on Chiquita and Westside Roads as *cities* and the area along Dry Creek Road as *agriculture and residential*.

Recommendations:

3.53. **Existing residential development north of Westside Road should be served by a sewer; capacity of the lines should be of a size to serve only the area designated for urban expansion.**

3.54. **The part of the Chiquita Road area within the urban-expansion area proposed in the land-use plan should be served by a sewer if and when the City of Healdsburg determines that annexation is appropriate; north of the urban expansion area, rural densities should prevail.**

TABLE 14

The Healdsburg Planning Area. Population Projections

Place or Area	*Number of People in the Year*			
	1975	*1980*	*1990*	*2000*
Urban				
Healdsburg	6,170	7,800	11,700	14,500
Windsor	4,150	4,800	9,000	10,100
Other urban	1,000	900	800	600
Subtotal	11,320	13,500	21,500	25,200
Rural				
Rural residential	2,500	2,900	3,300	3,600
Other rural	2,400	2,600	3,000	3,200
Subtotal	4,900	5,500	6,300	6,800
Planning-area total	16,220	19,000	27,800	32,000
Urban, in percent	70	71	77	79
Rural, in percent	30	29	23	21

SONOMA COUNTY

DEPARTMENT OF PLANNING

Pranab Chakrawarti, Director

LTC Edward M. Lee, Jr., District Engineer
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, Ca. 94105

November 2, 1982

Dear Col. Lee:

The Sonoma County Department of Planning recently received a letter from your office indicating an interest in the Department undertaking the preparation of a specific plan for the designated Dry Creek critical habitat zone, located near your Warm Springs Dam/Lake Sonoma project.

At this time, the Department of Planning's work program for the 1982-'83 fiscal year has already been established and does not include preparation of a specific plan covering the geographical area which you describe. In sparsely populated areas of the County, we generally prefer to include a much larger territory than that indicated in your letter. The preparation of a specific plan is ordinarily initiated for the purpose of bringing zoning into conformance with the Sonoma County General Plan as required by State law and otherwise implementing the recommendations of the General Plan. However, zoning for the area in question, a portion of the Dry Creek precise zoning adopted by the Board of Supervisors in 1972, has been determined to be consistent, for the most part, with the General Plan.

A number of the tasks identified in an attachment to your letter might be performed utilizing information and recommendations in the General Plan itself. Generally, for the area in question the Plan provides for very limited development opportunity and therefore the potential for only minor disturbances to the habitat zone.

If you should have any questions or require additional information, please do not hesitate to contact the Department of Planning. Thank you for your interest in our specific plan program.

Sincerely,

PRANAB CHAKRAWARTI
Planning Director

Kenneth M. Curtis
Planner IV,
Comprehensive Planning

KC:rl

575 Administration Dr., Room 105A ■ Santa Rosa, California 95401 ■ (707) 527-2412

SONOMA COUNTY

COMMUNITY AND ENVIRONMENTAL SERVICES

PLANNING DIVISION

Pranab Chakrawarti,
Planning Director

James C. Wolfe
Acting, Engineering Division
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, CA 94105

February 27, 1980

Dear Mr. Wolfe,

Attached are the Planning Department's specific comments on Development in Critical Habitat Zones Near Lake Sonoma.

In general, the report suggests one scenario for development which may occur in the critical habitat zones over the next one-hundred years. This may indeed occur, but there is no certainty that development could not be much more intense. The basic reason for suggesting that more intense development may indeed occur is that though County policy currently restricts development near Lake Sonoma, County policy could easily change. A change in the composition of the Board of Supervisors, and a subsequent change of County policy, could lead to more intense development than your report assumes. This could occur within one year. County policy can, at best, be only temporary protection for critical land resources.

The report also states that the land in the critical habitat zones is steep, remote, has poor access, and would be difficult to develop. This is true, and for these resons, County policy (the General Plan) recommends very limited development. However, with the attraction of the lake, developers can and will develop such lands if given the go-ahead by local government. There has been continuing interest on the part of the public in development and land division possibilities near the lake. The improved roads which the dam has already necessitated does make access easier than before. Development of the critical habitat zones at a density of one dwelling per twenty acres, a policy determination County government could conceivably make, would result in 96, 88, and 480 dwelling units for the Dry Creek, Rancheria Creek, and upper Dry Critical Habitat Zones, respectively.

We strongly recommend that means other than County policy be relied on to provide the permanent protection necessary for preservation of the Critical Habitat Zones for the peregine falcons.

Thank you for allowing us to comment on this document.

Sincerely yours,

PRANAB CHAKRAWARTI
Planning Director
Gail Odom
Gail Odom

GO:vk

2555 Mendocino Ave, Room 105A ■ Santa Rosa, California 95401 ■ (707) 527-2412

may be permitted in certain areas. Most of the people in undeveloped areas live at these higher densities, whereas large areas of land remain essentially uninhabited. Open land is located predominantly on hills and mountains; the northwest part of the County is largely classified as undeveloped.

C-5, Paragraph 2.

This discussion needs to be greatly expanded. County policies currently favor restricted development near the dam. All it takes is three votes on the Board of Supervisors to change County policy. There could easily be pressure to make this happen within the near future. The second sentence here is not a justifiable conclusion because the County General Plan can be amended.

C-5, Paragraph 5.

Over the long term, it is impossible to know that the demand for residential structures will be satisfied by building around Cloverdale.

C-5, Paragraph 6.

Mountainous terrain and lack of access does not stop developers when County policy will allow development and there is an attraction (Lake Sonoma) nearby.

C-6, Paragraph 1.

How were the number of dwellings which will probably be built calculated? What were the assumptions?

C-6, Paragraph 4.

We do not agree with the conclusion that the constraints to development and current County policy against development will for the economic life of the Lake prevent residential development. The attractiveness of the Lake is not addressed at all. There is no comparison made of Lake Sonoma to other similiar situations where lakes create pressure for development and land divisions.

Comments on Development in Critical Habitat Zones Near Lake Sonoma

Reference	Comment

C-3, Paragraph 1.

Current County zoning is varied in this CHZ. A small portion is Timber Preserve, 160 acre - density. A small portion is AEBS, T45 and the rest is AIBST40. The "T" zoning is a table which calculates allowable residential density based on the slope. Current County policy, based on the General Plan,would dictate a 500 acre density based on the "Undeveloped" land use category. The General Plan takes precedence over zoning in terms of residential density.

C-3, Paragraph 2.

The road is a County road and access is not legally restricted to residents. Illegal gates currently restrict access at the end of Rockpile Road to keep out tresspassers.

C-3, Paragraph 5.

Current zoning is mostly AIBST40, with some AEBST45. See previous comment on zoning and the General Plan. Also, what development, if any, currently exists in the CHZ?

C-3 Paragraph 6.

Kelly Road is just to the north of the CHZ. In what instance would the Corps grant "new access rights from Kelly Road?" What rights exist now?

C-4, Paragraph 1.

Rockpile Road does not enter this CHZ. Hot Springs Road provi'es the only access. The zoning in AEBST45 and AIBST40. See previous comments on zoning and General Plan.

C-4, Paragraph 2.

The phone line would not enter the CHZ because Rockpile Road does not.

C-4, Last Paragraph.

This information on the General Plan is not correct. The land use designations of all CHZ's are "Undeveloped", as explained in this excerpt from the General Plan:

> The land-use plan consists of eleven land categories, described in the following paragraphs...:
>
> Undeveloped. Undeveloped land is characterized by a low intensity of human utilization and includes forests, grasslands, mountainous areas, and other open lands not predominantly used for agriculture, except for such extensive activities as the grazing of sheep or beef cattle. Residences are related primarily to the use of the land; they are scattered at a very low density throughout these areas (the density averages one dwelling unit per 450 acres countywide). A greater density (as much as one unit per twenty acres)

APPENDIX D

CHRONOLOGY OF COORDINATION

APPENDIX D

SECTION 7 CONSULTATION
WARM SPRINGS DAM AND LAKE SONOMA

CHRONOLOGY OF COORDINATION

- Formal Fish and Wildlife Coordination Report transmitted by Regional Director and concurred by the State Dept. of Fish and Game, 22 November 1961	4 January 1962
- Project authorized by Congress for construction	23 October 1962
- Water storage contract between County and Corps approved	6 January 1965
- National Environmental Policy Act enacted requiring Environmental Impact Statement (EIS)	1 January 1970
- Draft EIS filed describing purposes of project, project description, impacts of project	18 July 1973
- Final EIS filed responding to comments during review of Draft EIS	4 December 1973
- Endangered Species Act enacted	28 December 1973
- District Court suit filed on adequacy of EIS, related to seismicity, water quality and cultural resources	22 March 1974
- Court denied injunction	23 May 1974
- Justice W. O. Douglas granted temporary stay of construction	30 May 1974
- Local election voted on project and confirmed construction	4 November 1974
- Corps District was notified informally of presence of falcons and was requested to remain silent on subject by Fish and Wildlife Service (FWS)	5 August 1975
- Draft Supplement to Final EIS filed with information on seismicity, water quality and cultural resources - endangered species mentioned in one paragraph coordinated with FWS.	21 May 1976

- Draft designation of Critical Habitat Zone (CHZ) in Dry Creek drainage in Federal Register	30 August 1976
- Final Supplement to Final EIS filed	17 September 1976
- District Court indicated that EIS was adequate; decision appealed	16 March 1977
- Formal notification by FWS of presence of falcons in area adjacent project boundaries and requested Corps District to seek consultation under Sec. 7	31 March 1977
- Corps District initiates Sec. 7 consultation on project (Ref: 31 March 1977 request)	15 April 1977
- Field inspection with FWS, State Dept. of Fish and Game and Corps personnel participating; no falcon was observed	3 June 1977
- FWS opinion provided indicating potential jeopardy to the species due to public use, related to falcons that nest outside project boundaries	16 August 1977
- Federal Regulations describing Section 7 consultation published	4 January 1978
- Corps District initiated Sec. 7 Consultation on CHZ overlapping project boundaries during development of Master Plan	3 March 1978
- Regional Office acknowledged receipt of request for consultation	22 March 1978
- Biological opinion rendered on 3 March 1978 request indicates no jeopardy	16 May 1978
- Contract for dam construction awarded	30 May 1978
- Contract for Master Plan and public involvement awarded	28 June 1978
- Supplemental FWS report submitted to Corps District containing quotes from 16 May 1978 opinion	24 July 1978
- Contract report for Draft Master Plan discussing fish and wildlife resources and endangered species submitted to Corps	1 September 1978

- Conference held with staff from FWS (Endangered Species and Ecological Services), State Dept. of Fish and Game (Sacramento and Yountville), Corps District and Biosystems, Inc. to disucss recommendations of the contract report. There were no firm commitments made; some clarification was obtained. It was suggested that consultation could be initiated when the Draft Master Plan was completed.	11 September 1978
- Draft Master Plan released for public review - copies furnished Regional Office	28 December 1978
- Sacramento Endangered Species Office receives Draft Master Plan	18 January 1979
- Discussions initiated by Corps District regarding falcon survey of areas within boundaries of project	6 February 1979
- Formal request to Corps District to initiate consultation on Draft Master Plan and indicating that Sacramento office had discussed initiation in September 1978	13 February 1979
- Corps District inititates third consultation on Draft Master Plan	20 February 1979
- First sighting of falcon in Pritchett Peak CHZ	9 March 1979
- Acknowledgment of receipt on 28 February 1979 request for consultation and assignment to Area Office in Sacramento	13 March 1979
- Presence of falcons over Pritchett Peak CHZ confirmed by FWS - contract with local wildlife (Sonoma State University) professor verified presence	16 March 1979
- Meeting with FWS, State Dept. of Fish and Game and Corps personnel to disucss monitoring survey and initial recommendations for protecting falcons now present in Pritchett Peak CHZ	28 March 1979
- Formal notification from Regional Office on presence of falcons and on implementing recommendations of restricting activities within CHZ	3 April 1979
- Corps District transfers $10,000 to FWS for monitoring program of falcons within Pritchett Peak CHZ	5 April 1979

- Meeting between staffs of FWS, State Dept. of Fish and Game and Corps for Section 7 consultation; road relocations mentioned in the Draft Master Plan were main interest of discussion - no other activities were discussed in depth — 11 May 1979

- Informal meeting between Corps District and Endangered Species staff indicated "jeopardy opinion" being prepared — 14 May 1979

- Corps District received report on progress of monitoring survey related to activities of the falcons - succcessful fledging of three young occcurred — 15 May 1979

- Corps District formally requested presentation of biological opinion on 29 May 1979, the end of the 90-day period — 21 May 1979

- Phone contact to Corps District staff from Regional Office indicated assignment of presentation to Sacramento Office. Contact initiated by Corps District staff to Sacramento resulted in unavailability of Sacramento staff to present "biological opinion" - Fish and Wildlife Service staff questioned the need for such a presentation since formal correspondence would be detailed. A later date meeting was suggested, but no firm date was set — 23 May 1979

- Corps District received biological opinion of jeopardy — 29 May 1979

- Phone contact initiated by FWS to Corps District indicated earliest meeting date as 8 June. Other dates mentioned were 21 - 22 June. Corps staff indicated that meeting with real estate staff was necessary. Corps would contact FWS for meeting — 30 May 1979

- District Engineer initiates another request to meet with FWS on Regional Office level — 1 June 1979

- Regional FWS reply to District assigning meeting to Area Manager — 15 June 1979

- FWS responds to 1 June 1979 request by assigning Area Manager to arrange a meeting date — 15 June 1979

- Area Manager and District Engineer meet to discuss course of action	20 June 1979
- Corps documents results of 20 June 1979 meeting by letter indicating that additional actions are required prior to implementing any of the alternatives described in the 29 May 1979 consultation	2 July 1979
- Meeting between Corps staff and Sacramento Endangered Species Office staff to discuss the steps to be taken for further action	6 July 1979
- Letter request by Corps that FWS assume role of cooperating agency in preparation of an environmental impact statement	25 July 1979
- Coordination meeting held to discuss a captive breeding program for the peregrine falcon and the vegetative management program at the project with the State Dept. of Fish Game and FWS	14 August 1979
- Meeting held in Sacramento to discuss the preliminary outline of a special report and the data input that the FWS would provide. A general description of events to precede work included: detailed draft scope of work prepared by the Corps; review of the scope by FWS; clarifications of any task; estimate of cost developed by FWS; establishment of checkpoints during the course of work; and concurrence of scope, schedule and funds	21 August 1979
- Draft Scope of Work furnished FWS	10 September 1979
- Meeting to disucss detailed scope, clarify tasks, confirm proposed schedule and estimate funds	5 November 1979
- County vote supported construction of the Warm Springs Dam and Lake Sonoma Project	6 November 1979
- Letter transmitting agreement and scope of work as concurred with by the Endangered Species Office staff on 5 November 1979	30 November 1979
- District letter requesting Work Plan Schedule for monitoring activities during the Spring 1980	17 December 1979

- FWS signs and returns cooperative agreement	18 December 1979
- District Engineer signs cooperative agreement	27 December 1979
- District forwards cooperative agreement and funds to FWS	11 January 1980
- FWS replies to District request for cost estimate on 1980 monitoring activity	11 January 1980
- Checkpoint 1 Conference, Day 1 of cooperative agreement	4 February 1980
- 1980 monitoring agreement provided by FWS	21 March 1980
- Checkpoint 2 Conference, Day 89 of cooperative agreement	3 June 1980
- Meeting to discuss changes in format described at Checkpoint 2 conference	8 August 1980
- District Engineer transmits letter clarifying the no-action plan and SPD plan and requesting FWS review of alternative plans	19 August 1980
- FWS provides 1980 monitoring report	9 September 1980
- Informal progress meeting with FWS	21 January 1981
- FWS requests initiation of consultation for DM #21	29 Janaury 1981
- FWS responds to Corps 19 Aug 80 request on review of alternative plans	4 February 1981
- District Engineer meets with Area Manager to clarify 4 Feb 81 letter	5 March 1981
- 1981 Monitoring Agreement provided to FWS	13 April 1981
- Meeting between staffs to discuss schedule, status of actions under consideration, and site inspection of Rockpile Road	30 April 1981
- CE letter describing alternative involving relocated Hot Springs Road	29 May 1981
- FWS letter commenting on CE letter of 29 May 81	2 June 1981

- CE letter transmitting copy of drawing of preliminary design of bridge and draft copy of agreement with County	27 July 1981
- Meeting between staffs to discuss and develop details of alternatives that District Engineer can implement to address jeopardy opinion	8 December 1981
- FWS letter describing proposal for nest establishment on existing Federal lands	3 February 1982
- Controlled burning in Dry Creek CHZ performed by California Dept. of Forestry and Corps staff.	4 February 1982
- CE letter requesting consideration of additional alternatives as reasonable and prudent to remove jeopardy opinion	24 February 1982
- 1982 monitoring agreement provided to FWS	23 March 1982
- FWS concurrence in the inclusion of additional reasonable and prudent alternatives	7 April 1982
- CE provides FWS with draft cooperative agreement to funds available for nest establishment program in accordance with 7 April 1982 FWS letter	26 October 1982
- CE provides County with scope of work for Specific Area Plan for the Dry Creek CHZ for review and comment	27 October 1982
- County responds to CE letter indicating that General Plan provides for adequate protection and that specific area plan is less limiting than General Plan	2 November 1982
- CE letter requesting FWS to consider as an additional alternative, a new road between Kelly Road and Hot Springs Road to replace servered Hot Springs Road	4 November 1982
- FWS provides review comments on draft cooperative agreement	15 November 1982
- FWS replies to CE 4 November 1982 letter indicating no objections to road cooridor as long as adverse trespass and development in the candidatezone is minimized	23 November 1982
- FWS specifices those measures which would minimize adverse trespass and development with the new road	30 November 1982
- CE signs final cooperative agreement for nest establishment and submits to FWS for signature	2 December 1982

- FWS signs agreement for nest establishment	17 December 1982
- CE provides FWS with letters describing (1) the proposal for the new access road to replace Hot Springs Road and (2) the determination that existing local land use policies would provide adequate protection for the Dry Creek CHZ	17 January 1983
- CE furnishes FWS with 1983 monitoring agreement	24 February 1983
- FWS provides CE with its concurrence on the two 17 January 1983 topics	11 March 1983

APPENDIX E

CORRESPONDENCE

United States Department of the Interior

FISH AND WILDLIFE SERVICE

AREA OFFICE
2800 Cottage Way, Room E-1803
Sacramento, California 95825

APR 07 1982

In reply refer to:
SESO, #1-1-79-F-33

Colonel Paul Bazilwich, Jr.
District Engineer
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, California 94105

Subject: Lake Sonoma Master Plan Continuing Consultation -- Your Letter of February 24, 1982

Dear Colonel Bazilwich:

This letter responds to your February 24, 1982, request that we consider additional reasonable and prudent alternatives for incorporation into the May 29, 1979, Biological Opinion, prepared pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended, on the Lake Sonoma Master Plan. The Opinion presented reasonable and prudent alternatives which we believe would avoid jeopardy to the American peregrine falcon in three specific areas -- the Rancheria Critical Habitat Zone (CHZ), the Dry Creek CHZ and the Upper Dry Creek Candidate Habitat Zone. Your letter presents additional reasonable and prudent alternatives for consideration of inclusion into the Biological Opinion. We will review these as they relate to the specific areas addressed in the Opinion.

Rancheria CHZ

Our May 29, 1979, Opinion suggested reasonable and prudent alternatives whic.. could avoid adverse modification of this CHZ. At our suggestion, you have presented an additional alternative -- "Nest Establishment on Existing Federal Lands." We concur that this is an acceptable reasonable and prudent alternative given the physical and biological circumstances of this CHZ as discussed in your letter. Attached is your description of this proposal.

Dry Creek CHZ

Our Biological Opinion listed six conditions all of which should be implemented to avoid jeopardy and adverse modification of this CHZ. The COE has incorporated five of these into project plans. The remaining condition relates to the protection of lands in the CHZ and its buffer zone which are not in COE ownership. We recommended purchase in fee or purchase of a conservation easement.

COE is proposing that this area be protected by monitoring of private development proposals and commenting on those proposals to the County to ensure adequate consideration of impacts to endangered species. This can be accomplished by COE review of all Sonoma County development proposal announcements which are required by the California Environmental Quality Act (CEQA). In addition, COE will undertake a planning effort in cooperation with Sonoma County for incorporation of appropriate zoning and protection measures into a Special Area Plan and/or the County General Plan. Such a plan would provide guidelines for compatible development within this zone. We have attached your description of this alternative with a minor recommended change. One significant point is that we believe FWS and COE should provide input to the local planning agency.

Upper Dry Creek Candidate Habitat Zone

Our May 29, 1979, opinion provided two alternatives, either of which we believe would avoid jeopardy to peregrines in this area. COE has implemented much of Alternative Number One by eliminating recreational use in the Upper Dry Creek arm beyond Cherry Creek. This alternative also included abandonment of Hot Springs Road as a public road. However, COE may not be in a position to abandon this road because of legal constraints. Your alternative 3 "Roadway Features to Relocated Hot Springs Road," outlines measures that will be taken if Hot Springs Road is maintained as a public road. These measures should effectively control trespass problems. Also, COE will monitor development proposals as outlined for the Dry Creek CHZ. This monitoring and construction of the minimum standard bridge and road should control potential future secondary impacts. Therefore, we concur with these measures as an additional reasonable and prudent alternative for the Upper Dry Creek Candidate Habitat Zone.

Summary

If you concur with our recommended minor text change to Alternative 2, then this letter confirms our mutual acceptance of these additions to the reasonable and prudent alternatives of our May 29, 1979, Biological Opinion of the Lake Sonoma Master Plan. These alternatives and the original alternatives of the May 29, 1979, Biological Opinion are acceptable pursuant to Section 7(a) of the Endangered Species Act. We appreciate the cooperation and concern for endangered species of your staff throughout this continued consultation process.

Sincerely,

Area Manager

Attachment

DESCRIPTION OF ALTERNATIVES

1. Nest Establishment on Existing Federal Lands. During a meeting on 30 April 1981, FWS staff provided this alternative as a plan to ensure conservation of the falcons. This measure has been introduced because of the potential for increased human activity. Although realignment of Rockpile Road within the Rancheria Creek CHZ would remove traffic and access concerns, the level of human use may increase in the vicinity of the nest and degrade the nest site as a productive site. The nest has not been occupied for the last several years and it is uncertain that the site will be re-occupied.

The nest establishment plan calls for the following tasks:

(1) Performing preliminary survey of Federal lands in northern California and determine willingness of participation by Federal land management agency administering lands.

(2) Examine in detail the potential sites and evaluate for site selection.

(3) Prepare and finalize memorandum of agreement between all parties that nest establishment shall be pursued on specified Federal lands; nest establishment program, commitment of area and management and protection of area after successful establishment should be described.

(4) Prepare scope of work for construction of nest and production of young peregrines; select contractor and award.

(5) Proceed with contract.

(6) Continue introduction program annually for 4 years with evaluation of progress.

2. Monitoring of Potential Development in the Dry Creek CHZ and Upper Dry Creek Candidate Habitat Zone. This activity was suggested as an "early warning" activity to "red flag" plans or proposals for development in the Dry Creek CHZ or Upper Dry Creek Candidate Zone. Rather than attempting to secure authority from Congress to acquire interest in additional lands to restrict development, this measure would provide means to affect land use decisions impacting the endangered falcons. The County's General Plan allows for special consideration for endangered species in the Open Space Element. To insure hat such considerations are included in the decision-making process, the Project Manager will be responsible for notifying the FWS of proposed development within the CHZ or candidate zone. FWS would be able to provide input to the local planning agency either directly or through the State Department of Fish and Game.

In addition to this monitoring activity, a planning effort specifically for the Dry Creek CHZ adjacent to the Warm Springs Dam and Lake Sonoma project was found to be an acceptable approach to promote conservation of the endangered falcons on the local level in keeping with the General Plan provisions. This effort, however, would involve cooperation and implementation by Sonoma County. The following preliminary actions must be taken to develop such a special area plan in cooperation with Sonoma County.

(1) Prepare detailed scope.

(2) Make formal request to County.

(3) Negotiate and reach agreement with County on funding, schedule and concept.

(4) Secure Board of Supervisors approval.

Conceptually, the plan shall include all detailed regulations, conditions, programs, proposed legislation which shall be necessary or convenient for the systematic implementation of the General Plan. The County may determine and establish administrative rules and procedures for the application and enforcement of specific plans and regulations, and may assign or delegate such administrative functions, powers, and duties to the planning or other agency as may be desirable.

The specific plan must be based on the General Plan and it need not include all areas covered by the General Plan. The following elements, however, should be included:

(1) Mechanisms for the implementation of each required element of the General Plan.

(2) Precise land use designations.

(3) Public facilities and utilities including water supply, sewerage, and storm drainage.

(4) Transportation facilities including roadways with their names, widths, construction standards.

(5) Areas where no building will be permitted because of geological or hydrological hazards.

(6) Height, bulk and setback limits for buildings.

(7) Population density and lot sizes.

(8) Standards for natural resource conservation.

(9) Open space provisions.

3. Roadway Features to Relocated Hot Springs Road. Presently, the Federal interest is responsible for relocating the County Hot Springs Road which will be inundated by the reservoir. To fulfill its legal responsibilities, the District has proposed to relocate Hot Springs Road through project lands.

In relocating the road, the District will construct the road according to minimum safety standards acceptable to the County (See attached drawing). The May 29 Biological Opinion has indicated that abandoning Hot Springs Road as a public road west of Cherry Creek would satisfy its concern related to public access into the sensitive wildlife area. Since the County has indicated its unwillingness to proceed with abandonment, the District will construct the relocated Hot Springs Road with several features to discourage public use of the road west of Cherry Creek.

(1) The alignment of the relocated Hot Springs Road will direct recreation traffic specifically to the recreation control gate. Prior to entering the control gate, the public road will branch off to the north. Signs will indicate that no public recreationsl facilities are to be found beyond Cherry Creek. A sign will also indicate that there are no turn-outs for the next three miles.

(2) The bridge across Cherry Creek required for the relocated Hot Springs Road shall be about 28 feet wide. Its roadway surface will be marked with two 10-foot lanes with a 4-foot shoulder on each side.

(3) The roadway beginning at the bridge and extending west to Cooley Ranch shall be a 20-foot, two lane road with a 2-foot shoulder on each side.

(4) Guard railing shall be included along the roadway west of Cherry Creek. In places where road cuts are required, high berms will serve purposes similar to the guard railing.

(5) "No Parking" signs along the relocated Hot Springs Road will also be placed. Guard railing and berms along the road will be placed to restrict off-road parking.

(6) Included in the road transfer agreement between the District and County is the condition of DE approval of future roadway expansion that may be requested by the County (See attached extracted clause). The conditional clause was included specifically to retain the consultation requirements with FWS on potential impacts to the endangered falcons.

Monitoring of proposed development in the candidate habitat zone will also be undertaken by the Project Manager as was described in 2.

	Design Criteria					
	Sonoma County Standards			Hot Springs Road Unit #1	Unit #2	Relocation Unit #3
1. Traffic Volume, Veh/day	Less than 100	100 to 400	400 to 1000	660	Less than 100	Less than 100
2. Surface Width (Traveled Way)	Min/20	22	22	22		20
3. Roadbed Width, Ft.	Min/24	34 1/	34 1/	32		24
4. Radius of Curves, Min -	100	150	250	250	100	100
Desirable -	250	325	400			
5. Grades %, Max -	15	14	12	12	15	15
Desirable -	10	9	7			
6. Shoulders, Cut Slopes and Fill Slopes, Ft.	2	5 & 7	5 & 7	5	2	2
7. Bridges, Clear Width, Min -	28	28	28		28	
Desirable, Ft.		34	34			
8. Design Load AASHO	HS20-44	HS20-44	HS20-44	HS20-44	HS20-44	HS20-44
9. Base Course, Thickness, Min.	6"	6"	6"	6"	6"	6"
10. Wearing Course, Thickness, Min	2"	2"	2"	2"	2"	2"
11. Right-of-way, Min, Ft.	60	60	60	60	60	60

1/ May be reduced in difficult situations with shoulder width adjusted to maintain required surface width (traveled way).

8. ENVIRONMENTAL CONSIDERATIONS.

In order to preserve the natural beauty of the area, excessive cut or fill will be avoided wherever possible. Where a cut slope is required, the top of cut will be rounded off to form a smooth transition from the natural slope to the cut slope. See Typical Sections on plate 26. In addition, all exposed areas of cut slopes, fill slopes and disposal areas will be seeded to harmonize with the existing ground and to reduce erosion

(e) Without additional consideration, continue to operate and maintain as public roads of the Owner the portions of existing county roads as indicated in yellow on Exhibit "A".

(f) Without additional consideration, continue to operate and maintain as public roads of the Owner the portions of existing roads lying within the project, as indicated in red on Exhibit "A", until notified of the completion of the relocated roads.

(g) Without additional consideration, operate and maintain as public road of the Owner that portion of Kelly Road indicated in purple on Exhibit "A".

(h) Accept responsibility for management, operation, control and maintenance of the relocated road, as indicated in green on Exhibit "A", and that portion of Kelly Road as indicated in purple on Exhibit "A"; said acceptance to take effect upon receipt by the Owner of notification of completion of said relocated road in accordance with the approved plans and specifications.

(i) Assure the Government that the width of the paved surface of the portion of the relocated road west of the Cherry Creek Bridge (from sta. 140+86± to sta. 328+00±) will not be increased without approval from the Contracting Officer. Prior to approval, the Contracting Officer will consult with other Federal Agencies as required by the Endangered Species Act, PL 93-205 (87 Statute 884) as ammended.

United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To: AFA-SE Your Reference:

November 23, 1982 1-1-79-F-33

Colonel Edward M. Lee, Jr.
District Engineer
Department of The Army
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, California 94015

Dear Colonel Lee:

Subject: Comments on the Proposed New Access Road in the Upper Dry Creek Candidate Habitat Zone -- Your letter of November 4, 1982

We have no objection to your pursuing the new access corridor from Rockpile Road as depicted in your November 4, 1982, letter. Our concerns for the endangered peregrine falcon in the Upper Dry Creek candidate habitat zone will be to minimize trespass or adverse development in the candidate habitat zone. This can be accomplished by including design measures such as minimum road width, guard rails, signs, etc., similar to the measures planned for the Hot Springs Road realignment alternative. We will gladly assist in developing these measures if you choose to pursue access by this corridor.

If you have any questions, please telephone Mr. David Harlow at FTS 448-2791.

Sincerely yours,

Charles H. Lobdell
Acting Assistant Regional Director
Federal Assistance

United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To: AFA-SE Your Reference:

November 30, 1982 1-1-79-F-33

Colonel Edward M. Lee, Jr.
District Engineer
Attn: Les Tong
Department of the Army
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, California 94105

Dear Colonel Lee:

Subject: Proposed New Access Road into the Upper Dry Creek Critical Habitat Zone--Specific Roadway Features

Your staff has informed us that you are likely to pursue the access corridor depicted in your November 4, 1982, letter. We stated by letter of November 22, 1982, that we have no objections to this corridor provided design measures are incorporated to minimize trespass or adverse development in the Upper Dry Creek candidate habitat zone.

We have now discussed this road access proposal in considerable detail with your staff and make the following recommendations to accompany the road design:

1. The roadway, beginning at its junction with Kelley Road and heading north to its end, should be 20 feet wide with a 2 foot shoulder on each side.
2. Guard railing should be placed along the roadway to prevent traffic from leaving the road. Berms may be used where roadcuts can prevent off-road access.
3. Place "no parking" signs along the roadway where private landowners do not object.
4. Monitor proposed development within the candidate habitat zone by reviewing notices provided by Sonoma County.

These measures incorporated into your roadway design should satisfy our concerns for the peregrine falcon in the Upper Dry Creek candidate habitat zone. Please notify us if you need additional input or when you select an alternative.

Sincerely yours,

Donald V. Friberg

Donald V. Friberg
Acting Assistant Regional Director
Federal Assistance

United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To: AFA-SE Your Reference

December 17, 1982 1-1-79-F-33

Colonel Edward M. Lee, Jr.
District Engineer
Attn: Les Tong
Department of the Army
Corps of Engineers
San Francisco District
211 Main Street
San Francisco, California 94105

Subject: Cooperative Agreement for Establishment of a Nest Site for the Endangered American Peregrine Falcon (1-1-79-F-33)

Dear Colonel Lee:

Enclosed is the approved signed Cooperative Agreement for the performance of the nest establishment program. We understand that you will establish the reimbursable payment, as agreed, not to exceed $45,500 for fiscal year 1983 upon receipt of Standard Form 1080. By implementing this nest establishment action you will satisy your initial responsibilities for the Rancheria Creek critical habitat zone (CHZ) under Section 7(a) of the Endangered Species Act of 1973, as amended.

Sincerely yours,

William F. Shake

William F. Shake
Assistant Regional Director
Federal Assistance

Enclosure

COOPERATIVE AGREEMENT
ENDANGERED SPECIES OFFICE, U.S. FISH AND WILDLIFE SERVICE
AND THE
U.S. ARMY CORPS OF ENGINEERS
NEST ESTABLISHMENT FOR WARM SPRINGS DAM AND LAKE SONOMA

This cooperative agreement is entered into by the U.S. Army Corps of Engineers, hereinafter referred to as the CORPS, and the U.S. Fish and Wildlife Service, hereinafter referred to as the SERVICE, pursuant to the biological opinion rendered by the SERVICE on 29 May 1979, and subsequent consideration of additional alternatives as furnished in the SERVICE letter dated, 7 April 1982, in accordance with Section 7 of the Endangered Species Act of 1973. The purpose served by this cooperative agreement is to establish a nest site for the endangered American peregrine falcon (Falco peregrinus anatum) on existing Federal lands as determined to be appropriate by the SERVICE and concurred in by the Federal agency administering the lands.

PART A

Description of the Work. The following tasks are to be performed by the SERVICE:

1. Conduct a preliminary survey of Federal lands in northern California and determine willingness of participation by Federal land management agency administering the lands.

2. Examine in detail the potential sites and evaluate these sites for final site selection.

3. Prepare and finalize memorandum or agreement between all parties that nest establishment shall be pursued at selected site on specified Federal lands. The following topics should be described:

a. The nest establishment program.

b. The nature of the dedication of the area as related to the continued existence of the falcon.

c. Management and protection plans for the area after the nest is established.

4. Prepare scope of work for construction of nest and production of young peregrines.

5. Administer contract for site preparation and appropriate hacking program (The process of releasing young, captive-bred falcons to the wild as adopted by the SERVICE and the CORPS as the reasonable and prudent measure to replace the Rancheria Creek critical habitat zone (CHZ)).

6. Provide documentation to the CORPS confirming above activities for appropriate billing purposes as described in Part C.

PART B

Reporting. To measure the work completed and to indicate the progress of the work schedule, the following documents will be prepared by the SERVICE:

1. After the preliminary survey is performed, a list of potential sites shall be prepared with the administering Federal agencies identified.

2. When the analysis of the potential sites are completed and a site selected, a summary report briefly discussing the assessment, evaluation and final site selection shall be prepared.

3. When the final agreement for the use of lands for peregrine nesting purposes between the SERVICE and the Federal agency administering the lands of the selected site is accomplished, a copy of the memorandum or agreement shall be furnished to the CORPS.

4. When the scope of work for the nest preparation and/or construction and arrangements for introduction of young peregrines to the nest are finished, a brief outline of the major tasks shall be prepared.

5. After all work as described in Part A is completed, a summary report shall be prepared to present an overview of the total work accomplished and an assessment of the initial hacking activities.

PART C

Checkpoints. The following submittal dates shall be employed by the SERVICE within the scope of this cooperative agreement:

Checkpoint 1	7 January 1983	Submission of list of potential sites
Checkpoint 2	1 March 1983	Submission of summary results of site evaluation and selection
Checkpoint 3	1 April 1983	Submission of copy of final agreement between the SERVICE and the Federal agency administering the selected lands
Checkpoint 4	2 May 1983	Submission of scope of work for nest construction and hacking program
Checkpoint 5	30 September 1983	Submission of summary report documenting completed work for the nest establishment

PART D

Authority. This agreement is effective upon receipt of signed copy by the CORPS. Funds not exceeding $45,500 shall be made available by the CORPS during fiscal year 1983 in accordance with this agreement. Upon receipt of final billing, the first phase of nest establishment will be completed. Continuation of the hacking program over a four-year period is to be funded annually under separate agreements with the CORPS. The culmination of the annual hacking program over the four-year period will satisfy the requirements for the Rancheria Creek CHZ as stated in the continuing consultation, dated 7 April 1982.

Edward M. Lee, Jr.

DATE: 1 Dec 82

EDWARD M. LEE, JR. LTC, CE
District Engineer, San Francisco

Richard D. Myshak

RICHARD MYSHAK
Regional Director, Region 1
U.S. Fish and Wildlife Service

Lola F. Gannon

Lola F. Gannon, Contracting Officer
Contracting and General Services
U.S. Fish and Wildlife Service

United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To: AFA-SE Your Reference:

March 11, 1983 1-1-79-F-33

Colonel Edward M. Lee, Jr.
Attention: Mr. Les Tong
Department of the Army
Corps of Engineers
San Francisco District
211 Main Street
San Francisco, California 94105

Dear Colonel Lee:

Subject: New Road Connection Between Hot Springs Road and Rockpile Road and the Proposal to Monitor Development in the Dry Creek Critical Habitat Zone (1-1-79-F-33)

We have reviewed your two letters of January 17, 1983, which describe the subject proposals. This is part of our continuing coordination of Endangered Species Act, section 7 consultation on the Warms Springs Dam and Lake Sonoma Master Plan.

Your decision to construct the new access road between Hot Springs Road and Rockpile Road incorporates all our recommendations provided to you by our letter of November 30, 1982. Therefore, we concur with this decision.

You are proposing to monitor development proposals in the Dry Creek Critical Habitat Zone and buffer (CHZ) in lieu of preparation of a Specific Area Plan. Our respective staffs had previously discussed that a Specific Area Plan, which would be prepared by Sonoma County Planning Division, would ensure compliance with the Sonoma County General Plan. This would adequately protect the CHZ from adverse development. Sonoma County Planning Director Chakrawarti has provided you with detailed comments by letter dated December 16, 1982, which suggest that a Specific Area Plan would not add protection to the CHZ. Therefore, after evaluation of your letter, we concur with your proposed monitoring scheme of development proposals.

We look forward to continued coordination on this project.

Sincerely yours,

Acting for William F. Shake
Assistant Regional Director
Federal Assistance

APPENDIX F

SOCIOCULTURAL FACTORS REVIEW

FOR THE

CANDIDATE/CRITICAL HABITAT ZONE EVALUATION

Prepared by

Warm Springs Cultural Resources Study
Sonoma State University
Rohnert Park, California

(Available Upon Request)
From

District Engineer
U.S. Army Engineer District,
San Francisco
211 Main Street
San Francisco, California 94105

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