Draft- December 2000

DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE CALIFORNIA RED-LEGGED FROG

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PREFACE

1. This report was prepared for the U.S. Fish and Wildlife Service (the Service) by Industrial Economics, Incorporated (IEc) to assess the economic impacts that may result from designation of critical habitat for the California red-legged frog. Under section 4(b)(1) of the 1973 Endangered Species Act (Act), the decision to list a species as endangered or threatened is made solely on the basis of scientific data and analysis. By contrast, section 4(b)(2) of the Act states that the decision to designate critical habitat must take into account the potential economic impact, and any other relevant impact, of specifying a particular area as critical habitat. As such, this report does not address any economic impacts associated with the listing of the species. The analysis only addresses those incremental economic costs and benefits potentially resulting from the designation of critical habitat.

2. IEc worked closely with personnel from the Service and other Federal and state agencies to ensure that potential Federal nexuses as well as current and future land uses were appropriately identified, and to begin assessing whether or not the designation of critical habitat would have any net economic effect in the regions containing the proposed critical habitat designations. Identification of these land use/Federal-agency actions provided IEc with a basis for evaluating the incremental economic impacts due to critical habitat designation for the red-legged frog.

3. Section 7 of the Act authorizes the Service to consider, and, where appropriate, make a determination that a Federal agency action is likely to jeopardize the continued existence of a species or result in the destruction or adverse modification of critical habitat. IEc, therefore, also requested input from Service officials concerning whether or not any of these projects would likely result in *an adverse modification determination without an accompanying jeopardy opinion*. It is important to note here that it would not be appropriate for IEc to make such policy determinations.

4. This report represents characterization of possible economic impacts associated with the designation of critical habitat for the California red-legged frog. To understand the concerns of stakeholders, IEc solicited opinions from the Service and other Federal and state agencies regarding the uses of land within the proposed critical habitat, historical consultations with the Service, potential future consultations, and the potential costs associated with future consultations. Using this information, this report characterizes the costs and benefits likely to be associated with the designation of critical habitat for the red-legged frog.

5. IEc solicits further information associated with the categories of impact highlighted in this report, or with other economic effects of the critical habitat designation, that can be used to support the final economic assessment. Since the focus of this report is an assessment of incremental impacts of proposed critical habitat, we request information on the potential effects of the designation on current and future land uses, rather than on effects associated with the listing of the red-legged frog, or of other Federal, state, or local requirements that influence land use.

EXECUTIVE SUMMARY

6. The purpose of this report is to identify and analyze the potential economic impacts that would result from the proposed critical habitat designation for the California red-legged frog (*Rana aurora draytonii*). This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service's Division of Economics.

7. Section 4(b)(2) of the Endangered Species Act (the Act) requires the Service to base critical habitat proposals upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.

Proposed Critical Habitat

8. The Service has proposed 31 critical habitat units for the California red-legged frog throughout California. These units comprise approximately 5.4 million acres of land across 31 different counties. Included in this proposed designation are approximately 1.8 million acres of Federal land, 0.3 million acres of state and local land, and 3.3 million acres of private land. In designating critical habitat for the red-legged frog, the Service was not able to map critical habitat in sufficient detail to exclude areas that do not have the primary constituent elements. Within the boundaries of the designation, however, only activities on those lands containing the appropriate primary constituent elements could be subject to section 7 consultation. Exhibit ES-1 displays the distribution of the roughly 5.4 million acres of critical habitat for the California red-legged frog across Federal, state and local land management agencies, and private landholders.

Exhibit ES-1 **PROPOSED CRITICAL HABITAT ACREAGE BY MANAGER, HOLDER, OR OWNER**		
Manager, Holder, or Owner of Proposed Critical Habitat	**Total Acres**	**Percentage of Total**
Federal Government	1,829,150	34.0%
State/Local Government	256,100	4.8%
Private Entity	3,288,274	61.2%
Tribal Government	126	< 0.1%
TOTAL	**5,373,650**	**100%**
Source: *Proposed Designation of Critical Habitat for the California Red-Legged Frog*, U.S. Fish and Wildlife Service, September 11, 2000 (65 FR 54898).		

Framework and Economic Impacts Considered

9. This analysis defines an impact of critical habitat designation to include any effect the designation has above and beyond the impacts associated with the listing of the red-legged frog. Section 9 of the Act makes it illegal for any person to "take" a listed species, which is defined by the Act to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or the attempt to engage in any such conduct.[1] To evaluate the increment of economic impacts attributable to the critical habitat designation for the red-legged frog, above and beyond the listing, the analysis assumes a "without critical habitat" baseline and compares it to a "with critical habitat" scenario. The difference between the two is a measurement of the net change in economic activity that may result from the designation of critical habitat for the red-legged frog.

10. The "without critical habitat" baseline represents current and expected economic activity under all existing modifications prior to critical habitat designation. These include the take restrictions that result from the listing for the red-legged frog (and listings for other relevant species), as well as other Federal, state, and local requirements that may limit economic activities in the regions containing the proposed critical habitat units. This analysis focuses on potential costs and benefits of critical habitat for the red-legged frog, above and beyond any costs or benefits already in existence due to the species' listing.

11. In estimating the incremental costs and benefits that critical habitat designation for the red-legged frog could have on existing and planned activities and land uses, this report employs a sequential framework. The steps of the framework include:

[1] 15 U.S.C. 1531 *et seq.*

1. Developing a comprehensive list of land use activities that are either conducted or planned on Federal, state, county, municipal, Tribal, and private lands in the proposed critical habitat areas.

2. Identifying any Federal nexuses associated with these activities.

3. Soliciting input from the Service and other Federal and state agencies to assess the availability of recent documentation of red-legged frog sightings and determine the extent to which designated critical habitat areas would be subject to consultations under the "without critical habitat" scenario.

4. Assessing the “with critical habitat” scenario of section 7 consultations for projects and land activities in proposed critical habitat units.

5. Estimating the likely incremental costs associated with the red-legged frog critical habitat designation by comparing the “without critical habitat” baseline to the “with critical habitat” scenario.

12. Using the framework outlined above, this analysis evaluates potential costs and benefits associated with the proposed designation of critical habitat for the red-legged frog. The analysis relies primarily on input and information from the Service. Because this analysis was scheduled for release before the deadline for public comments on the proposal for red-legged frog critical habitat, some information on the likely economic effects of the designation was not available for review. Instead, this preliminary analysis relies primarily on meetings and telephone conversations with staff at the Service and telephone interviews with Federal and state landowners. Because it was not possible to identify and contact all potentially affected parties, this analysis does not specifically address the impacts of critical habitat designation on all Federal, state, local, Tribal and private land. Instead the analysis relies on conversations with key Federal and state stakeholders, and uses information obtained therein to discuss the impacts on representative lands. As research progresses, public comments on the designation will be reviewed to obtain specific information and data on potentially affected activities, land uses and possible economic impacts. Contacts will be identified in coordination with the Service to ensure that the most relevant and knowledgeable parties are consulted. Possible economic impacts include:

- Costs due to new section 7 consultations, the incremental costs (e.g., added administrative effort) of consultations already required under the listing of the species, and the cost of reinitiations or extensions of existing consultations that occurred under the listing of the frog.

- Costs associated with any modifications to projects, activities, or land uses, resulting from the section 7 consultation process with the Service that would not have been required before critical habitat designation.

- Costs associated with uncertainty and public perceptions resulting from the designation of critical habitat. Uncertainty and public perceptions about the likely effects of critical habitat may cause changes in property values, third party law suits, and project delays, regardless of whether critical habitat actually imposes incremental regulatory burden.

13. Potential economic benefits considered in this analysis include use and non-use value. Non-use benefits associated with designation of critical habitat may include resource preservation or enhancement in the form of biodiversity, ecosystem health, and intrinsic (passive use) values.[2] Use benefits associated with the proposed designation could include enhancement of recreational opportunities such as wildlife viewing. Finally, the public's perception of the potential importance of critical habitat may result in increases to property values, just as the perception of modifications may result in property value reductions, regardless of whether critical habitat generates actual changes in land use.

Costs of the Designation

14. Economic costs associated with the designation of critical habitat for the frog arise result from: (1) administrative effort associated with the section 7 consultation process, and (2) modifications to projects and activities taking place on designated land. It is estimated that over ten years, critical habitat designation for the red-legged frog will result in 750 additional informal consultations, 650 additional formal consultations, and 50 reinitiations of consultations that occurred under the listing of the frog. In addition, it is expected that the Service will provide technical assistance to 1,400 parties that will make inquiries regarding uncertainty about the presence or extent of critical habitat on their lands.

15. Consultations resulting from the designation will most likely address one of four land uses: residential and industrial development, timber harvesting, grazing, and recreational activity. A small percentage of formal consultations on the designation will result in project modifications. This analysis provides quantitative estimates of potential modification costs associated with typical development projects and grazing activities. The Service expects negligible incremental modifications to timber harvesting and recreational activities, so these costs are expected to be negligible.

[2] Intrinsic values, also referred to as passive use values, include categories of economic benefits such as existence value, i.e., knowledge of continued existence of a resource or species; and bequest value, i.e., preserving the resource or species for future generations.

16. Preliminary results of the economic analysis of the proposed designation of critical habitat for the red-legged frog are summarized below in terms of landownership category.

- **Federal Agencies:** It is likely that the designation of critical habitat for the red-legged frog will lead to new, additional, or reinitiated consultations for activities on Federal lands. Informal and formal consultations, as well as modifications to projects and land uses, may result from critical habitat designations. Federal agencies that may consult with the Service more often as a result of critical habitat designation include the U.S. Forest Service, Department of Energy, Department of Defense, Federal Highway Administration, Bureau of Land Management, and the Army Corps of Engineers.

- **State and Local Agencies:** California State agencies likely to be affected by critical habitat designation for the frog include regional Water Quality Control Boards and the California Department of Transportation. These agencies may see an increase in both formal and informal consultations, either as a result of state activities involving Federal funding or through the permitting of activities by a state agency under the auspices of a Federal agency.

- **Private Landowners:** Development that takes place on private lands proposed as critical habitat and involves Federal funding, permitting, or authorization is the activity most likely to result in new, reinitiated, or additional consultations as a result of designation. Other activities on private land, such as farming, grazing, and mining, should not be subject to any additional or extended consultations or project modifications beyond those attributable to the listing of the frog. For all activities on private lands, if no Federal nexus exists, then the proposed critical habitat designation creates no additional impacts beyond those attributable to the listing of the frog.

- **Tribes:** Due to time constraints, the Service was unable to confer with potentially affected Tribes prior to the release of the proposed critical habitat designation for the red-legged frog. The Service plans to contact the Santa Ynez Band of the Chumash Mission Tribe during the comment period to gain information on the possible effects of critical habitat designation on Tribal lands and tribal resources.

- **Additional Impacted Parties:** Some small construction companies and developers may be affected by modifications or delays to development projects that result from section 7 consultations attributable to the designation of critical habitat for the frog. Certain ranching operations on Federal lands

may be affected on a small scale by minor adjustments to or reductions in grazing allotments. Some landowners may incur costs to determine whether their land contains primary constituent elements for the frog, may experience project delays, and may experience temporary changes in property values as markets respond to the uncertainty associated with critical habitat designation.

17. Exhibit ES-2 provides a summary of incremental costs associated with critical habitat designation for the red-legged frog over a ten-year period. First, the exhibit presents an estimate for the number of each type of incremental consultation, based on analysis of historical data and information provided by Service field biologists. Second, based on an analysis of administrative effort and technical costs associated with conducting consultations and biological assessments, annualized costs of consultations are estimated to range from $9.1 million to $13.8 million. Finally, total annualized costs of modifications to proposed development projects in Unit 15 are estimated to range from $7.4 million to $18.5 million, and for a typical modification to grazing practices (installation of fencing), the sum of annualized costs are estimated to range from $1.1 to $2.1 million. Costs associated with timber harvesting and recreational activities are expected to be negligible.

Exhibit ES-2
SUMMARY OF ESTIMATED COSTS FOR INCREMENTAL CONSULTATIONS AND TYPICAL PROJECT MODIFICATIONS ATTRIBUTABLE TO THE CRITICAL HABITAT, 2001 TO 2010

Estimated Number of Incremental Consultations Due to Critical Habitat	Estimated Sum of Annualized Costs of Incremental Consultations	Annual Costs of Project Modifications	Sum of Annualized Costs of Project Modifications
Technical Assistance: 1,400 Informal Consultation: 750 Formal Consultation: 650 Reinitiation of Consultations: 50	$9.1 million to $13.8 million	Residential and Industrial Development (Unit 15): $1.2 to $3.1 million Grazing: $130,000 to $240,000 Timber harvest: Negligible Recreation: Negligible	Residential and Industrial Development (Unit 15): $7.4 to $18.5 million Grazing: $1.1 to $2.1 million Timber harvest: Negligible Recreation: Negligible

Source: IEc analysis based on data from U.S. Fish and Wildlife Service Carlsbad field office and information provided by Wildlife Biologists, U.S. Fish and Wildlife Service Sacramento, Ventura, and Carlsbad field offices.

Benefits of Critical Habitat

18. Potential benefits of the critical habitat designation include reduced uncertainty regarding the location and extent of frog habitat and easier identification of areas suitable for re-introduction of the frog. The preservation of critical habitat may also result in some incremental benefits associated with flood control and an increase in property values due to preservation of open spaces. However, it is difficult at this time to estimate the total benefit afforded by critical habitat, since little information is available regarding the following: (1) the likely benefits of each consultation and modification; and (2) the extent to which such consultations and modifications would result from critical habitat.

1 INTRODUCTION SECTION 1

19. The U.S. Fish and Wildlife Service (Service) listed the California red-legged frog (*rana aurora draytonii*) as a threatened species in May 1996. At the time, the Service believed that critical habitat designation was not prudent, based on the risk of increased vandalism and collection for market consumption. In response to a December 1999 court ruling in the case *Jumping Frog Research Institute et al. v. Babbit*, the Service proposed critical habitat designation on September 11, 2000. In order to comply with the court order, the Service must make the final determination of critical habitat for the frog by March 1, 2001.

20. Under section 4(b)(2) of the Endangered Species Act (the Act), the Service is required to consider designation of critical habitat for all species listed as endangered or threatened. Critical habitat refers to geographic areas that are essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat designation can help focus conservation activities for a listed species by identifying areas that have essential critical habitat features. Critical habitat designation contributes to Federal land management agencies' and the public's awareness of the importance of these areas.

21. In addition to its informational role, the designation of critical habitat may provide protection where significant threats have been identified. This protection derives from section 7 of the Act, which requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, or carry out are not likely to result in destruction or adverse modification of critical habitat. Under the listing of a species, Federal agencies must consult with the Service regarding any activities that could jeopardize the continued existence of the species. The regulations promulgated pursuant to the Act define jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. Similarly, the designation of critical habitat requires Federal agencies to consult with the Service regarding any action that could adversely modify or destroy the species' habitat. Adverse modification of critical habitat is defined as any direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of the species.

22. The designation of critical habitat affects lands both occupied and unoccupied by the species. The Act defines critical habitat as areas that contain the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection. Critical habitat can also includes areas that fall outside the geographical area occupied by the species at the time of listing, but that may meet the definition of critical habitat upon determination that they are essential for the conservation of the species. Unoccupied lands proposed as critical habitat frequently include areas inhabited by the species at some point in the past. Federal agencies will have to consult with the Service regarding any activities they fund, authorize, or carry out on both occupied and unoccupied land that may adversely modify critical habitat. Already, they must consult with the Service on activities in these areas that may jeopardize the red-legged frog.

1.1 CONSULTATION UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT

23. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service whenever activities they fund, authorize, or carry out may affect listed species or designated critical habitat. Section 7 consultation with the Service is designed to ensure that any current or future Federal actions do not appreciably diminish the value of the critical habitat for the survival and recovery of the species. Activities on land owned by individuals, organizations, states, local and Tribal governments only require consultation with the Service if their actions involve Federal funding, permitting, or authorization. Federal actions not affecting the species or its critical habitat, as well as actions on non-Federal lands that are not Federally funded, authorized, or permitted, will not require section 7 consultation.

24. For consultations concerning activities on Federal lands, the relevant Federal agency consults with the Service. For consultations where the consultation involves an activity proposed by a state or local government or a private entity (the "applicant"), the Federal agency with the nexus to the activity (the "action agency") serves as the liaison with the Service. The consultation process may involve both informal and formal consultation with the Service.

25. Informal section 7 consultation is designed to assist the Federal agency and any applicant in identifying and resolving potential conflicts at an early stage in the planning process (50 CFR 402.13). Informal consultation consists of informal discussions between the Service and the agency concerning an action that may affect a listed species or its designated critical habitat. In preparation for an informal consultation, the Federal action agency or applicant must compile all biological, technical, and legal information necessary to analyze the scope of the activity and discuss strategies to avoid,

minimize, or otherwise reduce impacts to listed species or critical habitat.[3] During the informal consultation, the Service makes advisory recommendations, if appropriate, on ways to minimize or avoid adverse effects. If agreement can be reached, the Service will concur in writing that the action, as revised, is not likely to adversely affect listed species or critical habitat. Informal consultation may be initiated via a phone call or letter from the Action agency, or a meeting between the Action agency and the Service.

26. A formal consultation is required if the proposed action is likely to adversely affect listed species or designated critical habitat (50 CFR 402.14). An analysis conducted during formal consultations determines whether a proposed agency action is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat. The determination of whether an activity will result in jeopardy to a species or adverse modification of its critical habitat considers the effects of the proposed action on the continued existence of the listed species or on critical habitat. In evaluating project effects on critical habitat, the Service must consider whether the constituent elements of the critical habitat will be altered or destroyed by proposed activities to the extent that the survival and recovery of the species would be appreciably reduced. If the Service finds, in their biological opinion, that a proposed agency action will likely jeopardize the continued existence of a listed species and/or destroy or adversely modify the critical habitat, the Service may identify reasonable and prudent alternatives that are designed to avoid such adverse effects to the listed species or critical habitat.

27. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Service believes would avoid jeopardizing the species or destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing reasonable and prudent alternatives vary accordingly.

[3] Many applicants incur costs to prepare analyses as part of the consultation package. These costs vary greatly depending on the specifics of the project. Major construction activities, as referred to in the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq*), require that a biological assessment be completed prior to informal consultation. In most cases, these costs are attributable to the fact that a species has been added to the list of threatened and endangered species rather than the designation of critical habitat.

28. Federal agencies are also required to evaluate their actions with respect to any species that is proposed as endangered or threatened and with respect to its proposed or designated critical habitat. Regulations implementing the interagency cooperation provisions of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act and regulations at 50 CFR 402.10 require Federal agencies to confer with the Service on any action that is likely to jeopardize the continued existence of a proposed species or to result in destruction or adverse modification of proposed critical habitat.

1.2 PURPOSE AND APPROACH OF ECONOMIC ASSESSMENT

29. Under the regulations promulgated pursuant to the Act, the Service is required to make its decision concerning critical habitat designation on the basis of the best scientific and commercial data available, in addition to considering economic and other relevant impacts of designating a particular area as critical habitat. The Service may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat. The purpose of this report is to identify and analyze the potential economic costs and benefits that could result from the proposed critical habitat designation for the red-legged frog.

30. The analysis must distinguish between economic impacts caused by the listing of the red-legged frog and those additional costs and benefits created by the proposed critical habitat designation. *This analysis only evaluates economic impacts resulting from the proposed critical habitat designation that are above and beyond impacts caused by the listing of the red-legged frog.* If, in the absence of critical habitat, a land use or activity would be limited or prohibited by another existing statute, regulation or policy, the economic impacts associated with those limitations or prohibitions would not be attributable to critical habitat designation.

31. This analysis assesses how critical habitat designation for the red-legged frog may affect current and planned land uses and activities on Federal (including military), state, local, and private land. For Federally managed land, designation of critical habitat may modify land uses, activities, and other actions that threaten to adversely modify critical habitat. For state, local, and private land subject to critical habitat designation, modifications to land uses and activities that threaten to adversely modify critical habitat can only be required when a "Federal nexus" exists, i.e., the activities or land uses of concern involve Federal permits, Federal funding, or other Federal actions. Activities on state, local, Tribal, and private land that do not involve a Federal nexus are not affected by critical habitat designation.

32. To be considered in the economic analysis, activities must be "reasonably foreseeable," including but not limited to, activities which are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. This analysis considers all reasonably foreseeable activities on both occupied and unoccupied lands. Current and future activities that could potentially result in section 7 consultations or project modifications are considered.

1.3 STRUCTURE OF REPORT

33. The remainder of the report is organized as follows:

- **Section 2: Species Description and Relevant Baseline Information** - Provides general information on the species, a brief description of the proposed critical habitat units, and regulatory and socioeconomic information describing the baseline (i.e., the "without critical habitat" scenario).

- **Section 3: Analytic Framework and Results** - Describes the framework and methodology for the analysis, the information sources used, and presents the findings and limitations of the analysis.

2 SPECIES DESCRIPTION AND RELEVANT BASELINE INFORMATION[4] SECTION 2

2.1 DESCRIPTION OF SPECIES

34. The California red-legged frog (*Rana aurora draytonii*) is one of two subspecies of red-legged frog and is the largest frog indigenous to the western United States. On average, females attain a body length of 5.4 inches while males attain a body length of 4.6 inches. Adult frogs typically have red or salmon-pink colored legs and posterior abdomens with small black flecks and larger irregular blotches on their backs.

35. Historically, the California red-legged frog existed in 46 California counties, ranging from Marin County inland to Shasta County and south to northwestern Baja California, Mexico. The frog has been extirpated from 13 of the California counties and inhabits only 30 percent of its historical range in California. Frogs use a variety of habitat types in various aquatic, riparian, and upland areas. Observed frog habitat includes, but is not limited to, seasonal wetlands, permanent ponds, perennial creeks, riparian corridors, blackberry thickets, and oak savannas. All red-legged frog habitat shares the common characteristic of proximity to a permanent water source. Red-legged frogs are highly mobile and often disperse from breeding habitat in aquatic areas into various other aquatic, riparian, and upland areas habitat.

[4] The information on the red-legged frog and its critical habitat included in this section was obtained from the *Proposed Designation of Critical Habitat for the California red-legged frog*, U.S. Fish and Wildlife Service, September 11, 2000 and the *Draft Recovery Plan for the California red-legged frog (Rana aurora draytonii)*, U.S. Fish and Wildlife Service, 258 pp, Portland, Oregon, 2000.

2.2 PROPOSED CRITICAL HABITAT UNITS

36. The Service has proposed 31 critical habitat units for the California red-legged frog throughout California. Exhibit 2-1 presents the location of the 31 units. These units cover approximately 5.4 million acres of land in 31 different counties. Included in this proposed designation are approximately 1.8 million acres of Federal land, 0.3 million acres of state and local land, and 3.3 million acres of private land. Roughly 83 percent of the land proposed for designation is considered occupied habitat. The Service considers four of the 31 units to be completely unoccupied. In these four units, only Federal lands and associated inholdings are proposed for designation as critical habitat.

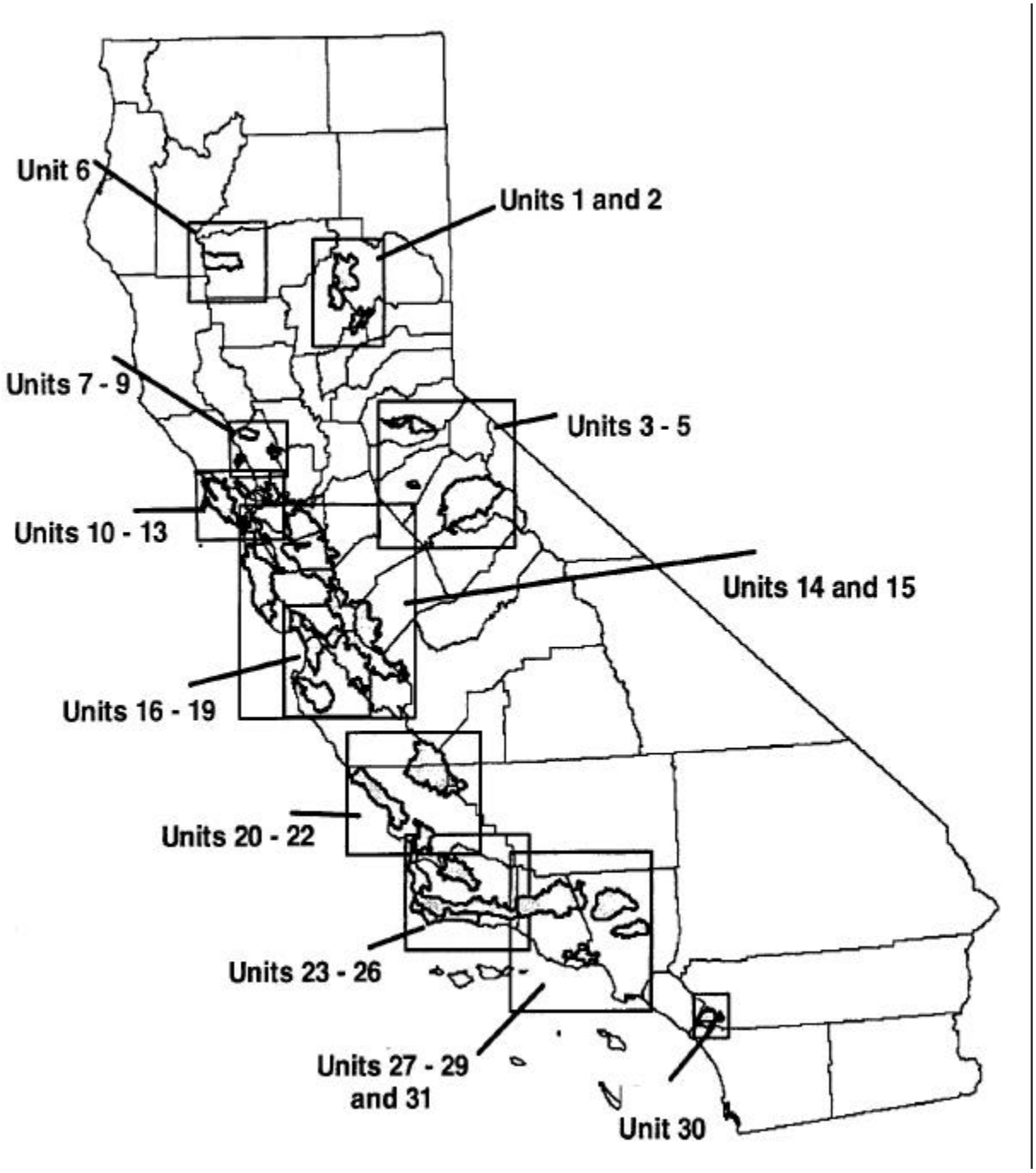
37. The Service has proposed critical habitat for the frog to facilitate the conservation and recovery of the species. Planning watersheds form the basis of the proposed designation in order to provide for the protection of habitat quality, breeding and non-breeding habitat, and dispersal habitat. The designation of critical habitat on currently unoccupied lands will allow for dispersal into and repopulation of these areas.

38. Based on attributes of the frog, habitat requirements, and population biology, the Service has identified primary constituent elements for the critical habitat of the California red-legged frog. These primary constituent elements consist of two or more suitable breeding locations and a permanent water source all within 1.25 miles of each other, associated uplands surrounding these water bodies up to 500 feet from the water's edge, and connecting barrier-free dispersal habitat that is at least 500 feet in width.

39. In designating critical habitat for the red-legged frog, the Service was not able to map critical habitat in sufficient detail to exclude areas which could not reasonably support frog populations. Within the boundaries of the areas proposed for designation by the Service, only lands that provide all three components (aquatic, upland, and dispersal) of the primary constituent elements would be subject to a Section 7 consultation. For example, areas with occupied ponds that lack suitable upland habitat or have barriers to dispersal are not considered critical habitat. Similarly, heavily developed residential or industrial areas would not constitute critical habitat.

40. According to the Service, frogs move around substantially within habitat areas and can frequently appear on land previously determined to be unoccupied by surveys. Therefore, the Service has classified 27 of the critical habitat units as occupied. The Service considers Units one, four, five and 31 to be completely unoccupied. These units consist primarily of Federal land, with some private inholdings. While the Service expects primary constituent elements to be present only on the Federal lands in these units, there may be cases where private landowners who have grazing allowances on Federal lands would be affected.

Exhibit 2-1
PROPOSED CRITICAL HABITAT FOR THE RED-LEGGED FROG



2.3 RELEVANT BASELINE INFORMATION

41. This section discusses current regulations and requirements that provide an existing level of protection for red-legged frogs. Together, these statutes form a baseline of environmental protection for areas proposed as critical habitat. In addition, this section provides relevant information about the socioeconomic characteristics of regions where critical habitat for the red-legged frog has been proposed.

2.3.1 Baseline Regulations

Listing

42. In May 1996, the Service listed the red-legged frog as a threatened species. Under the listing, Federal agencies must consult with the Service regarding any actions they fund, authorize, or carry out that could potentially jeopardize the continued existence of the species. The listing of the red-legged frog is the most significant aspect of baseline protection, as the listing provides the most protections by making it illegal for any person to "take" a listed species. Take is defined by the Act to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. This analysis seeks to identify consultations or potential modifications to activities above and beyond those attributable to the listing.

Overlap with Other Endangered or Threatened Species

43. Areas proposed as red-legged frog critical habitat may overlap with lands occupied by other federally listed species or areas of critical habitat for other species. For example, multiple red-legged frog critical habitat units include known occupied habitat for the federally listed least Bell's vireo, arroyo southwestern toad, southwestern willow flycatcher and are within the known range of many more federally listed species. Furthermore, several frog critical habitat units fall within proposed or designated critical habitat for the arroyo southwestern toad, the least Bell's vireo, and the Alameda whipsnake. As a result, if a consultation occurs in an area where multiple listed species may be present, that consultation will likely be triggered by the presence of listed species, including the frog, and likely not triggered by critical habitat for the red-legged frog.

44. According to the Service, section 7 consultations are frequently conducted for multiple species. For example, consultations for the arroyo toad and least Bell's vireo are often combined with those for the red-legged frog. In general, if an activity triggers a consultation to address any listed species, the consultation process must then examine the impacts to all listed species and critical habitat known or thought to be in or near the lands affected by the project. A multi-species consultation has the potential to reduce the total number of individual consultations necessary for a project. Yet, even when consultations include more than one species, the Service and the Action

agency must consider all potential impacts on each species and its habitats separately. Therefore, the amount of research and time spent in consultation for the frog will be the same, regardless of whether consultations are held jointly for several species. The net effect of the presence of other federally listed species in proposed critical habitat for the red-legged frog is that the number of separate section 7 consultations may be reduced, but the total amount of research and time spent in consultation will remain approximately the same.

Recovery Plan

45. As part of the listing of the California red-legged frog, a draft Recovery Plan was released in May 2000 (U.S. Fish and Wildlife Service, 2000). The draft Recovery Plan serves to facilitate the conservation and recovery of the frog by providing land-management guidelines for agencies and landowners with land containing frogs or frog habitat. The draft Recovery Plan divides frog range into eight broad-scale recovery units (RUs) based on common habitat features and population densities.[5] Within the RUs, the draft Recovery Plan proposes core areas, which will be the focus of recovery actions. These core areas include land with high frog densities, as well as currently unoccupied land that the Service hopes to repopulate. Significant portions of proposed critical habitat for the red-legged frog overlap with proposed core areas.

46. Although the draft Recovery Plan does not provide any additional protections beyond those afforded to the frog by the listing, certain indirect economic effects may be attributable to the publishing of the draft Recovery Plan and not to the critical habitat designation. For example, changes in property values or increases in the number of biological surveys conducted may be attributable to the publishing of the boundaries of core areas in the Recovery Plan, in that such effects would have occurred in the absence of critical habitat designation.

State Statutes and Regulations

47. The State of California maintains environmental regulations which may affect the units proposed as critical habitat for the red-legged frog. The California Environmental Quality Act (CEQA) requires the identification of the significant environmental effects of proposed projects that have the potential to harm the environment. The lead agency (typically the California state agency in charge of the oversight of a project) must determine whether a proposed project would have a "significant" effect on the environment. Section 15065 of Article 5 of the CEQA regulations states that a finding of significance is mandatory if the project will "...substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels,

[5] *Draft Recovery Plan for the California red-legged frog (Rana aurora draytonii),* U.S. Fish and Wildlife Service, 258 pp, Portland, Oregon, 2000.

threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory." If the lead agency determines that a project will cause significant impacts, the landowners must prepare a Environmental Impact Report (EIR).[6] Any economic impacts generated by the EIR process are attributable to the presence of a particular species on the project land, regardless of whether the land is critical habitat. Review of the CEQA statute and conversations with the California Resources Agency (one of the agencies responsible for administering CEQA) reveal that, if a species is known to occupy a parcel of land, the designation of critical habitat alone does not require a lead agency to pursue any incremental actions.[7] In the case of the red-legged frog, the designation of core-area habitat in the recovery plan alerted the public as to which lands are occupied by the red-legged frog. Therefore, economic impacts generated by CEQA are likely due to baseline regulations and not attributable to the designation of critical habitat.

48. Relevant case law supports the idea that the designation of critical habitat for a species does not require any additional actions by a lead agency or an applicant when the project is on land that is known to be occupied by a species. The October 1995 Fort Mojave Indian Tribe v. California Department of Health Services (38 Cal. App.4th 1574) concerns the CA Department of Health Services (DHS) approval of an EIR for the construction and operation of a low-level radioactive waste disposal facility. In this case the Plaintiff argued that the DHS should have resubmitted the EIR for public comment after the Service designated the project site as critical habitat for the Desert tortoise. Their argument centers around the idea that the designation of critical habitat constituted new circumstances requiring the DHS to re-circulate the EIR or prepare a supplemental EIR. The court found that this contention lacked merit, because the designation of critical habitat did not present evidence of significant new or enhanced environmental effects of the project. The presence of the Desert tortoise was already known and addressed in the original EIR. Thus, the designation of critical habitat did not introduce any new information of effects into the CEQA review process. The red-legged frog case is similar because almost all of the critical habitat is known to be occupied by the red-legged frog as a result of the designation of essential habitat in the Recovery Plan. Thus, economic effects due to CEQA are likely to be part of the "without critical habitat" baseline and are not attributable to the designation of critical habitat.

49. Under section 1603 of the California Fish and Game Code, the California Department of Fish and Game has the authority to regulate alteration of streambeds, which constitute an important component of frog habitat. Any party proposing to divert, obstruct the natural flow, or change the

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[6] California Resources Agency, "Summary and Overview of the California Environmental Quality Act", November 12, 1998, *http://ceres.ca.gov/topic/env_law/ ceqa/summary.html*, August 23, 2000.

[7] Personal communication with the California Resources Agency Office on September 11, 2000.

structure of a river, stream, or lake, or to use materials from a streambed, must notify the Department before initiating activity.[8] Under this program, notification is generally required for any project that will take place in or near the vicinity of a river, stream, or their tributaries. If the Department determines that the proposed project may adversely affect existing fish and wildlife resources, the applicant must obtain a Lake or Streambed Alteration Agreement from the Department. Unless otherwise exempt, the project must then be reviewed in accordance with CEQA before work can begin.[9] As a result, proposed alterations to streambeds that serve as frog habitat are already subject to regulations in the absence of critical habitat designation.

50. Additionally, the State of California has classified the red-legged frog as a Species of Concern.[10] Although this classification does not provide legal protection for the frog, it does mandate that parties obtain an approved scientific permit in order to collect the species. Furthermore, California Fish and Game Commission regulations prohibit the possession of the frog.

2.3.2 Socioeconomic Profile of Proposed Critical Habitat Areas

51. To provide context for the discussion of potential economic impacts due to proposed critical habitat, it is necessary to consider relevant economic and demographic data for the 31 counties affected by the proposed designation. Because critical habitat has been proposed for designation on Federal, state, municipal, and private lands, numerous possible activities and land uses could take place within areas proposed as critical habitat. This section focuses on those specific activities that are most likely to, but will not necessarily, effect critical habitat for the red-legged frog, and could therefore be susceptible to economic impacts as a result of designation. Industries of primary concern are those that directly use and modify frog habitat, namely construction, farming (including grazing), and mining.

County Demographic Data

52. The demographic data in Exhibit 2-2 indicate relative wealth and degree of urban development for the 31 counties containing proposed critical habitat. Exhibit 2-2 presents per capita income, total population and population density (measured in people per square acre) for each of the 31 counties.

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[8] Section 1603 of the California Fish and Game Code.

[9] Pub. Resources Code, section 21000 *et seq*.

[10] U.S. Fish and Wildlife Service, *Draft Recovery Plan for the California Red-legged Frog*, 258 pp, Portland, Oregon, 2000.

Exhibit 2-2
DEMOGRAPHIC DATA FOR COUNTIES WITH
PROPOSED CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG

County Name	Per Capita Income	Population	Population Density*	County Name	Per Capita Income	Population	Population Density*
ALAMEDA	$32,130	1,454,302	1.417	SAN DIEGO	$27,657	2,911,468	1.655
BUTTE	$20,838	204,046	0.097	SAN JOAQUIN	$20,813	566,628	0.344
CALAVERAS	$20,172	38,476	0.037	SAN LUIS OBISPO	$24,807	245,191	0.091
CONTRA COSTA	$36,006	930,025	1.027	SAN MATEO	$43,338	730,029	0.613
EL DORADO	$27,046	152,942	0.040	SANTA BARBARA	$28,698	414,155	0.290
FRESNO	$20,333	805,005	0.864	SANTA CLARA	$40,828	1,736,722	2.800
KERN	$19,643	658,935	0.127	SANTA CRUZ	$31,302	255,021	0.265
LOS ANGELES	$26,773	9,884,255	24.131	SIERRA	$23,175	3,143	0.006
MARIN	$52,896	249,671	0.132	SOLANO	$23,724	399,026	0.838
MARIPOSA	$21,231	16,143	0.035	SONOMA	$30,911	450,057	0.097
MERCED	$17,732	210,138	0.191	STANISLAUS	$21,136	441,364	0.355
MONTEREY	$28,185	399,304	1.399	TEHAMA	$17,600	56,159	0.022
NAPA	$32,649	127,005	0.060	TUOLUMNE	$20,082	52,953	0.060
PLUMAS	$23,783	20,341	0.061	VENTURA	$28,711	756,501	2.478
RIVERSIDE	$22,451	1,522,855	2.331	YUBA	$16,405	60,711	0.073
SAN BENITO	$21,088	49,791	0.106				

* Note: Population density is measured in people per square acre.
Source: Bureau of Economic Analysis, Personal Income by Major Source and Earnings by Industry, http://www.bea.doc.gov /bea/regional/reis/ca05/, August 30, 2000. All data are from 1999.
State of California, Department of Finance, City/County Population and Housing Estimates, 1991-2000, with 1990 Census Counts. Sacramento, California, May 2000.
State Yellow Book, New York, Leadership Directories, 1994.

53. In terms of per capita income, these counties can be categorized in three groups: four high-income counties with per capita incomes of over $35,000, 17 low-income counties with per capita incomes of less than $25,000, and ten middle-income counties with per capita incomes between $26,000 and $35,000. The 31 counties have a median per capita income of $23,754. Marin County has the highest per capita income at $52,896 while Yuba County has the lowest at $16,405. Statewide per capita income for California was $29,910 in 1999.

54. Considering populations, five counties have populations greater than one million people, eight counties have fewer than 100,000 people, and the remaining 18 counties have populations between 100,000 and one million. Los Angeles County has the greatest population at 9,884,255 and Sierra County has the least at 3,143.

55. Population density indicates the degree to which a county is urban or rural, with more urban counties having higher population densities. Eight of the 31 counties have population densities greater than 1.0, indicating that they are highly urban areas, while 12 counties have population densities less than 0.1, indicating that they are rural. The remaining 11 counties have population densities that range from 0.1 to 0.9. Los Angeles County has the greatest population density, and is therefore the most urban. In contrast Sierra County has the lowest population density and is therefore the most rural.

Relevant Industries

56. Exhibit 2-3 shows the total earnings for each county, earnings for relevant industries, and the percent of total county income accounted for by each industry within the 31 counties containing proposed critical habitat. It is immediately apparent that the amount and types of economic activity vary significantly throughout the 31 counties. Total earnings of county residents from employment range from a high of over $200 billion in Los Angeles County to a low of about $41 million in Sierra County, with the median earnings of the counties being approximately $5.1 billion. It should be noted that the values in Exhibit 2-3 do not represent the economic activity taking place within specific areas of proposed critical habitat, rather they represent the general, county-wide economic activity.

Exhibit 2-3
COUNTY-WIDE EARNINGS FOR RELEVANT INDUSTRIES
(Values in thousands of dollars)

County Name	Total County Earnings from Employment	County Farm Earnings	Percent of Total Earnings	County Construction Earnings	Percent of Total Earnings	County Mining Earnings	Percent of Total County Earnings
ALAMEDA	$33,728,189	$12,003	0.04%	$2,175,430	6.4%	$41,938	0.1%
BUTTE	$2,299,056	$31,154	1.4%	$145,505	6.3%	$995	0.04%
CALAVERAS	$300,338	-$4,300	NA	$43,399	14.5%	D	NA
CONTRA COSTA	$17,491,283	$21,423	0.1%	$1,315,620	7.5%	$246,682	1.4%
EL DORADO	$1,688,213	$344	0.02%	$223,442	13.2%	$4,338	0.3%
FRESNO	$10,644,485	$554,661	5.2%	$668,436	6.3%	$13,431	0.1%
KERN	$9,041,144	$386,059	4.3%	$574,138	6.4%	$698,664	7.7%
LOS ANGELES	$200,846,999	$214,416	0.1%	$7,101,407	3.5%	$538,175	0.3%
MARIN	$6,186,500	$11,132	0.2%	$430,556	7.0%	D	NA

Exhibit 2-3 (continued)
COUNTY-WIDE EARNINGS FOR RELEVANT INDUSTRIES
(Values in thousands of dollars)

County Name	Total County Earnings from Employment	County Farm Earnings	Percent of Total Earnings	County Construction Earnings	Percent of Total Earnings	County Mining Earnings	Percent of Total County Earnings
MARIPOSA	$170,718	-$4,540	NA	$9,684	5.7%	D	NA
MERCED	$2,178,502	$317,439	14.6%	$95,963	4.4%	$888	0.04%
MONTEREY	$7,101,952	$1,098,336	15.5%	$336,834	4.7%	$8,412	0.1%
NAPA	$2,312,533	$60,253	2.6%	$220,390	9.5%	D	NA
PLUMAS	$272,709	$14,300	5.2%	$20,153	7.4%	$1,319	0.5%
RIVERSIDE	$16,333,450	$468,951	2.9%	$1,710,535	10.5%	$35,097	0.2%
SAN BENITO	$564,620	$73,681	13.0%	$57,903	10.3%	D	NA
SAN DIEGO	$54,384,697	$348,399	1.4%	$3,118,375	12.8%	$47,034	0.2%
SAN JOAQUIN	$7,166,351	$327,146	4.6%	$482,184	6.7%	$12,578	0.2%
SAN LUIS OBISPO	$3,528,781	$111,326	3.2%	$314,852	8.9%	$8,181	0.2%
SAN MATEO	$21,654,988	$73,071	0.3%	$1,272,592	5.9%	$10,806	0.05%
SANTA BARBARA	$7,303,527	$334,813	4.6%	$429,263	5.9%	$67,036	0.9%
SANTA CLARA	$62,529,734	$139,396	0.2%	$2,618,112	4.2%	$151,525	0.2%
SANTA CRUZ	$4,199,696	$225,319	5.4%	$288,387	6.9%	$4,652	0.1%
SIERRA	$41,327	-$1,927	NA	$1,863	4.5%	D	NA
SOLANO	$4,489,208	$27,503	0.6%	$429,448	9.6%	$22,977	0.5%
SONOMA	$7,849,668	$120,878	1.5%	$692,756	8.8%	$40,568	0.5%
STANISLAUS	$5,715,861	$351,101	6.1%	$382,571	6.7%	D	NA
TEHAMA	$488,503	$14,077	2.9%	$25,066	5.1%	$753	0.2%
TUOLUMNE	$513,309	-$3,309	NA	$46,650	9.1%	$3,387	0.7%
VENTURA	$12,342,104	$436,056	3.5%	$731,939	5.9%	$120,381	1.0%
YUBA	$716,995	$20,567	2.9%	$42,906	6.0%	$2,735	0.4%
Total	$474,085,440	$5,779,728	1.2%	$26,006,359	5.5%	$2,082,552	0.4%

Sources: Bureau of Economic Analysis, Personal Income by Major Source and Earnings by Industry, http://www.bea.doc. gov/bea/regional/reis/ca05/, August 30, 2000.

Notes: Negative dollar values indicate a net loss.
Entries with a D were not shown to avoid disclosure of confidential information, but estimates for these entries are included in the totals.

57. On the whole, farming accounts for 1.2 percent of earnings in the 31 counties with proposed critical habitat. These counties fall into three groups with respect to the relative importance of farming to their economies: a small group of counties in which farming plays a significant economic role, a large group of counties in which farming is of moderate importance, and a medium sized group of counties in which farming has little economic importance. Farming is most important in the counties of Monterey (15.5 percent of total earnings), Merced (14.6 percent), and San Benito (13.0 percent). In 16 counties, farm earnings range from 1.4 to 6.1 percent of total earnings. In 12

counties, farming accounted for less than one percent of total earnings, or farming operations in the county had net losses.

58. Of the industries that may potentially affect frog habitat, construction has the greatest economic importance in the 31 counties containing proposed critical habitat for the red-legged frog. Construction generates 5.5 percent of earnings in all 31 counties combined. Construction earnings are proportionally highest in Calaveras (14.5 percent), El Dorado (13.2 percent), San Diego (12.8 percent), Riverside (10.5 percent), and San Benito (10.3 percent). An additional 21 counties have construction earnings between 5.1 to 9.6 percent of total county earnings. In only five counties (Los Angeles, Merced, Monterey, Santa Clara, and Sierra) do construction earnings account for less than five percent of total county earnings. Alameda, Contra Costa, Los Angeles, Riverside, San Diego, San Mateo, and Santa Clara counties all have construction earnings over $1 billion. The median county earnings from construction are $383 million.

59. Mining plays an important role only in the economy of Kern County, where it accounts for 7.7 percent of county earnings. In all other counties mining accounts 1.0 percent or less of total earnings. Combined mining earnings constitute just 0.4 percent of total earnings for all 31 counties with proposed critical habitat for the red-legged frog.

Housing and Population Growth

60. Economic data indicate that, of the relevant industries identified above, construction have the greatest economic importance in counties with areas of proposed critical habitat. In order to investigate construction trends more closely, Exhibit 2-4 shows the increases in housing units for the counties with proposed critical habitat.

Exhibit 2-4
COUNTY POPULATION AND HOUSING GROWTH

County Name	Population	Percentage of State Total	Total Housing Units, 1990	Total Housing Units, 2000	Amount of Increase	Percent Change
ALAMEDA	1,454,302	4.2%	504,109	536,495	32,386	6.4%
BUTTE	204,046	0.6%	76,115	87,634	11,519	15.1%
CALAVERAS	38,476	0.1%	19,153	23,305	4,152	21.7%
CONTRA COSTA	930,025	2.7%	316,170	353,983	37,813	12.0%
EL DORADO	152,942	0.4%	61,451	73,022	11,571	18.8%
FRESNO	805,005	2.3%	235,563	273,159	37,596	16.0%
KERN	658,935	1.9%	198,636	234,487	35,851	18.0%
LOS ANGELES	9,884,255	28.8%	3,163,310	3,272,169	108,859	3.4%
MARIN	249,671	0.7%	99,757	105,257	5,500	5.5%

Exhibit 2-4 (continued)
COUNTY POPULATION AND HOUSING GROWTH

County Name	Population	Percentage of State Total	Total Housing Units, 1990	Total Housing Units, 2000	Amount of Increase	Percent Change
MARIPOSA	16,143	0.05%	7,700	9,238	1,538	20.0%
MERCED	210,138	0.6%	58,410	69,684	11,274	19.3%
MONTEREY	399,304	1.2%	121,224	132,455	11,231	9.3%
NAPA	127,005	0.4%	44,199	49,005	4,806	10.9%
PLUMAS	20,341	0.1%	11,942	13,913	1,971	16.5%
RIVERSIDE	1,522,855	4.4%	483,847	582,419	98,572	20.4%
SAN BENITO	49,791	0.1%	12,230	16,752	4,522	37.0%
SAN DIEGO	2,911,468	8.5%	946,240	1,039,089	92,849	9.8%
SAN JOAQUIN	566,628	1.7%	166,274	190,003	23,729	14.3%
SAN LUIS OBISPO	245,191	0.7%	90,200	101,502	11,302	12.5%
SAN MATEO	730,029	2.1%	251,782	263,465	11,683	4.6%
SANTA BARBARA	414,155	1.2%	138,149	145,276	7,127	5.2%
SANTA CLARA	1,736,722	5.1%	540,240	589,010	48,770	9.0%
SANTA CRUZ	255,021	0.7%	91,878	97,254	5,376	5.9%
SIERRA	3,143	0.01%	2,166	2,306	140	6.5%
SOLANO	399,026	1.2%	119,136	136,247	17,111	14.4%
SONOMA	450,057	1.3%	161,062	183,633	22,571	14.0%
STANISLAUS	441,364	1.3%	132,027	152,023	19,996	15.1%
TEHAMA	56,159	0.2%	20,403	23,992	3,589	17.6%
TUOLUMNE	52,953	0.2%	25,175	28,554	3,379	13.4%
VENTURA	756,501	2.2%	228,478	252,086	23,608	10.3%
YUBA	60,711	0.2%	21,245	23,228	1,983	9.3%
Total	25,802,362	75.1%	8,348,271	9,060,645	712,374	8.5%

Source: State of California, Department of Finance, City/County Population and Housing Estimates, 1991-2000, with 1990 Census Counts. Sacramento, California, May 2000.

Note: Population of the entire State of California is 33,346,091 residents.

61. The data show a trend for significant growth in housing in the counties containing proposed critical habitat for the red-legged frog. Over the past ten years, more than 700,000 new units have been built in the 31 counties, an increase of 8.5 percent. Calaveras, Mariposa, Riverside, and San Benito counties all exhibited increases in housing units of 20 percent or more. An additional 15 counties had increases of more than 10 percent. Los Angeles, San Diego, and Riverside counties all had increases of more than 90,000 new housing units, while Alameda, Contra Costa, Fresno, Kern, and Santa Clara counties all saw increases of more than 30,000 units. A total of 19 counties had increases in housing of more than 10,000 units.

2.3.3 Estimated Economic Activity in Proposed Critical Habitat

62. Because the proposed critical habitat designation only covers a certain amount of land in a given county, only part of the total economic activity taking place in a county is likely to take place in the areas proposed for critical habitat designation. As a rough approximation, it is reasonable to assume that the amount economic activity taking place in areas proposed for critical habitat designation is proportional to the amount of land proposed as critical habitat. Therefore, this analysis estimates the amount of economic activity taking place within the proposed critical habitat based on the percentage of land proposed for designation within a county.

63. Exhibit 2-5 shows the area of lands proposed for critical habitat by each type of land owner (Federal, state and local, and private), and the percentage of the county covered by proposed critical habitat. For each type of land owner, one column presents the amount of land, in acres, that has been proposed for critical habitat designation, and the adjacent column shows the percentage that this land represents within each county.

Exhibit 2-5
ACREAGE OF LAND PROPOSED FOR
CRITICAL HABITAT DESIGNATION BY OWNERSHIP

County Name	Total Area of County	Area of Critical Habitat on Federal Land	Percent of County Area	Area of Critical Habitat on State and Local Land	Percent of County Area	Area of Critical Habitat on Private Land	Percent of County Area	Total Area of Critical Habitat	Percent of County Area
ALAMEDA	471,040	1,500	0.3%	6,200	1.3%	260,700	55.3%	268,400	57.0%
BUTTE	1,053,440	47,000	4.5%	250	0.02%	28,900	2.7%	76,150	7.2%
CALAVERAS	653,440	3,700	0.6%	0	0.0%	7,150	1.1%	10,850	1.7%
CONTRA COSTA	467,200	1,000	0.2%	18,800	4.0%	140,850	30.1%	160,650	34.4%
EL DORADO	1,097,600	49,900	4.5%	0	0.0%	42,500	3.9%	92,400	8.4%
FRESNO	3,825,920	22,250	0.6%	0	0.0%	3,450	0.1%	25,700	0.7%
KERN	5,203,200	1,750	0.03%	0	0.0%	30,400	0.6%	32,150	0.6%
LOS ANGELES	2,604,800	223,150	8.6%	13,100	0.5%	159,850	6.1%	396,100	15.2%
MARIN	334,720	75,850	22.7%	33,600	10.0%	106,500	31.8%	215,950	64.5%
MARIPOSA	931,840	3,450	0.4%	0	0.0%	1,000	0.1%	4,450	0.5%
MERCED	1,244,160	2,200	0.2%	24,000	1.9%	162,600	13.1%	188,800	15.2%
MONTEREY	2,113,920	40,500	1.9%	16,550	0.8%	339,000	16.0%	396,050	18.7%
NAPA	476,160	6,200	1.3%	2,500	0.5%	51,400	10.8%	60,100	12.6%
PLUMAS	1,646,720	141,100	8.6%	0	0.0%	20,250	1.2%	162,350	9.9%
RIVERSIDE	4,616,960	29,900	0.6%	2,700	0.1%	17,050	0.4%	49,650	1.1%
SAN BENITO	888,320	29,150	3.3%	0	0.0%	259,450	29.2%	288,600	32.5%
SAN DIEGO	2,695,680	11,100	0.4%	0	0.0%	1,000	0.04%	12,100	0.4%

Exhibit 2-5 (continued)
ACREAGE OF LAND PROPOSED FOR
CRITICAL HABITAT DESIGNATION BY OWNERSHIP

County Name	Total Area of County	Area of Critical Habitat on Federal Land	Percent of County Area	Area of Critical Habitat on State and Local Land	Percent of County Area	Area of Critical Habitat on Private Land	Percent of County Area	Total Area of Critical Habitat	Percent of County Area
SAN JOAQUIN	905,600	0	0.0%	0	0.0%	28,900	3.2%	28,900	3.2%
SAN LUIS OBISPO	2,117,120	27,900	1.3%	6,650	0.3%	529,050	25.0%	563,600	26.6%
SAN MATEO	305,280	1,750	0.6%	30,150	9.9%	244,400	80.1%	276,300	90.5%
SANTA BARBARA	1,758,720	295,550	16.8%	2,950	0.2%	360,500	20.5%	659,000	37.5%
SANTA CLARA	827,520	750	0.1%	38,800	4.7%	182,350	22.0%	221,900	26.8%
SANTA CRUZ	285,440	250	0.1%	26,450	9.3%	100,300	35.1%	127,000	44.5%
SIERRA	620,160	3,450	0.6%	0	0.0%	750	0.1%	4,200	0.7%
SOLANO	533,760	1,750	0.3%	500	0.1%	35,100	6.6%	37,350	7.0%
SONOMA	1,026,560	0	0.0%	4,450	0.4%	31,150	3.0%	35,600	3.5%
STANISLAUS	963,840	0	0.0%	26,950	2.8%	15,100	1.6%	42,050	4.4%
TEHAMA	1,889,920	60,800	3.2%	750	0.04%	58,100	3.1%	119,650	6.3%
TUOLUMNE	1,429,760	425,750	29.8%	500	0.03%	36,100	2.5%	462,350	32.3%
VENTURA	1,191,680	311,100	26.1%	250	0.02%	28,650	2.4%	340,000	28.5%
YUBA	409,600	9,400	2.3%	0	0.0%	6,900	1.7%	16,300	4.0%
Total	44,590,080	1,829,150	4.1%	256,100	0.6%	3,288,400	7.4%	5,373,650	12.1%

Sources: State Yellow Book, New York, Leadership Directories, 1994 and Draft Proposed Designation of Critical Habitat for the California Red-legged Frog, 2000.

64. Exhibit 2-6 presents estimates of economic activity in critical habitat areas based on the values in Exhibit 2-3 and Exhibit 2-5. For each relevant industry, one column presents the estimated earnings generated by that industry in areas of critical habitat, and the next column indicates percentage of total county earnings estimated to be generated by that industry within critical habitat areas. The last two columns show the estimates for the total earnings from all three relevant industries in critical habitat and the percent of the total county earnings generated by all three relevant industries within critical habitat.

65. It should be noted that the estimates provided in Exhibit 2-6 significantly overstate the amount of economic activity within proposed critical habitat on a number of accounts, and therefore represent the upper limits of the potential economic activity occurring in or near critical habitat. The estimates assume that economic activities occur equally on land of all ownership categories (Federal, state, and private). However, it is more likely that significant economic activity, specifically farming and construction, takes place on private lands. Furthermore, within the proposed designation, only areas that have the primary constituent elements are considered critical habitat. These estimates consider

all lands within the proposed designation, and not just those containing primary constituent elements. Lastly, the estimates are based on the assumption that economic activity is distributed evenly and equally throughout a county, although even distribution is not likely the case. In fact, the areas for which the Service has proposed critical habitat designation tend to be located away from areas of urban development, which support proportionally more economic activity. For example, in many counties, such as San Joaquin, Stanislaus, Merced, Fresno, and Kern, the Service has proposed designation primarily in areas used for grazing. The estimates presented here do not account for the manner in which the Service proposed areas for designation.

Exhibit 2-6
ESTIMATED AMOUNTS (MILLIONS OF DOLLARS) AND PERCENTAGES OF COUNTY EARNINGS GENERATED WITHIN PROPOSED CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG

County Name	Farm Earnings in Critical Habitat	Percent of County Earnings	Construction Earnings in Critical Habitat	Percent of County Earnings	Mining Earnings in Critical Habitat	Percent of County Earnings	Total Earnings in Critical Habitat	Percent of County Earnings in Critical Habitat
ALAMEDA	$6,839	0.02%	$1,239,567	3.7%	$23,896	0.1%	$1,270,302	3.8%
BUTTE	$2,252	0.1%	$10,518	0.5%	$72	0.003%	$12,842	0.6%
CALAVERAS	-$71	NA	$721	0.2%	NA	NA	$649	0.2%
CONTRA COSTA	$7,366	0.04%	$452,385	2.6%	$84,823	0.5%	$544,575	3.1%
EL DORADO	$29	0.00%	$18,810	1.1%	$365	0.02%	$19,204	1.1%
FRESNO	$3,726	0.04%	$4,490	0.04%	$90	0.001%	$8,306	0.1%
KERN	$2,385	0.03%	$3,548	0.04%	$4,317	0.05%	$10,250	0.1%
LOS ANGELES	$32,605	0.02%	$1,079,878	0.5%	$81,838	0.04%	$1,194,321	0.6%
MARIN	$7,182	0.1%	$277,780	4.5%	NA	NA	$284,962	4.6%
MARIPOSA	-$22	NA	$46	0.03%	NA	NA	$25	0.01%
MERCED	$48,171	2.2%	$14,562	0.7%	$135	0.01%	$62,733	2.9%
MONTEREY	$205,777	2.9%	$63,107	0.9%	$1,576	0.02%	$268,884	3.8%
NAPA	$7,605	0.3%	$27,817	1.2%	NA	NA	$35,422	1.5%
PLUMAS	$1,410	0.5%	$1,987	0.7%	$130	0.05%	$3,397	1.2%
RIVERSIDE	$5,043	0.03%	$18,395	0.1%	$377	0.002%	$23,438	0.1%
SAN BENITO	$23,938	4.2%	$18,812	3.3%	NA	NA	$42,749	7.6%
SAN DIEGO	$1,564	0.01%	$13,997	0.1%	$211	0.001%	$15,561	0.1%
SAN JOAQUIN	$10,440	0.1%	$15,388	0.2%	$401	0.01%	$25,828	0.4%
SAN LUIS OBISPO	$29,636	0.8%	$83,817	2.4%	$2,178	0.1%	$113,453	3.2%
SAN MATEO	$66,134	0.3%	$1,151,786	5.3%	$9,780	0.05%	$1,217,920	5.6%
SANTA BARBARA	$125,456	1.7%	$160,847	2.2%	$25,119	0.3%	$286,303	3.9%
SANTA CLARA	$37,379	0.1%	$702,048	1.1%	$40,632	0.1%	$739,427	1.2%
SANTA CRUZ	$100,251	2.4%	$128,311	3.1%	$2,070	0.05%	$228,562	5.4%
SIERRA	-$13	NA	$13	0.03%	NA	NA	$0	0.0%
SOLANO	$1,925	0.04%	$30,051	0.7%	$1,608	0.04%	$31,975	0.7%
SONOMA	$4,192	0.1%	$24,024	0.3%	$1,407	0.02%	$28,216	0.4%

Exhibit 2-6
ESTIMATED AMOUNTS (MILLIONS OF DOLLARS) AND PERCENTAGES OF COUNTY EARNINGS GENERATED WITHIN PROPOSED CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG

County Name	Farm Earnings in Critical Habitat	Percent of County Earnings	Construction Earnings in Critical Habitat	Percent of County Earnings	Mining Earnings in Critical Habitat	Percent of County Earnings	Total Earnings in Critical Habitat	Percent of County Earnings in Critical Habitat
STANISLAUS	$15,318	0.3%	$16,691	0.3%	NA	NA	$32,008	0.6%
TEHAMA	$891	0.2%	$1,587	0.3%	$48	0.01%	$2,478	0.5%
TUOLUMNE	-$1,070	NA	$15,085	2.9%	$1,095	0.2%	$14,015	2.7%
VENTURA	$124,412	1.0%	$208,831	1.7%	$34,346	0.3%	$333,242	2.7%
YUBA	$818	0.1%	$1,707	0.2%	$109	0.0%	$2,526	0.4%
Totals	**$871,568**	**.18%**	**$5,786,605**	**1.22%**	**$316,623**	**.07%**	**$6,853,576**	**1.45%**

66. Based on the estimates, San Benito, Santa Cruz, and San Mateo counties could possibly have more than five percent of total county earnings generated by land-use industries in areas proposed for critical habitat designation. Five counties are estimated to have over $500 million of earnings generated in proposed critical habitat, with an additional six counties having estimated earnings of over $100 million generated in proposed critical habitat. In total, the upper-bound estimate of earnings generated in proposed critical habitat is $6.9 billion, with construction earnings potentially accounting for $5.8 billion of total estimated earnings.

3. ANALYTICAL FRAMEWORK AND RESULTS SECTION 3

67. This section provides an overview of the framework for the analysis, a description of information sources used, and a discussion of potential economic costs and benefits associated with the proposed designation of critical habitat for the California red-legged frog.

3.1 FRAMEWORK FOR ANALYSIS

68. This economic analysis considers the impacts of modifications to specific land uses or activities within those areas proposed as critical habitat for the California red-legged frog. The analysis evaluates impacts in a "with critical habitat" designation in comparison to a "without critical habitat" baseline, measuring the net change in economic activity attributable to the critical habitat proposal. The "without critical habitat" scenario, which represents the baseline for the analysis, includes all protection already accorded to the red-legged frog under Federal laws and state laws, such as the California Environmental Quality Act (CEQA). The difference between the two scenarios is a measurement of the net change in economic activity that may result from the designation of critical habitat. The listing of the red-legged frog is the most significant aspect of baseline protection, as it provides the most protections by making it illegal for any person to "take" a listed species. Take is defined by the Act to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.

3.1.1 Categories of Economic Impacts

69. The focus of this economic analysis is to determine the incremental costs and benefits to land uses and activities from the designation of critical habitat that are above and beyond those that result from existing Federal, state, and local laws. This analysis considers any incremental costs and benefits resulting from the proposed critical habitat designation. Exhibit 3-1 outlines the categories of costs and benefits considered in this analysis.

Exhibit 3-1

POTENTIAL ECONOMIC IMPACTS DUE TO CRITICAL HABITAT

	Categories of Potential Costs and Benefits	Examples
Costs	Costs associated with technical assistance or section 7 consultations: C increased technical assistance C new consultations C reinitiated consultations C extended consultations	Administrative costs (e.g., costs of phone calls, letter writing, meetings, travel time) and specialist consultant costs (e.g., fees biologists, surveyors or legal counsel).
	Costs of modifications to projects, activities, and land uses.	Opportunity costs associated with seasonal project changes (e.g., limiting activity to non-breeding seasons), relocation or redesign of project activities (e.g., moving construction further away from a streambed), and/or cessation of certain activities (e.g. camping).
	Costs associated with uncertainty and perceptions of critical habitat effects: C changes in property values C project delays C legal costs	Transitory decline in value of properties within critical habitat, based on the public's perception that critical habitat will result in project modifications; legal suits brought against development in critical habitat areas.
Benefits	Benefits associated with reduction in uncertainty and with perceptions of critical habitat effects.	Transitory increases in value of properties within critical habitat, based on the public's perception that critical habitat will slow development.
	Recreational and other use benefits.	Improvements to wildlife viewing and the opening of eco-tourism ventures.
	Non-use benefits.	Enhancements to resource preservation (increased biodiversity, ecosystem health) and existence values

70. Potential costs associated with section 7 consultations due to proposed critical habitat include: (1) the value of time spent in conducting section 7 consultations beyond those associated with the listing of the red-legged frog; (2) costs of modifications to land uses and activities as a result of these consultations; and (3) property value changes and transactions costs associated with uncertainty about the effects of critical habitat. The Service recognizes three scenarios associated with the designation of critical habitat that could trigger incremental consultation costs:

- New consultations may be required that would not have taken place without the designation of critical habitat;
- Consultations taking place after critical habitat designation may take more time and effort because critical habitat issues will need to be addressed; and
- Some consultations that have already been “completed” may need to be reinitiated to address critical habitat considerations.

71. Technical assistance offered by the Service represents another potential source of costs attributable to the designation of critical habitat. Technical assistance typically consists of guidance provided by the Service to other Federal agencies, state agencies, local municipalities, and private landowners. In general, technical assistance is provided to owners of land without a Federal nexus, but it may also be provided to owners of land for which a clear Federal nexus exists. Guidance consists of responding to inquiries regarding the presence or absence of listed species or critical habitat within an area or questions about whether proposed land uses are likely to adversely affect listed species or critical habitat. If the Service feels that proposed actions or projects on private land may adversely affect listed species or critical habitat, the Service typically issues a letter suggesting approaches to mitigate take (or other adverse impacts). In the case of critical habitat for the frog, the Service expects that the designation will trigger greater awareness on the part of Federal agencies, state agencies, local municipalities, and private landowners, and thus will result in increased requests for technical assistance.

72. Critical habitat could also result in economic costs triggered by the public's perception of the impact of critical habitat on particular land parcels subject to the designation. A common example of a perception effect is the fact that a perception held by potential house buyers that crime is high in a given neighborhood, when, in fact, the area does not have a higher crime rate than other areas, can negatively affect the value of individual properties in the neighborhood. Generally, as more information on actual neighborhood conditions becomes available to the market over time, the influence of the public's initial perception subsides. A similar pattern of public attitudes about the limits and costs that critical habitat may impose can cause real economic effects to the owners of property that has been included within the boundaries of the critical habitat designation. Public perception that critical habitat may result in the need for additional project modifications may lead to real reductions in property values and increased costs to landowners. These impacts may occur even in cases in which additional project modifications are unlikely to be imposed.

73. Uncertainty about the impacts of critical habitat also could result in increased transaction costs to landowners. For example, some landowners have elected to retain counsel, surveyors and other specialists to determine whether their lands lie within critical habitat boundaries and whether the primary constituent elements for a species are present. Thus, uncertainty over the status of lands has the potential to create real economic costs as land owners take action to gain information or mitigate possible effects of critical habitat designation. Moreover, such uncertainties may create delays, or in some cases may lead to changes in land use decision-making, thereby resulting in opportunity costs.

74. In addition to considering potential economic impacts attributable to the proposed critical habitat designation, this analysis also considers economic benefits that may result from the designation. Resource preservation or enhancement, which may be aided by designation of critical habitat, may constitute an increase in non-recreational values provided directly by the species and indirectly by its habitat. Categories of potential benefits for the red-legged frog include enhancement of wildlife viewing, increased biodiversity and ecosystem health, and intrinsic (passive use) values.

Furthermore, designation of critical habitat could potentially lead to earlier recovery of the species, thus decreasing regulatory costs associated with its listing. Finally, the public's perception of the potential importance of critical habitat may result in increases in property values, regardless of whether critical habitat generates such impacts.

75. The Service expects that any potential economic costs and benefits from critical habitat designation incremental to the listing of a species will occur primarily on unoccupied lands. These unoccupied lands within the proposed critical habitat units consist entirely of Federal land and associated inholdings. For the red-legged frog, four of the 31 units are considered unoccupied, and therefore any costs and benefits on these units will be attributable to the critical habitat designation. In addition, ongoing or planned activities on occupied lands may trigger reinitiations of previous consultations conducted under the listing, or in select cases, new consultations that would not have taken place under the listing. Therefore, this analysis also considers the possibility that some new consultations may be triggered by activities on occupied lands.

3.1.2 Methodological Approach

76. As discussed in Section 1, critical habitat can only affect current or planned land uses in cases where a Federal nexus is involved, because the Act requires *only Federal agencies* to consider the effect of their actions on critical habitat. In such cases where current or future activities on state, county, municipal, or private lands involve Federal funding, Federal permitting, or other Federal involvement, section 7 consultation with the Service is required. Activities on non-Federal lands that do not involve a Federal nexus or that do not affect the red-legged frog are not impacted by the designation of critical habitat. As a result, this report assesses potential economic impacts from critical habitat designation by first identifying current and future land uses within the proposed critical habitat. Once activities have been identified, the analysis evaluates whether each activity is likely to involve a Federal nexus. Each potential Federal nexus is then evaluated to determine the likelihood of incremental consultations and the probability of resultant project modifications or other costs and benefits. Below are the specific steps used in this methodology.

1. Identify those activities taking place on proposed critical habitat for the red-legged frog.

2. Consider which of these activities have a Federal nexus.

   - For Federally owned lands or Federally conducted activities, all such projects are subject to the Service consultation.

   - For non-Federal lands, review whether proposed activities on affected state, county, municipal, Tribal or private lands potentially involve Federal permits, Federal funding, or other Federal involvement.

3. Review historical patterns for section 7 consultations in the proposed critical habitat area to determine the likelihood that nexuses are liable to result in consultations with the Service. However, as historical patterns are not necessarily accurate predictors of future events, the analysis also uses current information and the professional judgement of the Service and other Federal agency staff regarding the likelihood of new, reinitiated, or incrementally extended consultations.

4. Consider the types of project modifications and potential benefits that may result from any newly required section 7 consultations, as well as incremental costs and benefits of habitat considerations during already required consultations or consultation reinitiations.

5. Evaluate other incremental costs and benefits that may originate from the proposed designation (e.g., changes in property values, project delays, and enhanced recreational opportunities).

3.1.3 Information Sources

77. The analysis relies primarily on input and information from the Service and affected Federal and state agencies. Because this analysis was scheduled for release before the deadline for public comments on the proposal for red-legged frog critical habitat, information provided by landowners on the likely economic effects of the designation was not available for review. Instead, this preliminary analysis relies primarily on meetings and telephone conversations with staff at the Service and telephone interviews with staff at Federal and state agencies. Because it was not possible to identify and contact all potentially affected parties, this analysis does not specifically address the impacts of critical habitat designation on *all* Federal, state, local, Tribal, and private land. Instead the analysis relies on conversations with key Federal and state stakeholders, and uses information obtained therein to discuss the impacts on representative lands. As public comments on the designation become available, they will be reviewed to obtain specific information on potentially affected activities, land uses, and associated economic impacts. Contacts will be identified in coordination with the Service to ensure that the most relevant and knowledgeable parties are consulted.

3.2 POTENTIAL COSTS DUE TO CRITICAL HABITAT

78. The proposed designation of critical habitat for the red-legged frog includes Federal, state, local, Tribal, and private lands. Critical habitat designation may result in modifications to land uses, activities, and other actions on Federally managed land that threaten to adversely modify or destroy habitat. In order for activities and land uses on state, local, and private lands to be affected by critical habitat designation, a Federal nexus must exist (i.e., the activities or land uses involve a Federal

permit, Federal funding, or require Federal actions). Activities on state and private lands that do not involve a Federal nexus are not affected by the designation of critical habitat.

79. Of the 31 units of proposed red-legged frog critical habitat, 27 are designated as occupied. For these 27 units, the Service generally would anticipate no new, extended, or substantively reinitiated consultations arising from the designation. However, two scenarios exist under which such consultations may be triggered:

1. The "occupied" status of some stream stretches within individual units may have been ambiguous until the proposed critical habitat designation (i.e., some stretches may have been treated as unoccupied prior to the designation). As a result, critical habitat designation could lead to new section 7 consultations and associated project modifications.

2. In the past, in those areas proposed for critical habitat designation for the red-legged frog, the Service biologists considering the impacts of new projects or activities on the frog generally would require an informal consultation. If biological surveys for these projects found no frogs in or near the project area, no formal consultation (or resulting project modifications) would likely have been required because the activity would be presumed not to affect the frog.[11] In contrast, all projects taking place on critical habitat lands will likely require formal consultations, regardless of whether biological surveys actually find frogs, in order to address potential adverse modifications to critical habitat. As a result, critical habitat designation could potentially impose incremental consultation costs as well as new project modifications.

80. In addition to identifying all potential Federal nexuses on the lands proposed as critical habitat for the red-legged frog, this analysis assesses the likelihood that section 7 consultations for different categories of Federal nexuses will occur. The information for this assessment is based on input and guidance from field and regional Service staff, as well as historical patterns in consultations between the Service and Federal agencies in the proposed areas. This analysis focuses on identifying specific land uses and activities in the affected areas that are most likely to result in section 7 consultation.

81. The discussions below present impacts on activities taking place on proposed critical habitat for the frog. It is important to note that this analysis addresses only a representative group of Federal, state, local, Tribal, and private stakeholders and is not inclusive of all stakeholders. significant efforts were made to collect information on as many land uses as possible. The discussion that follows is organized by land ownership and affected agency.

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[11] Personal communications with U.S. Fish and Wildlife Service Biologists, Sacramento, Ventura and Carlsbad, California offices, August to November, 2000.

Impacts of Critical Habitat on Federal Land and on Federal Activities

82. The Service has proposed approximately 1.8 million acres of Federal land for critical habitat designation for the red-legged frog. This designation may impact the activities of numerous Federal agencies, even those without land proposed for designation. Exhibit 3-2 identifies Federal activities on lands in the proposed critical habitat and indicates the historical likelihood of the activity resulting in a consultation.

Exhibit 3-2

POTENTIAL FEDERAL ACTIVITIES WITHIN CRITICAL HABITAT FOR THE RED-LEGGED FROG

Federal Agency	Activity	Past Consultations for Activity
U.S. Forest Service	Management of timber harvesting, recreation activities, road work, facilities maintenance, grazing, vegetation management, recreation residences, mineral extraction, fire management, grazing, off-road vehicle use	Usually
U. S. Department of Defense	Troop training, infrastructure maintenance	Usually
U.S. Department of Energy	Superfund clean-up, security, fire management, routine operations and maintenance	Usually
Bureau of Land Management	Land exchanges, mining, grazing	No
Federal Highway Administration	Highway construction and maintenance	Yes
Federal Emergency Management Agency	Emergency response and mitigation activities	Usually
Environmental Protection Agency	Clean Water Act Section 402 National Pollution Discharge Elimination System (NPDES) permitting	No
Army Corps of Engineers	Clean Water Act section 404 permitting	Usually
National Park Service	Recreation activities, routine operations and maintenance	No
Federal Energy Regulatory Commission	Dam re-licensing	Sometimes
Natural Resource Conservation Service	Wetlands and habitat restoration programs	Usually

Sources: Personal communication with Wildlife Biologists, U.S. Fish and Wildlife Service and staff from Federal agencies, August, September, and October, 2000.

3.2.1 U.S. Forest Service

83. As outlined in the U.S. Forest Service (USFS) Manual, National Forest lands are managed in a manner that encourages the recovery of species so that they can be reclassified or delisted.[12] Following this mandate, the USFS has already conducted significant mitigation activities to limit effects on red-legged frogs present on National Forest lands. These mitigation activities include closing campgrounds and roads in Los Padres National Forest on a seasonal basis, closing approximately 3,000 acres of red-legged frog habitat in Angeles National Forest permanently, and eliminating off-road vehicle use on several streambeds in San Bernardino National Forest.

84. In the past, the Service has conducted several consultations with the USFS that have, in part, led to the land use changes described above. In the future, USFS and the Service will be doing a large-scale, programmatic consultation to address endangered species in four National Forests in southern California. Service personnel indicate that critical habitat designation for the frog will lead to increased effort in this consultation. In the long run, however, critical habitat for the frog should not lead to many additional consultations for these four National Forests, as most issues pertaining to the frog will be addressed by the programmatic consultation. Nevertheless, the possibility exists that critical habitat designation for the frog could lead to increased consultations for specific activities not addressed by the programmatic consultation. Moreover, not all National Forests with proposed critical habitat for the frog are included in the programmatic consultation, so additional consultations could be necessitated to address activities or land uses taking place in these Forests.

85. The discussion below represents the views of USFS personnel regarding likely impacts of the critical habitat designation for the frog on representative National Forests

Los Padres National Forest

86. Conversations with USFS personnel reveal that numerous activities and land uses take place at Los Padres National Forest, including grazing, mining, oil and gas leasing, prescribed burning, recreation, road maintenance, land exchanges, and removal of exotic plant species.[13] In the past, USFS has consulted formally with the Service for all of these activities under the listing of the frog. USFS anticipates that, in the future, additional formal consultations attributable to designation of critical habitat will be necessary for some or all of these activities as a result of critical habitat designation. The leasing of grazing allotments and the management of recreation activities constitute

[12] Forest Service Manual 2670.21, as discussed in *California red-legged frog (Rana aurora draytonii) Recovery Plan* (p. 54).

[13] Personal communication with Forest Biologist, Los Padres National Forest, October 17, 2000.

the land uses most likely to result in new formal consultations. It is also possible that critical habitat designation will lead to reductions in grazing allotments and restrictions on recreation activities such as seasonal closures of camping areas. USFS will likely consult formally on a project-by-project basis with the Service for mining activities, oil and gas leasing, prescribed burning, and land exchanges. Critical habitat designation will probably necessitate re-initiations of programmatic formal consultations that USFS has completed with the Service for the Los Padres road maintenance plan and the removal of exotic plant species. Lastly, USFS has plans for construction work on recreation facilities and a road, and anticipates that these projects will require a formal consultation after the designation of critical habitat.

Cleveland National Forest

87. Conversations with staff from the Cleveland National Forest convey that proposed critical habitat is located in the San Mateo Creek Wilderness and the Tenaja area of the San Mateo Creek watershed.[14] Both of these locations are considered unoccupied and have been proposed for inclusion in the designation because they represent historical habitat. In the past, staff at Cleveland National Forest have not consulted with the Service on activities potentially affecting the frog as the species has not been present. USFS staff have, however, initiated consultations for a forest management plan and a programmatic consultation on activities in riparian areas. In the San Mateo Creek Wilderness area, recreation is the primary activity; USFS does not anticipate that critical habitat designation will lead to any new consultations in this area. In the Tenaja area, activities include grazing, recreation, and road work. USFS personnel are unsure as to how critical habitat designation will alter activities in this area, but indicate that designation will not likely increase administrative burdens for staff.

Angeles National Forest

88. USFS personnel indicate that critical habitat for the red-legged frog in the Angeles National Forest is located in one occupied and two unoccupied canyons.[15] Unoccupied portions of proposed critical habitat overlap with critical habitat for the Arroyo southwestern toad as well as habitat for an endangered fish, the Santa Ana sucker. Therefore, it is difficult to determine how many consultations will be attributable to critical habitat for the frog alone. Activities in the Angeles National Forest that may be affected by critical habitat designation include, recreation activities, removal of exotic plants, permitting of recreation residences (privately owned cabins on USFS land), and, maintenance of

[14] Personal communication with Forest Biologist, Cleveland National Forest, September 22, 2000.

[15] Personal communication with Forest Biologist, Angeles National Forest, September 22, 2000.

wildlife viewing areas. USFS believes that critical habitat designation could result in an increase in formal and informal consultations. Specifically, USFS anticipates that reinitiations of formal consultations will be required for exotic plant removal and new consultations will be required for maintenance of recreation facilities. In addition, USFS is preparing a biological assessment for all endangered and threatened species in Angeles National Forest. USFS believes that this assessment will have to be expanded to address critical habitat for the frog.

Mendocino National Forest

89. USFS reports that critical habitat for the red-legged frog is located in the northern portion of the Mendocino National Forest, which does not contain any known frog populations.[16] Approximately two-thirds of this land lies in a wilderness area. USFS indicates that past consultations have occurred to address activities in frog habitat. Critical habitat designation in the wilderness area should not lead to an increase in consultations because only low-impact activities, such as recreation, are allowed in this area. Activities in critical habitat outside of the wilderness area may result in additional formal and informal consultations. In particular, consultations may be necessitated for a proposed timber sale, prescribed burns, and road work. These consultations could be addressed either informally or formally. Over ten years, USFS anticipates that two formal consultations and three to four informal consultations will result from critical habitat designation.

Eldorado National Forest

90. According to USFS, the lands proposed for critical habitat designation for the red-legged frog in Eldorado National Forest are currently unoccupied and possess little suitable breeding habitat.[17] Nevertheless, in the past, USFS has frequently initiated informal consultations with the Service to address timber sales, controlled burns, and off-road vehicle use in frog habitat. Although USFS personnel do not foresee future projects that would require formal consultations, they do believe that critical habitat designation may indirectly impact their activities. They anticipate that they will now manage their lands more conservatively due to the concerns and attention critical habitat has elicited. Therefore, USFS personnel anticipate some additional informal consultations for grazing and mineral extraction for which they would not have been consulted in the past.

3.2.2 U.S. Department of Defense

[16] Personal communication with Forest Biologist, Mendocino National Forest, September 22, 2000.

[17] Personal communication with Forest Biologist, Eldorado National Forest, September 22, 2000.

Parks Reserved Forces Training Area

91. Parks Reserved Forces Training Area (Parks RFTA) in Contra Costa County operates a 2,700-acre training ground for Army reserves in California. Wetland breeding habitat for the red-legged frog covers nearly 12 acres of this facility. Parks RFTA personnel indicate that the proposed critical habitat for the frog is located mostly in areas used for troop training on the northern portion of the installation.[18] Troop training only takes place in upland areas and not in the breeding habitat.

92. The Army has consulted with the Service on a recently completed endangered species management plan for the frog. This consultation primarily addressed the breeding habitat. Personnel expect that critical habitat designation will result in new consultations, some of which may be formal. Specifically, it is likely that any additional troop training or changes to training in areas of upland habitat will now necessitate consultations that would not have occurred without critical habitat designation. Additionally, some of these consultations may result in modifications or restrictions to activities or land uses.

Vandenberg Air Force Base

93. Vandenberg Air Force Base serves as a space and ballistic missile operational and training base. Personnel at the Base report that large portions of the Base are occupied by the frog and other endangered species.[19] Therefore, it is not likely that many consultations will be attributable to critical habitat designation for the frog alone. In the past, the Base has initiated informal consultations on the frog to address the clearing of culverts and similar maintenance activities. It is possible that the Base will initiate additional informal consultations for activities in upland habitat, whereas in the past such consultations would not have occurred. On the whole, however, critical habitat designation at the Base should not have much effect beyond the listing because of the dense population of frogs and the fact that the Air Force generally avoids projects in riparian and wetlands habitat areas. Base personnel hope to meet with the Service to develop a management program for frog habitat in order to avoid doing consultations on a project-by-project basis. Base personnel also hope to use the critical habitat designation to map frog habitat more exactly, thereby reducing uncertainty about frog-habitat locations.

3.2.3 U.S. Department of Energy

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[18] Personal communication with Environmental Specialist, Parks Reserved Forces Training Area, San Ramon, California, September 21, 2000.

[19] Personal communication with Wildlife Biologist, Vandenberg Air Force Base, California, September 25, 2000.

94. The Department of Energy (DOE) maintains close to 8,000 acres of land proposed for critical habitat designation for the red-legged frog at the Lawrence Livermore National Laboratory in Alameda County. This land is divided into two separate parcels, Lawrence Livermore National Laboratory (the Laboratory) and Site 300. The Laboratory consists of a developed, industrial main site, which has patches of wetlands and covers approximately 640 acres. The second parcel, Site 300, supports an experimental facility and consists of approximately 7,000 acres of primarily undeveloped land.

95. Conversations with DOE personnel indicate that, because the frog occupies scattered wetlands within the Laboratory, consultations have occurred in the past. These consultations occurred on a case-by-case basis, and typically concluded at the informal stage.[20] DOE personnel express concerns that critical habitat designation could lead to more consultations associated with the basic operations of the Laboratory and, thereby, require more paperwork and biological analysis.

96. Activities within the Laboratory that are most likely to affect frog habitat include Superfund clean-up, fire management, and safety and security measures. DOE maintains that critical habitat designation could necessitate new consultations for some of these activities. For example, Superfund clean-up will require that a road be cut through upland habitat. Under the critical habitat designation, DOE would be required to consult formally with the Service, whereas in the past the road would not have required a consultation. Also, DOE personnel believe that, under critical habitat designation, DOE will be required to consider more upland habitat than it would have in the past. Finally, DOE anticipates a formal consultation will be required for a planned artificial wetlands mitigation banking project.

97. DOE maintains that without critical habitat designation it would not have to consult on certain activities taking place in areas of Site 300 that do not contain frog habitat. DOE believes that critical habitat designation could result in the need for a biological assessment for all of Site 300. However, as approximately one third of Site 300's land overlaps with critical habitat for the Alameda whipsnake, some new consultations may not be solely attributable to the critical habitat designation for the frog.

98. The Service indicates that, while the likely consultations mentioned by DOE will be required in the future, most of them will be attributable to the listing of the frog and not the designation of critical habitat.[21] For example, the Service states that the entire Superfund clean-up project will require a consultation irrespective of critical habitat designation. Also, the expected formal consultation for the planned artificial wetlands mitigation banking will occur regardless of critical habitat designation because the frog is present and the site possesses critical habitat for two other

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[20] Personal conversation with Wildlife Biologist, Lawrence Livermore National Laboratory, September 18, 2000.

[21] Personal communication with Wildlife Biologist, U.S. Fish and Wildlife Service, Sacramento, California Office, October 24, 2000.

listed species. Lastly, the Service asserts that consultations for activities at Site 300 should be attributable to the listing of the species as the area has a large frog population.

3.2.4 Bureau of Land Management

99. The Bureau of Land Management (BLM) manages approximately 6,000 acres of land proposed for designation as critical habitat for the red-legged frog in Calaveras, El Dorado, and Tuolumne counties. BLM reports that no past consultations have addressed issues related to the frog and they do not believe that the designation will significantly impact activities on their lands. BLM notes that although they plan to consult with the Service on a habitat management plan for Spivey Pond in El Dorado County, this consultation would be required under the listing because this area is known to be occupied.[22]

100. BLM also states that critical habitat designation for the frog could possibly necessitate new consultations for land exchanges, mining, and grazing. Specifically, BLM would likely be required to consult with the Service on two grazing allotments in riparian habitat that are thought to be unoccupied. Also, a proposed land exchange that has been stalled would likely require a consultation if re-commenced. BLM indicates that in both cases, consultations would likely end at the informal stage. Therefore, BLM foresees only minor impacts associated with the critical habitat designation.

3.2.5 Federal Highway Administration

101. Staff with the Federal Highway Administration (FHA) report that consultations for the red-legged frog arise primarily through FHA funding to the California Department of Transportation (Caltrans).[23] In certain cases, FHA may consult with the Service on Caltrans projects, even when FHA does not provide funding for the project. As a result, FHA already addresses the red-legged frog and its habitat in numerous formal and informal consultations. Nevertheless, FHA believes that critical habitat designation will likely lead to significantly more formal consultations and an increase in the total number of consultations between FHA and the Service. In addition, it is likely that after critical habitat designation the Service will require reinitiations of existing consultations for many ongoing projects. Currently, FHA is developing a programmatic biological assessment to support consultations under the listing in order to reduce the amount of work required. According to FHA, however, the biological assessment may not adequately consider potential adverse modifications to

[22] Personal communication with Wildlife Biologist, Bureau of Land Management, Fulsom, California Field Office, September 15, 2000.

[23] Personal communication with Environmental Specialists, Federal Highway Administration, Sacramento, California Division Office, September 26 and October 5, 2000.

critical habitat and thus consultations on critical habitat may require more effort (i.e., additional assessment work) than the consultations under the listing. Furthermore, FHA will have to include critical habitat considerations in the programmatic biological assessment, thereby increasing the administrative effort necessary for FHA to complete the programmatic biological assessment.

3.2.6 Federal Emergency Management Agency

102. In the past, the Federal Emergency Management Agency (FEMA) has funded repairs of creek banks or slopes that were damaged during disaster events (flood or fire). Some of these repaired riparian areas overlap with proposed critical habitat. The Service consistently encourages FEMA to choose alternative repair activities that have the least impact on frogs. The Service states that, prior to the proposed designation, FEMA has consistently initiated consultations with the Service on activities taking place in areas of proposed critical habitat areas.[24] The Service anticipates that FEMA will continue to consult in the future, but the Service asserts that any new consultations will be attributable to the listing of the species and not the designation of critical habitat. The Service bases this assertion on the fact that future consultations with FEMA are most likely to address areas of occupied frog habitat, for which consultations would have been initiated under the listing of the frog. As a result, the Service does not expect additional consultations attributable solely to the designation of critical habitat.

3.2.7 U.S. Fish and Wildlife Service

103. Although the Service does not manage any lands within the proposed critical habitat units, the Service believes that critical habitat designation will have an impact on its overall work load. An increase in the number of consultations with the other Federal agencies will lead to increased costs for the Service related to the administrative and field work necessary to complete the consultation process. Similarly, an increase in the amount of technical assistance provided by the Service to Federal agencies, state agencies, local municipalities, private landowners will increase costs associated with the time and administrative effort spent in responding to inquiries and developing guidance.

3.2.8 National Park Service

104. In general, the National Park Service (NPS) seeks to minimize impacts to frog habitat by consulting on activities that may affect frogs or their habitat and restricting significant activity in frog habitat. Therefore, staff with both NPS and the Service indicate that critical habitat designation for

[24] Personal communication with U.S. Fish and Wildlife Service Biologist, Sacramento, California Office.

the red-legged frog will not likely affect activities on NPS lands.

Yosemite National Park

105. NPS personnel report that red-legged frogs no longer inhabit Yosemite National Park.[25] Nevertheless, NPS has addressed frog habitat in a consultation with the Service on the Yosemite Valley Plan. Critical habitat has been proposed in areas where no development and little recreational activity take place. Therefore, the NPS expects that critical habitat designation for the frog should have no impact on activities at Yosemite.

Santa Monica Mountains National Recreation Area

106. Proposed critical habitat for the red-legged frog within the Santa Monica Mountains National Recreation Area covers habitat that has historically supported frog populations but is currently unoccupied.[26] Nevertheless, NPS has informally consulted in the past with the Service on activities that could affect frog habitat, such as road work and construction of an amphitheater. NPS does not anticipate that critical habitat designation will result in new formal or additional informal consultations as the staff at the Recreation Area already seeks to manage land in a manner that protects frog habitat.

Pinnacles National Monument

107. According to NPS staff, recreation constitutes the main activity within proposed critical habitat at Pinnacles National Monument.[27] In the past, NPS has formally consulted under the listing of the frog for the reconstruction of a bridge and informally for activities related to the management of an abandoned dump. In the future, NPS expects to consult formally on the removal of the dump and informally on a program to re-establish a frog population in a reservoir. However, both of these activities occur in occupied habitat, so the associated consultations will be attributable to the listing of the frog. NPS is developing a general management plan which will take into account critical habitat for the frog. Therefore, in the view of NPS staff at Pinnacles, critical habitat designation

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[25] Personal communication with Wildlife Biologist, Yosemite National Park, California, September 25, 2000.

[26] Personal communication with Ecologist, Santa Monica National Recreation Area, California, September 26, 2000.

[27] Personal communication with Wildlife Biologist, Pinnacles National Monument, California, September 25, 2000.

should not result in any new consultations at Pinnacles because NPS has historically consulted on activities under the listing of the frog and little activity takes place in the areas proposed for critical habitat designation.

3.2.9 Army Corps of Engineers

108. The Army Corps of Engineers (the Corps) issues wetlands-use permits under section 404 of the Clean Water Act. These permits pertain to the dredging and filling of navigable waters. Any project that involves the deposit of fill or dredge in navigable waters requires a section 404 permit from the Corps. The majority of Federal nexuses to projects on private lands arise through the need to obtain a section 404 permit from the Corps.

Los Angeles Office

109. Conversations with the Corps in southern California indicate that critical habitat designation should not substantially increase work load for this office.[28] The Corps frequently consults with the Service when permitting projects that may affect the frogs, even if the frogs are near the site but not immediately present. The Corps has instituted a programmatic biological opinion with the Service that has greatly reduced the work load associated with its consultations. Corps personnel in Los Angeles foresee few areas in which critical habitat issues alone will require a consultation. The Corps reports that under the critical habitat designation, it will initiate informal consultations with the Service for all projects that fall within the designation area. It is expected that these informal consultations will not go on to the formal stage. Formal consultations could arise when the Service does not concur with a biological assessment from the Corps. Nevertheless, the Corps doesn't anticipate that formal consultations will considerably increase administrative burden.

Sacramento Office

110. Corps staff in the Sacramento division indicate that the areas of the proposed critical habitat units in their district are much broader than the habitat that the Corps considers to contain red-legged frogs (because the units cover entire watersheds).[29] The Corps believes that the breadth of the proposed designation will lead to an increase in the number of consultations required to address issues

[28] Personal communication with Project Engineers, Army Corps of Engineers, Ventura, California Office, September 21, 2000.

[29] Personal communication with Section Chief, Army Corps of Engineers, Sacramento Office, September 22, 2000.

pertaining to the frog and its habitat. The Corps asserts that new consultations will attributable to the critical habitat designation. The Corps also expressed concern about the need to consult with the Service to address section 404 permitting for activities located within upland areas of proposed critical habitat.

San Francisco Office

111. In the past, the Corps in San Francisco has consulted with the Service on a wide range of activities, both formally and informally.[30] These activities include stream channelization, housing development, and commercial development. The Corps in San Francisco believes that the designation of critical habitat for the red-legged frog will result in an increase in the number of formal and informal consultations that are required for these activities. Generally, the Corps will consult informally with the Service on an activity if the Corps deems that it is necessary to do so. Formal consultations arise when the Service does not concur with a biological assessment of the Corps. After the designation of critical habitat, the Corps believes that it will have to consult informally for all projects occurring within the boundaries of critical habitat, including projects for which the Corps would not have consulted without critical habitat designation. If the Service does not concur with the Corps assessment for a project, then the Service could require formal consultation. The Corps indicates that an increase in the number of formal and informal consultations will lead to an increase in the administrative burden associated with the consultation process.

[30] Personal communication with Branch Chief, Army Corps of Engineers, San Francisco Office, November 6, 2000.

3.2.10 Natural Resource Conservation Service

112. The Natural Resource Conservation Service (NRCS) in California oversees several programs that facilitate the conversion or restoration of agricultural lands into wetlands or wildlife habitat.[31] These programs include the wetlands reserve program (WRP), environmental quality incentive program (EQIP), and wildlife habitat incentive plan (WHIP). NRCS also has engaged in the management of small watersheds, including overseeing work on flood control and emergency management measures. In the past, NRCS has worked closely with the Service, both through informal consultations on projects and voluntary collaboration to develop land management plans. Personnel with NRCS indicate that designation of critical habitat for the red-legged frog should not have a significant impact on the management of its programs. Personnel believe that critical habitat may slightly increase the number of informal consultations for EQIP and WHIP. Also, critical habitat designation could possibly lead to some formal consultations for small watershed projects, but these consultations are not expected to create significant effects because these programs do not operate on a large scale. The work of the NRCS generally benefits the frog, as the agency works to enhance and expand wetlands, including areas suitable for frog habitat. Therefore, NRCS does not expect that critical habitat designation for the frog will substantially affect the operations of the agency. In fact, NRCS staff indicate that critical habitat designation should benefit the agency as it will reduce uncertainty about the extent of frog habitat and ensure that NRCS staff do not overlook unoccupied frog habitat in evaluating land for use in programs.

3.2.11 Federal Energy Regulatory Commission

113. The Federal Energy Regulatory Commission (FERC) licenses and inspects private, state, and municipal hydroelectric dams, among other regulatory activities. In the past, FERC has consulted with the Service when hydroelectric dam projects involving FERC have had the potential to affect frogs or frog habitat.[32] In general, FERC manages hydroelectric projects in a manner that protects known frog populations and frog habitat capable of supporting populations in the future. Therefore, it is not likely that critical habitat designation will have a significant impact on the permitting or inspecting activities of FERC.

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[31] Personal communication with state biologists, Natural Resource Conservation Service, Davis, California Office, October 19, 2000.

[32] Personal communication with personnel, Federal Energy Regulatory Commission, San Francisco, October 16, 2000.

Impacts of Critical Habitat on State Lands

114. The Service has proposed approximately 300,000 acres of state land for critical habitat designation for the red-legged frog. Because certain state agencies engage in activities that involve Federal funding or permitting, they may be impacted by the critical habitat designation. Exhibit 3-3 provides a list of state agencies with activities that could be affected by critical habitat designation, describes the activities that could be affected, indicates the source of the Federal nexus, and presents the historical frequency of section 7 consultations for the activity.

Exhibit 3-3

ACTIVITIES ON STATE AND LOCAL LAND WITH POTENTIAL FEDERAL NEXUSES WITHIN PROPOSED CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG

Land Owner	Activities in Proposed Critical Habitat with Potential Federal Nexus	Source of Nexus	Past Consultations for Activity
California Department of Parks and Recreation	Maintenance and construction projects	Section 404 permitting through Army Corps of Engineers	Yes
California Department of Fish and Game	Habitat studies, land acquisitions, wildlife population restoration	Grants and funding through the Service and Bureau of Reclamation	No
California State Water Resources Control Board	Permitting under Clean Water Act sections 401 and 402	Issuance delegated by Environmental Protection Agency	Rarely
California Department of Transportation	Road construction and maintenance	Funding through Federal Highway Administration	Yes

Sources: Personal communication with Wildlife Biologist, U.S. Fish and Wildlife Service and staff from affected State agencies, August, September, and October, 2000.

3.2.12 California Department of Parks and Recreation

115. The California Department of Parks and Recreation (CDPR) operates state parks in California. CDPR does not receive any Federal funding, nor engage in activities that typically require Federal permitting. The only source of a Federal nexus for activities on CDPR land is through section 404 permitting with the Army Corps of Engineers. Therefore, CDPR would only consult with the Service when planning a project requiring a section 404 permit.

Bay Area District

116. Staff from the Bay Area District of CDPR indicate that designation of critical habitat for the red-legged frog should not have any effect on state parks in Units 14 and 15.[33] For any planned or proposed action, CDPR already take into account impacts to endangered species. Additionally, CDPR follows the basic assumption that all of the land proposed for critical habitat designation is occupied. The only costs that could arise from critical habitat designation are those due to additional analysis that might be necessary to address critical habitat in consultations under the listing. However, this additional analysis should not significantly increase the administrative burden on CDPR.

Silverado District

117. Annadel State Park in Unit 8 contains the only proposed critical habitat in the Silverado district.[34] CDPR staff indicate that proposed critical habitat in Annadel State Park consists of Ledson Marsh, which covers 35 acres, is impounded by a historic dam, and is encircled by a road. The dam requires occasional repair work. Though no funding or plans exist for work on the dam, if work were to occur in the future, CDPR would have to consult with the Service. Similarly, any maintenance or construction on the road would require consultation. Ledson Marsh is, however, currently occupied by the red-legged frog, so future consultations would likely be attributable to the listing and not solely the critical habitat designation.

3.2.13 California Department of Fish and Game

118. The California Department of Fish and Game (CDFG) manages fish, wildlife, plant resources, and associated habitats for the State of California. In doing so, CDFG sometimes uses grants and funding from the Service and the Bureau of Reclamation for habitat studies, wildlife reintroduction programs, and restoration and rehabilitation of wildlife habitat. These funding sources create a Federal nexus for CDFG activities, so CDFG would have to consult with the Service if any activity using Federal funding had the potential to affect critical habitat for the frog.

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[33] Personal communication with District Ecologist, California Department of Parks and Recreation, Bay Area District, September 18, 2000.

[34] Personal communication with Senior Resource Ecologist, California Department of Parks and Recreation, Silverado District, September 26, 2000.

San Joaquin Valley-Southern Sierra Region

119. Conversations with CDFG staff reveal that past consultations have not arisen for activities affecting the red-legged frog or its habitat.[35] The CDFG has consulted with the Service on other species, and anticipates that in the future it could consult on activities that involve the direct take of the frog. Such consultations would be due to the listing of the frog and not designation of critical habitat. In general, CDFG believes that critical habitat designation should not greatly affect activities in the San Joaquin Valley-Southern Sierra Region. It is possible that the designation could lead to a small increase in informal, and possibly even formal consultations, but the likelihood is not great, as most activities on CDFG land involving a Federal nexus do not affect the frog.

3.2.14 California State Water Resources Control Board

120. The California State Water Resources Control Board (CSWRCB) issues wetlands-use permits associated with sections 401 and 402 of the Clean Water Act. Even though these are Federal permits, the Environmental Protection Agency (EPA) has delegated the authority to issue the permits to regional water quality control boards of CSWRCB. Therefore, CSWRCB has a Federal nexus through the Federal permits it issues, and must consult with the Service under section 7 of the Act. Section 401 permits pertain to how section 404 permits issued by the Corps relate to California state environmental laws. Section 402 permits pertain to wastewater disposal through the National Pollutant Discharge Elimination System (NPDES) program of the EPA. The activities of water quality control boards in four regions have the potential to be affected by the designation of critical habitat for the red-legged frog. The Service indicates that Federal nexuses to the activities of the different water quality control boards rarely result in formal consultations.[36]

San Francisco Bay Regional Water Quality Control Board

121. In general, San Francisco Bay Regional Water Quality Control Board staff indicate that the critical habitat designation should have a minimal impact on section 402 NPDES permitting because extant restrictions on waste-water discharge significantly reduce the amount of discharge into frog

[35] Personal communication with Conservation Planning Supervisor, California Department of Fish and Game, San Joaquin Valley-Southern Sierra Region, September 26, 2000.

[36] Personal communication with Wildlife Biologist, U.S. Fish and Wildlife Service, Sacramento, California Office, October 12, 2000.

habitat.[37] The only area in which personnel foresee a potential impact is urban run-off and storm water overflow. In this case, critical habitat designation could lead to an increase in informal consultations, but will not likely result in any substantial impacts as the San Francisco Bay Regional Water Quality Control Board already works to minimize the effects of runoff. Critical habitat designation should not affect section 401 permitting, as the San Francisco Bay Regional Water Quality Control Board already evaluates the impact of activities to endangered species and consults with the Service on issues affecting the red-legged frog.

Central Valley Regional Water Quality Control Board

122. The Central Valley Regional Water Quality Control Board indicates that informal consultations with the Service have taken place for issues related to the frog.[38] Typically these informal consultations consist of sending a copy of the permit application to the Service. Critical habitat designation for the frog is not expected to have a substantive effect on the number of consultations related to section 402 NPDES permitting. In general, Central Valley Regional Water Quality Control Board staff believe that the number of informal consultations will increase slightly, but do not foresee any significant administrative burden associated with this increase. On the other hand, it is possible that critical habitat designation could lead to a larger increase in the number of informal consultations for section 401 permitting. Again, however, the administrative burden due to the increased consultations should not lead to a significant increase in costs. Critical habitat designation will not likely necessitate new formal consultations for section 401 or section 402 permitting.

Santa Ana Regional Water Quality Control Board

123. Personnel with the California Regional Water Quality Control Board - Santa Ana Region report that, in the past, the Santa Ana Board has not consulted formally with the Service either for section 401 or section 402 permits.[39] Typically, the Santa Ana Board sends copies of permitting licenses to the Service for approval. This process has never led to more substantive consultations. In general, the Santa Ana Board feels that the water quality standards set by CEQA address any

[37] Personal communication with Watershed Management Division Chief, San Francisco Bay Regional Water Quality Control Board, September 22, 2000.

[38] Personal communication with Assistant Executive Officer, Central Valley Regional Water Quality Control Board, September 22, 2000.

[39] Personal communication with Chief of Regulations Section, California Regional Water Quality Control Board - Santa Anna Region, September 25, 2000.

endangered species issues before a project reaches the stage of applying for a section 402 NPDES permit. Critical habitat designation will not likely change the activities of the Santa Ana Board or lead to an increase in consultations.

3.2.15 California Department of Transportation

124. The California Department of Transportation (Caltrans) maintains and builds highways, as well as railroads and mass transit lines, for the State of California. Most road projects planned and carried out by Caltrans involve a Federal nexus through funding from the Federal Highway Administration (FHA). Traditionally, Caltrans has initiated numerous informal consultations with the Service through FHA. According to Caltrans personnel, critical habitat designation will lead to an increase in the number of formal consultations.[40] Caltrans personnel indicate that highway construction often takes place along streams, and that the proposed designation includes many areas which have on-going or planned highway projects. In the past, Caltrans would address unoccupied frog habitat affected by a highway project through informal consultation. Under critical habitat designation, however, Caltrans will be required to enter into formal consultations to address unoccupied critical habitat.

3.2.16 Impacts of Critical Habitat on Private Lands

125. The Service has proposed approximately 3.3 million acres of private land (approximately 61 percent of the total designation) as critical habitat for the red-legged frog. This proposed designation could affect private landowners through costs associated with increased time spent seeking technical assistance from the Service, costs due to an increase in the number of section 7 consultations, and the costs of modifying projects subject to section 7 consultation. The proposed designation of critical habitat on private lands can only affect activities involving a Federal nexus, such as development, flood control, mining, agriculture, and ranching. The potential impacts to these activities are considered individually. Exhibit 3-4 summarizes activities and potential Federal nexuses of private landowners in the proposed critical habitat area for the red-legged frog.

[40] Personal communication with personnel, California Department of Transportation, Sacramento, Office, September 26, 2000.

Exhibit 3-4
ACTIVITIES WITH POTENTIAL FEDERAL NEXUSES ON PRIVATE LANDS IN PROPOSED CRITICAL HABITAT FOR THE RED-LEGGED FROG

Potentially Affected Activities	Federal Nexus	Historical Frequency of Consultation for Activity
Residential and industrial development	Section 404 permitting through the Army Corps of Engineers	Frequent
Flood control and emergency repair	Funding from Federal Emergency Management Administration, Section 404 permitting through the Army Corps of Engineers	Frequent
Sand and gravel mining	Section 404 permitting through the Army Corps of Engineers	Infrequent
Crop farming	Section 404 permitting through the Army Corps of Engineers, Federal farm subsidies	Rare
Grazing	Federal farm subsidies, funding from Natural Resources Conservation Service	Rare

Sources: Personal communications with Wildlife Biologists, U.S. Fish and Wildlife Service, August, September, and October, 2000.

126. Exhibit 3-5 addresses, on a unit-by-unit basis, land uses that the Service believes could potentially affect red-legged frog habitat within private lands and Federal nexuses associated with these land uses.

Exhibit 3-5
LIKELY USES OF PRIVATE LAND PROPOSED FOR RED-LEGGED FROG CRITICAL HABITAT BY UNIT

Critical Habitat Unit	Land Uses and Activities	Agency Source of Potential Federal Nexuses
1 North Fork Feather	Timber harvesting, mining, and grazing	U.S. Forest Service
2 South Fork Feather-Indian Creek	Timber harvesting, mining, and grazing	U.S. Forest Service
3 Weber Creek-Cosumnes	Primarily timber harvesting and grazing, potential for development in western portion	U.S. Forest Service, Army Corps of Engineers
4 South Fork Calaveras River	Timber harvest, grazing, and recreation (mainly off-highway vehicles)	U.S. Forest Service; Bureau of Land Management
5 Yosemite	Timber harvesting, grazing, and recreation	U.S. Forest Service, National Park Service
6 Headwaters of Cottonwood Creek	Primarily grazing, timber harvesting	National Resource Conservation Service, Army Corps of Engineers, U.S. Forest Service
7 Cleary Preserve	Minimal use	Army Corps of Engineers

Exhibit 3-5
LIKELY USES OF PRIVATE LAND PROPOSED
FOR RED-LEGGED FROG CRITICAL HABITAT BY UNIT

Critical Habitat Unit	Land Uses and Activities	Agency Source of Potential Federal Nexuses
8 Annadel State Park Preserve#	Recreation and rural residential area	Army Corps of Engineers
9 Stebbins Cold Canyon Preserve	Minimal use	Army Corps of Engineers
10 Sears Point	Grazing and expansion of a race track	Army Corps of Engineers
11 American Canyon*	Grazing, potential for housing development	Army Corps of Engineers
12 Point Reyes#	Grazing and rural residential development	National Park Service; Corps of Engineers
13 Tiburon Peninsula	Grazing	Army Corps of Engineers
14 San Mateo-Northern Santa Cruz	Grazing and farming	Army Corps of Engineers
15 East Bay-Diablo Range	Grazing, potential development in Alameda Contra and Costa County	Army Corps of Engineers, Bureau of Reclamation
16 Pajaro River	Grazing, farming, residential and golf-course development, mining	Army Corps of Engineers, Natural Resource Conservation Service, National Marine Fisheries Service, Federal Highway Administration
17 Elkhorn Slough-Salinas River	Farming, grazing, equestrian centers, urban development, recreation, water diversion	Army Corps of Engineers, Natural Resource Conservation Service, National Marine Fisheries Service, Federal Highway Administration
18 Carmel River	Water diversion, damn construction and maintenance, farming, residential development	National Marine Fisheries Service, Army Corps of Engineers
19 The Pinnacles	Resource conservation, recreation	Army Corps of Engineers, National Park Service, Federal Highway Administration
20 Estrella River/Cholame Creek	Grazing, farming, urban development	Army Corps of Engineers, Federal Highway Administration
21 San Simeon -Morro Bay	Habitat restoration, wastewater system construction, residential development	U.S. Fish and Wildlife Service, Army Corps of Engineers
22 Lopez Lake-Arroyo Grande Creek	Dam maintenance, farming, urban development	Army Corps of Engineers, National Marine Fisheries Service, Natural Resource Conservation Service
23 Coastal Dunes	Oil production and associated remediation, recreation, farming, grazing, resource protection	U.S. Air Force, Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency

Exhibit 3-5
LIKELY USES OF PRIVATE LAND PROPOSED
FOR RED-LEGGED FROG CRITICAL HABITAT BY UNIT

Critical Habitat Unit	Land Uses and Activities	Agency Source of Potential Federal Nexuses
24 Santa Ynez River	Farming, grazing, vineyard cultivation, development, recreation, oil-spill remediation, water diversion	Natural Resource Conservation Service, U.S. Air Force, U.S. Forest Service, Army Corps of Engineers, U.S. Environmental Protection Agency
25 Sisquoc River	Recreation, vineyard cultivation, farming, grazing	Natural Resource Conservation Service, U.S. Forest Service, Army Corps of Engineers, U.S. Environmental Protection Agency
26 Coastal Santa Barbara	Recreation, development, oil development, grazing	Army Corps of Engineers, National Park Service, U.S. Environmental Protection Agency
27 Matilija-Sespe-Piru Creek	Flood control, recreation, highway maintenance, dam removal, farming, mining	Army Corps of Engineers, U.S. Forest Service, Bureau of Reclamation, Federal Highway Administration
28 San Francisquito-Amargosa Creek	Residential development, recreation	Army Corps of Engineers, U.S. Forest Service
29 Malibu Coastal	Residential development, parkland maintenance, flood control	Army Corps of Engineers, National Park Service
30 Santa Rosa Plateau/Santa Ana Mountains	Residential and golf-course development	Army Corps of Engineers
31 Tujunga	A small amount of recreation and residential development on private inholdings within the Angeles National Forest	Army Corps of Engineers

Sources: Personal communications with Wildlife Biologists, U.S. Fish and Wildlife Service Sacramento, October and November, 2000.
Notes: *Approximately five to ten percent of private of private land proposed for critical habitat in this unit has been zoned for residential development.
Area is zoned for approximately 1-2 houses per 5-100 acre.

127. At the time of the publishing of this draft report, detailed quantitative data were not available on specific uses of private lands potentially affected by critical habitat designation due to an existing Federal nexus. Before completion of the final economic analysis, additional information will be solicited on development, mining, flood control and emergency repair, farming, and grazing activities impacted by the critical habitat designation, from the following sources:

- public comments submitted on the proposed critical habitat designation;
- transcripts of public hearings on the proposed critical habitat designation;

- public comments or public hearing transcripts on critical habitat designations for similar species;
- development and construction industry associations; and
- county and regional planning boards.

Development

128. Significant development activity is occurring or is likely to occur in several areas proposed as critical habitat for the red-legged frog. Baseline economic data in Section 2 reveal that construction is an important industry in many counties containing proposed critical habitat and that a considerable amount of housing development is taking place in these counties, as evidenced by large increases in the number of housing units over the last ten years. Service personnel indicate that the development most likely to take place in areas of critical habitat consists of construction of homes, small-scale commercial developments, and golf courses.[41]

129. The designation of critical habitat for the red-legged frog may lead to reinitiated, new, or additional consultations between the Service and other Federal agencies to address activities on private land. On-going projects for which a consultation has been completed under the listing will sometimes require a reinitiation in order to address critical habitat issues. Critical habitat designation may result in new or additional consultations in one of two ways. One scenario includes projects that will require consultations as a result of critical habitat, when consultations most likely would not have occurred prior to the designation. The other scenario pertains to projects that would have required only informal consultations prior to critical habitat designation but will require formal consultations under the designation in order to address concerns about project impacts on critical habitat. In either case, the net result is that certain development projects will be subject to expanded or reinitiated consultations and potential project modifications that would not have occurred in the absence of critical habitat designation.

130. The Service indicates that critical habitat designation for the red-legged frog could most likely result in increased consultations and project modifications for development on private land in Alameda and Contra Costa Counties. To estimate the number of units that potentially could be affected, the number of new housing units built in each county over the period 1990 to 2000 was divided by the total area of each county in acres to estimate the number of new units per acre. This value was then multiplied by the area proposed for critical habitat designation on private land to estimate the potential number of new housing units in critical habitat. This approach results in an estimate of 17,924 and 11,400 new units projected to be built on privately owned critical habitat in Alameda and Contra Costa Counties, respectively, over the next ten years. This approach most likely

[41] Personal communication with Wildlife Biologist, U.S. Fish and Wildlife Service, Sacramento, California, Office, September 8, 2000.

overestimates the number of units likely to trigger new or reinitiated consultations for two reasons. First, not all projects on private land will have Federal nexuses or will require consultations with the Service. Second, the Service has proposed critical habitat in areas that, in general, extend beyond the urban limit lines of current planning areas, where development pressures are less intense.

Flood Control and Emergency Repair

131. In the past the Service has consulted with the Federal Emergency Management Agency (FEMA) and the Army Corps of Engineers to address concerns about the frog and its habitat that stem from projects intended to control and prevent floods and from emergency projects to repair damage from floods.[42] In the future, the Service expects that new consultations will occur with FEMA and the Corps, but the Service asserts that these new consultations will most likely be attributable to the listing of the species and not the designation of critical habitat. The Service bases this assertion on the fact that consultations with FEMA and the Corps are most likely to address areas of occupied frog habitat, for which consultations would be attributable to the listing of the frog. Therefore, the impact of critical habitat designation on flood control and emergency repair on private lands should be minimal.

Sand and Gravel Mining

132. Sand, gravel, and placer mining generally occur in streambed areas and therefore involve a Federal nexus through section 404 permitting by the Army Corps of Engineers. Mining activities are especially prevalent in the Sisquoc River and Piru Creek basins (Units 25 and 27 respectively). The Piru Creek has been classified by the California Department of Fish and Game (CDFG) as Class A, a designation that restricts dredging (including in river mining) activities in this river. Because mining activities along the Piru Creek (and other Class A rivers) are already prohibited by CDFG restrictions, the Service does not expect any additional restrictions on land uses in this area as a result of critical habitat designation.

133. Historically, the Service has infrequently consulted about mining on private property for issues relating to the frog. Because formal consultations have not occurred to address mining operations, critical habitat designation could possibly lead to new or incremental consultations and project modifications for businesses involved in mining activities on private lands. Sand, gravel, and placer mining is, however, already subject to substantial regulation under CEQA and the California Department of Fish and Game, so the incremental impacts resulting from critical habitat designation may be small on account of extant regulatory restrictions. Overall, the Service is not aware of any

[42] Ibid, October 27, 2000.

mining operations that are likely to be affected by designation of critical habitat for the red-legged frog.[43]

Farming and Grazing

134. A number of agricultural activities occur in areas proposed as critical habitat for the red-legged frog. These include ranching and various types of farming (including vineyard cultivation). It is possible that Federal farming subsidies would constitute a Federal nexus for both farming and grazing in the proposed critical habitat. However, Service personnel indicate that, in general, grazing and farming on private lands do not involve Federal nexuses. Therefore, the Service has historically not consulted for either farming or grazing on private lands. As a result, the designation of critical habitat will likely have no effect on these activities.

3.2.17 Economic Costs of Critical Habitat Designation

135. This section describes the total economic costs likely to result from the designation of critical habitat for the red-legged frog over the next ten years. Incremental costs fall into two categories: (1) costs associated with incremental section 7 consultations and technical assistance provided by the Service, and (2) costs associated with changes in the scope or design of development projects, as well as modifications to recreation, grazing, and timber harvesting activities. It should be noted that the costs presented here reflect the Service's best estimates of likely impacts on the average or "typical" development project and activity located within the boundaries of the designation, rather than estimates derived through primary research of specific projects or land uses. Additional limitations associated with specific cost estimates are described in detail at the end of this section.

Consultation Costs

136. Estimates of the increase in the amount of technical assistance provided and the number of incremental consultations attributable to the designation of critical habitat for the frog are based on an analysis of historical data describing similar efforts that occurred under the listing of the red-legged frog. This analysis was supplemented by information provided by the Service on the likelihood that critical habitat designation will necessitate additional technical assistance and consultations. In providing this information, Service staff considered the potential presence of other listed species, the ownership of the land, the likelihood of a Federal nexus, and the amount of land for which specific information about the presence of frogs is unavailable. It should be noted that the Service alone makes the final determination regarding the necessity of a consultation for a specific project involving a Federal nexus. The Service also determines whether a given consultation will be formal or informal.

[43] Ibid, October 27, 2000.

137. The estimated number of incremental consultations presented here is suggestive. The actual number of incremental consultations, which may be lower or higher than these estimates, depends on future economic activity within the areas of critical habitat, as well as the decisions of private, state, local, and Federal landowners. While the Service can identify currently known or planned activities and land uses that will likely require incremental consultations as a result of the designation of critical habitat, the Service can in no way speculate on the effect of critical habitat designation on activities and projects that are not currently known or proposed. Similarly, the analytic approach used to derive the estimated number of consultations cannot account for unknown or unforeseen activities and projects. Therefore, the estimates presented here represent reasonable approximations and should not be interpreted as firm predictions.

138. This analysis estimates that in the next ten years critical habitat designation for the red-legged frog will result in the following actions:

- 1,400 occasions on which the Service offers technical assistance,
- 750 informal consultations,
- 650 formal consultations, and
- 50 reinitiations of consultations initiated under the listing of the frog.

139. In some cases, these actions will involve the Service and another Federal agency only. More often, they involve the Service and a Federal agency acting on behalf of a third party for projects on non-Federal lands involving a Federal nexus. Typical third parties involved include a California state agency, a local municipality, or a private landowner. Based on historical records, it is likely that the majority of technical assistance efforts and consultations for the red-legged frog will involve a third party whose land use involves a Federal nexus. Exhibit 3-7 presents the estimated number of technical assistance efforts and consultations likely to occur in the ten years after the designation of critical habitat for the red-legged frog.

Exhibit 3-7

TOTAL ESTIMATED NUMBER OF INCREMENTAL CONSULTATIONS ATTRIBUTABLE TO DESIGNATION OF CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG, 2001 TO 2010

Action	Federal Agency Only	Federal Agency and Third Party	Total
Technical Assistance	n/a	1400	1400
Informal Consultation	300	450	750
Formal Consultation	260	390	650
Reinititaion of Consultation	20	30	50

Source: IEc analysis based on data from U.S. Fish and Wildlife Service Sacramento field office and information provided by Wildlife Biologists, U.S. Fish and Wildlife Service Sacramento, Ventura, and Carlsbad field offices.
Notes: Third parties comprise California state agencies, local municipalities, and private landowners.

140. Estimates of the cost of an individual consultation were developed from a review and analysis of historical section 7 files from a number of Service field offices around the country. These files addressed consultations conducted for both listings and critical habitat designations. Cost figures were based on an average level of effort for consultations of low, medium, or high complexity, multiplied by the appropriate labor rates for staff from the Service and other Federal agencies. These estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during both formal and informal consultations, as well as the varying degrees of complexity of consultations. Costs associated with these efforts include the cost of conducting a biological assessment as well as administrative effort, such as time spent in meetings, preparing letters, and making phone calls. Cost estimates for technical assistance are based on analysis of past technical assistance provided by the Carlsbad field office.

141. Low- and high-ends of the cost range provided here represent different assumptions about the degree of complexity of technical assistance, informal and formal consultation, and biological assessment. High-end estimates assume a greater degree of difficulty for technical assistance, informal and formal consultation, and biological assessment than the low-end estimates.

142. Exhibit 3-8 displays the estimates of consultation costs associated with the designation. Based on this analysis, the total incremental cost of consultations attributable to critical habitat designation for the frog will range between $1.1 million and $1.7 million per year. The majority of these costs will be borne by the Federal government, with the Service incurring annual costs of $150,000 to $330,000 and other Federal agencies incurring annual costs of $500,000 to $780,000. Costs to the State of California, local municipalities, and private landowners may range from $450,000 to $540,000 per year.

Exhibit 3-8
ESTIMATED PER YEAR CONSULTATION COSTS ATTRIBUTABLE TO DESIGNATION OF CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG

Action	Range	Costs to the Service	Costs to Other Federal Agencies	Costs to Third Parties	Total Costs
Technical Assistance	***Low***	$10,000	$0	$0	$10,000
	High	$10,000	$0	$30,000	$40,000
Informal Consultation	***Low***	$40,000	$180,000	$220,000	$440,000
	High	$100,000	$350,000	$250,000	$700,000
Formal Consultation	***Low***	$90,000	$300,000	$210,000	$600,000
	High	$200,000	$400,000	$240,000	$840,000
Reinitiation	***Low***	$10,000	$20,000	$20,000	$50,000
	High	$20,000	$30,000	$20,000	$70,000
Total	***Low***	$150,000	$500,000	$450,000	$1,100,000
	High	$330,000	$780,000	$540,000	$1,650,000

Source: IEc analysis based on data from U.S. Fish and Wildlife Service Carlsbad field office and information from Wildlife Biologists in U.S. Fish and Wildlife Service Sacramento, Ventura, and Carlsbad field offices.
Notes: Third parties comprise California state agencies, local municipalities, and private parties.

143. Exhibit 3-9 summarizes the aggregated costs of consultations attributable to the designation of critical habitat, annualized over the next ten years. From 2000 to 2010, the annualized cost of the critical habitat designation is estimated to range from $9.1 million to $13.8 million. The Federal government will incur the majority of this cost, with the Service incurring costs of $1.2 to $2.9 million and other affected Federal agencies incurring $4.5 to $6.9 million in costs. Annualized costs to the State of California, local municipalities, and private landowners may range from $3.4 to $4.0 million.

Exhibit 3-9
ESTIMATED ANNUALIZED TOTAL CONSULTATION COSTS ATTRIBUTABLE TO DESIGNATION OF CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG, 2001 to 2010

Range	Total Costs to the Service	Total Costs to Other Federal Agencies	Total Costs to Third Parties	Total Costs
Low	$1,200,000	$4,500,000	$3,400,000	$9,100,000
High	$2,900,000	$6,900,000	$4,000,000	$13,800,000

Source: IEc analysis based on data from U.S. Fish and Wildlife Service Carlsbad field office and information provided by Wildlife Biologists, U.S. Fish and Wildlife Service Sacramento, Ventura, and Carlsbad field offices.
Notes: Third parties comprise California state agencies, local municipalities, and private landowners. Estimates for the Federal agencies were annualized using a three percent discount rate. Estimates for third parties were annualized using a seven percent discount rate.

Costs of Typical Project Modifications

144. Historically, the Service has rarely, if ever, consulted with a Federal Agency on an action that would impact only red-legged frog critical habitat without also affecting frog populations. Thus, it is highly speculative to predict the type and number of modifications that would be required to avoid adverse modification of critical habitat. Project modifications required due to critical habitat designations will vary on a project-by-project basis, based in part on the activity, size, and scope of the proposed Federal action. Furthermore, many of these proposed project modifications could be attributed solely to Federal agencies exercising their authority to further the purposes of the Act, rather than to the designation of critical habitat. For example, the U.S. Forest Service typically incorporates buffers and implements minimization measures to ensure that activities (e.g., grazing) in National Forests in the Sierra Nevada do not affect the ability of frogs to utilize the area when and if they return.

145. Given the speculative nature of predicting potential modifications, which generally result from the section 7 consultation process, this analysis does not forecast likely modifications. Instead, it evaluates typical projects and activities that take place in the areas designated as frog habitat, including development, grazing, timber harvesting, and recreation, and then calculates an average cost of modifying these typical projects in ways that reduce adverse effects on habitat.

Housing/Residential Development

146. According to the Service, modifications to current or planned residential development projects are most likely to occur on designated critical habitat within Unit 15 (primarily Alameda and Contra Costa Counties). As noted above, predicting the nature of project modifications is speculative, due the variability of individual projects, and the difficulty inherent in predicting future land use patterns. However, based on a review of the history of consultations which addressed development in this area and other regions under listing of the red-legged frog, the Service finds that, on average, adjustments to the scope or design of a typical development range from minor to relatively significant changes. For example, a typical change to a one-hundred acre development may consist of avoidance of three to five acres of sensitive wetland area. Based on a review of historical modifications to housing projects that occurred under the listing of the frog, this analysis makes a conservative assumption that, on average, changes to the scope of a typical development project will reduce the number of housing lots developed to their "highest and best use" by 1.0 to 2.5 percent. This number should be considered an upper bound of the economic impacts on development projects, as developments subject to modifications can often be redesigned in a manner that allows a developer to realize the full revenue potential of the project.

147. Using this assumption, this analysis arrives at an estimate of the average cost of a decrease in profitability caused by a reduction in the number of fully developable lots. Other assumptions used to derive this estimate include:

- The average development in these counties is zoned for 100 units, all of which are sold at the median market value;
- Median home values in Alameda County and Contra Costa Counties, respectively, are $370,000 and $473,000;
- The pace of development in Unit 15 over the next ten years will mirror trends of the previous decade, and the number of average developments built in Alameda County and Contra Costa Counties, respectively, will be 179 and 114;
- Average margin of profit on each housing unit that is developed to its highest and best use is ten percent.

148. Exhibit 3-10 summarizes the costs of reduced profitability associated with project modifications which substantially change the scope of development projects.

Exhibit 3-10
POTENTIAL COSTS ASSOCIATED WITH MODIFICATIONS TO TYPICAL DEVELOPMENT PROJECTS, 2001-2010

County	Median Home Price	Lots Not Developed Due to Modification	Cost of Reduced Profit per Project	Number of Projects Projected to Occur Within Critical Habitat	Annual Costs of Project Modifications	Sum of Annualized Cost of Modifications
Alameda	$371,000	1% to 2.5 %	$37,000 to $93,000	179	$665,000 to $1.7 million	$4.1 to $10.2 million
Contra Costa	$473,000	1% to 2.5 %	$47,000 to $118,000	114	$540,000 to $1.4 million	$3.3 to $8.3 million

Source: California Realtors Association data for June through September, 2000 and IEc analysis based on data from U.S. Fish and Wildlife Service Carlsbad field office and information provided by Wildlife Biologists, U.S. Fish and Wildlife Service Sacramento field office.
Notes: These estimates assume an average profit margin of ten percent on each project, and that the average development project consists of 100 housing units. Cost estimates were annualized using a ten percent rate of discount. Annual figures may differ from individual estimates due to rounding.

Grazing

149. Service staff indicate that 50 percent of the expected incremental consultations in Units 1, 2, 4, and 6 will likely result from grazing activities on Federal lands. Of these 65 consultations, the Service estimates that 20 to 25 percent will result in the need for modifications or changes to grazing practices. In most cases, the preferred modification to grazing will require construction of new fencing in order to protect riparian areas. Assuming that: (1) the average fencing project extends ten to fifteen miles in length; (2) installation of fencing costs $5,000 per mile; and (3) fencing will be installed on both sides of a creek or riparian area. Given this, the average cost of the typical modification to grazing in these areas equals approximately $100,000 to $150,000. Exhibit 3-11 displays this cost estimate, including the sum of annualized costs over the next decade.

Exhibit 3-11
ESTIMATED COSTS ASSOCIATED WITH
MODIFICATIONS TO GRAZING PRACTICES, 2001 to 2010

Units	Likely Number of Consultations Addressing Grazing	Percent of Consultations Requiring Project Modifications	Estimated Number of Modifications	Cost per Project Modification	Annual Costs of Project Modifications	Sum of Annualized Costs of Modifications
1, 4, 5, 6	65	20% to 25%	13 to 16	$100,00 to 150,000	$130,000 to 240,000	$1.1 to $2.1 million

Source: IEc analysis based on data from U.S. Fish and Wildlife Service Sacramento field office.
Notes: Estimates were annualized using a 3 percent rate of discount. This analysis assumes 1.3 to 1.6 modifications per year.

Timber Harvesting

150. The Service anticipates negligible reduction in allowable timber harvesting in National Forest as a result of critical habitat designation for the red-legged frog. Service staff indicate that few, if any, incremental consultations are likely to result from timber harvesting conducted by the U.S. Forest Service (USFS). As noted previously in this report, new consultations are unlikely because the USFS does not frequently authorize timber harvests within riparian areas.[44] Therefore, it is unlikely that project modifications will occur as a result of section 7 consultations that address the impacts of timber harvesting on frog habitat.

[44]*California reg-legged frog (*Rana aurora draytonii*) Recovery Plan* and personal communication with USFS staff, November 29, 2000.

Recreation

151. The Service expects that few, if any, modifications or changes to recreation activities will result from critical habitat designation for the frog. While the Service will likely consult with USFS on the use of public campgrounds located within critical habitat boundaries on National Forest lands, modifications to or restrictions on camping will likely be minimal, as campgrounds can often be relocated in order to avoid affecting the primary constituent elements. In rare instances, some campground closures may occur. Because comparable camping options are widely available in these regions, however, overall economic impacts are expected to be minimal.

Summary of Project Modification Costs

152. Exhibit 3-12 summarizes economic impacts associated with typical project modifications. In summary, housing development and grazing constitute the activities that will most likely be subject to project modifications resulting in significant incremental costs. For a typical, 100-unit housing development project in Unit 15 (primarily Alameda and Contra Costa Counties) this analysis finds that approximately $37,000 to $118,000 in reduced profits may result from project modifications. Grazing operations in Units 1, 4, 5, and 6 may incur costs between $100,000 and $150,000 to install fencing along both sides of a riparian areas. Project modifications associated with timber harvesting and recreational activities in National Forests, on the other hand, are likely to result from the listing of the frog rather than critical habitat designation. Furthermore, the Service expects that in cases where recreational opportunities may be modified as a result of critical habitat designation, the availability of comparable sites should compensate for any lost opportunities.

Exhibit 3-12
SUMMARY OF SELECT PROJECT MODIFICATION COSTS ATTRIBUTABLE TO DESIGNATION OF CRITICAL HABITAT FOR THE CALIFORNIA RED-LEGGED FROG

Land Use	Affected Units Considered in Cost Assessment	Estimated Costs of Project Modifications
Housing and development	15	Approximately $37,000 to $118,000 in reduced profit on an average 100-unit housing development in Unit 15
Grazing	1, 4, 5, 6	$100,000 to $150,000 in construction costs for a typical fencing project of ten to 15 miles in length
Timber harvesting	1 to 6, 31	Negligible; minimal reduction in allowable timber harvesting in National Forests due to critical habitat
Recreation	4, 5, 8, 10, 17, 19, 25, 26	Negligible; limited campground closures and reduction of visitation due to critical habitat, and comparable substitutes for most areas are readily available

Source: IEc analysis based on information provided by Wildlife Biologists, U.S. Fish and Wildlife Service Sacramento, Ventura, and Carlsbad field offices.

Limitations of the Cost Analysis

153. While these cost estimates reflect the best information currently available on the impacts of critical habitat for the red-legged frog, it is important to account for certain limitations and uncertainties associated with the quantitative results. Limitations associated with the estimates of costs of consultations and project modifications are described below.

Consultation Cost Estimates

154. It is likely that the estimates of consultation costs presented in this analysis *overestimate* the actual costs associated with section 7 consultations for redlegged frog critical habitat, for the following reasons:

- **Use of historical data:** This analysis projects that over the next ten years, the number of section 7 consultations likely to be conducted closely tracks the frequency of historical consultations. However, it is possible that the frequency of consultations will decrease over time because many projects and activities will be addressed by one or a few section 7 consultations initiated around the time of the project's inception, rather than repeated consultations over a ten-year period. This is especially true of critical habitat units where

one or two major landowners dominate, because it is unlikely that one landowner will propose multiple projects that may affect habitat.

- **Doublecounting:** Doublecounting of consultation costs may arise from two factors: (1) Section 7 consultations often address potential impacts of a given activity or project on multiple listed species and/or critical habitat designations rather than addressing individual species and/or designations in separate consultations. The cost estimates presented in this analysis, however, attribute all of the administrative effort associated with a given project or activity to the presence of only the frog, and not to other species or designations that overlap with the frog designation. Therefore, these figures probably overestimate the true costs of consultations associated with the designation for the frog. (2) In this case, the cost of formally consulting on a project that had been addressed previously during an informal consultation should be significantly less than the cost of a newly initiated formal consultation, as some biological survey costs were probably incurred during the informal consultation. These cost estimates, however, assume that all formal consultations performed due to the frog designation begin with no prior administrative or biological work, and thereby overestimate actual costs of formal consultations which evolve from informal consultations.

Project Modification Costs

- **Data limitations:** Rather than generating speculative estimates of potential modifications to specific projects on an exhaustive, case-by-case basis, this analysis models modifications to a select group of average or "typical" development projects and representative grazing, timber, and recreation projects located within frog critical habitat. Actual modification costs will vary significantly according to the specific characteristics of individual projects and consultation outcomes, which are difficult to predict with accuracy. Hence, these estimates do not reflect the aggregate costs of all likely project modifications associated with the designation. Rather, these estimates represent reasonable approaches which are appropriate to apply in similar contexts when project-specific data are available.

- **Development costs:** Cost estimates for modifications to development projects located in Unit 15 are limited by several factors: (1) The pace of development in Unit 15 over the next ten years is assumed to mirror development patterns in this area over the last decade. In reality, future development patterns in this area are uncertain and may vary from the historical scenario considerably, depending on economic conditions during

over time period, state and local laws and restrictions, and a host of other factors. (2) The assumption that up to 2.5 percent of a typical 100-unit development project will not be developed to its highest and best use is conservative, and is likely to overstate the influence of potential project modifications. According to the Service, developers are often able to redesign projects to avoid adverse effects on critical habitat without significantly reducing potential revenue from home sales or commercial activity.

3.3 ADDITIONAL IMPACTS DUE TO PROPOSED CRITICAL HABITAT

155. This section considers additional economic and socioeconomic impacts of designating critical habitat for the California red-legged frog. Specifically, this section addresses:

- Potential impacts to small businesses;
- Potential social and community impacts for Native American communities;
- Potential impacts associated with project delays; and
- Potential impacts on property values attributable to public perception or uncertainty about proposed critical habitat or both.

3.3.1 Potential Impacts to Small Businesses

156. Under the Regulatory Flexibility Act, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996, whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).[45] However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities.

157. Small businesses in the construction and development industry could potentially be affected by the designation of critical habitat for the red-legged frog if the designation leads to significant

[45] 5 U.S.C. 601 et seq.

project modifications or delays associated with development.

158. To the extent that the designation of critical habitat for the frog may lead to an increase in the number of formal consultations and project modification, some mining operations may be affected the designation. However, as it appears unlikely that critical habitat will to lead to increased consultations and project modifications, the incremental impacts to small mining operations should be minimal.

159. Ranchers represent another category of small business that may be affected by critical habitat designation for the red-legged frog. In the past, the Service has not consulted on grazing activities. Under critical habitat designation, however, the Service will consult on grazing leases with USFS and BLM. As a result, ranchers leasing USFS and BLM land may incur incremental costs associated with consultations and project modifications, such as fence installations or adjustments to grazing allotments. To the extent that affected ranchers qualify as small businesses under definitions proposed by the Small Business Administration (SBA), the costs of modifying ranching operations because of critical habitat may constitute small-business impacts.

160. It is not likely that timber harvesting will be significantly affected by the proposed designation. To the extent that critical habitat designation for the frog does impact the timber industry, it is possible that timber harvesting companies that qualify as small businesses could be affected. For example, in order to propose a timber sale, USFS would be required to consult with the Service. This consultation could delay commencement of timber harvesting and could result in project modifications, such as harvest reductions or requirements for the use of alternative, less damaging harvesting methods, which may also be less profitable. However, because the USFS land on which timber harvesting occurs is already managed in a manner that protects the riparian habitat of the frog, small businesses in the timber industry should not be affected by the designation of critical habitat.

3.3.2 **Potential Impacts to Native American Tribes**

161. Due to time constraints, the Service was unable consult with Native American Tribes prior to the release of the proposed critical habitat designation for the red-legged frog. Therefore, the Service plans to consult with the Santa Ynez Band of the Chumash Mission Indians during the comment period to gain information on the possible effects of critical habitat designation on Indian reservation lands and the possible effects on tribal resources.

162. The Service states that no previous red-legged frog consultations have been conducted with the Santa Ynez Band of the Chumash Mission Indians in the past, and the Service does not expect future consultations with the Tribe. In addition, the Service asserts that if any future consultations are required, they will likely be attributable to the listing of the red-legged frog rather than caused by the critical habitat designation.[46]

3.3.3 Potential Impacts Associated with Project Delays and Property Values

163. Landowners of property within the proposed designation may be uncertain as to whether their property constitutes critical habitat. Some landowners may therefore elect to retain or consult counsel, surveyors, and other specialists to determine whether their land lies within critical habitat boundaries and possesses the primary constituent elements. Even if these lands are found not to lie within critical habitat or are within critical habitat but no consultations will be necessary, uncertainty over the critical habitat status has the potential to create real economic costs as landowners act to reduce or mitigate the effects of this uncertainty.

164. Changes in property values present another potential effect of critical habitat designation. As discussed previously, even for those lands where no impacts to activities or land uses are anticipated, property values may change. Such property value effects may be both positive and negative. For example, property owners may believe that critical habitat designation increases property values because it slows slowing surrounding development. This perception may result in real increases in land values. Over time, as the public becomes aware that critical habitat is not likely to slow development appreciably, the impact of the designation on property markets will likely decrease.[47]

165. Critical habitat designation may also *decrease* the perceived value of lands yet to be developed. Portions of the land area proposed for the red-legged frog critical habitat are currently being developed or are likely to be developed soon. Much of this land has historically been used for agriculture or grazing. If prospective buyers believe that critical habitat designation lowers the value of these lands, current landowners (land management firms as well as farmers and ranchers) may suffer a loss in property value. It is expected that impacts to property values will likely decrease with time.

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[46] Personal communication with U.S. Fish and Wildlife Biologist, Ventura, California Office.

[47] This statement assumes that most development projects will continue despite any incremental costs associated with critical-habitat-triggered section 7 consultations.

166. The proposed designation may also lead to increases in third party lawsuits against those entities conducting projects within critical habitat, even in cases where all Service requirements are met or no Federal nexus exists. That is, the existence of critical habitat may provide another means for third parties to slow or stop projects they oppose. Even if such suits are eventually dismissed, those being sued will be required to carry the administrative and legal costs associated with defending their activities. Defendants may range from city governments engaged in infrastructure development to support new development (e.g., roads, bridges and sewers), to developers, mining companies, individual homeowners, farmers, and ranchers.

167. A final cost potentially incurred because of critical habitat designation stems from delays associated with the section 7 consultation process. Both public and private entities may experience delays in projects and other activities due to critical habitat designation. Regardless of funding (i.e., private or public), projects and activities are generally undertaken only when the benefits exceed the costs, given an expected project schedule. If costs increase, benefits decrease, or the schedule is delayed, a project or activity may no longer have positive benefits, or it may be less attractive to the party funding the project.

168. For example, if a private business undertaking a residential development must delay groundbreaking as result of an unresolved section 7 consultation, the developer may incur additional financing costs. Delays in public projects, such as construction of a new park, may impose costs in the form of lost recreational opportunities. The magnitude of these costs of delay will depend on the specific attributes of the project, and the seriousness of the delay.

169. Costs associated with delays driven by critical habitat designation will primarily be limited to those formal section 7 consultations that would not have been necessary before the designation. In cases where formal consultations were already required – because the project areas were occupied by the frog or by other listed species – critical habitat designation should only lead to incremental delays. In either case, however, the magnitude of such delays is unclear; the formal consultation process may add significantly to time lags before groundbreaking, or the Action agency and the individual party initiating the activity may be able to conduct a section 7 consultation simultaneously with other necessary permitting processes, thus leading to no additional delays.

3.4 POTENTIAL BENEFITS OF PROPOSED CRITICAL HABITAT

170. To determine the incremental benefits of the critical habitat designation, this report considers those categories of benefit that will be enhanced as a result of the proposed critical habitat designation. These benefits represent incremental benefits of the designation of critical habitat, above and beyond those provided by the listing.

171. The primary goal of listing a species as endangered is to preserve the species from extinction. However, various economic benefits, measured in terms of regional economic performance and

enhanced national social welfare, result from species preservation as well. Regional economic benefits can be expressed in terms of jobs created, regional sector revenues, and overall economic activity. For example, the presence of a species may result in a successful local eco-tourism operation. National social welfare values reflect both use and non-use (i.e., existence) values, and can reflect various categories of value. For example, use values might include the opportunity to see a frog while on a hike, or the recreational use of habitat area preserved as a result of the frog. Existence values are not derived from direct use of the species, but instead reflect the satisfaction and utility people derive from the knowledge that a species exists.

172. The following examples represent potential benefits derived from the listing of the red-legged frog and, potentially, critical habitat:

- **Ecosystem health**. Red-legged frogs are part of a natural functioning wetlands ecosystem. In the absence of frogs in the ecosystem, other natural organisms may suffer. Actions to protect the frog may benefit other organisms. Each one of these organisms may provide some level of direct or indirect benefit to people.

- **Real estate value effects**. Real estate values may be enhanced by critical habitat designation. For example, such enhancement may occur if open space is preserved or if allowable densities are reduced or kept at current levels as a result of critical habitat designation.

- **Flood control**. Preserving natural environments can also reduce FEMA and county expenditure on bank stabilization and other flood control programs.

173. Designation of critical habitat may provide all of these benefits. However, as described below, it is difficult at this time to estimate the total benefit afforded by critical habitat, since not enough is known about: (1) the likely benefits of each consultation and modification; and (2) the extent to which such modifications would result from critical habitat.

3.4.1 Critical Habitat Benefits

174. The benefits identified above arise primarily from the protection afforded to the red-legged frog under the Federal listing. Critical habitat designation may provide some incremental benefits beyond the listing benefits. Critical habitat designation provides some educational benefit by increasing awareness of the extent of frog habitat. Incremental surveys, consultations, and project modifications conducted as a result of the designation of critical habitat are likely to increase the probability that the frog will recover. Critical habitat also provides a legal definition of the extent of frog habitat. This reduces the amount of uncertainty Federal agencies face when determining if a section 7 consultation is necessary for an activity with a Federal nexus.

175. Several agencies and California residents have expressed support for the proposed critical habitat designation. Staff at Vandenberg Air Force Base indicate that critical habitat designation will reduce uncertainty as to the location and extent of frog habitat.[48] NPS personnel at Santa Monica Mountains National Recreation Area believe that critical habitat designation will be beneficial as it will serve to focus efforts by NPS to manage areas in a manner that protects the frog and frog habitat. Additionally, the designation will help NPS to identify areas suitable for re-introduction of the frog.[49] Staff with the NRCS assert that the designation of critical habitat will benefit that agency by reducing uncertainty about the location of frog habitat and by ensuring that the agency will not overlook unoccupied frog habitat when considering projects.[50] A number of speakers at public hearings on the proposed designation of critical habitat indicated that they support the designation.[51] By supporting the critical habitat designation, these agencies and individuals express that they receive some level of benefit from the proposed designation.

176. The quantification of total economic benefits attributable to the designation of critical habitat is, at best, difficult. Without knowing the exact nature of future consultations and associated project modifications, it is difficult to predict the incremental increase in the probability that the red-legged frog will recover as a result of critical habitat designation. A single project modification associated with the designation of critical habitat has the potential to save the frog. While such a scenario is unlikely, such a hypothetical project modification would bear the entire economic value of the listing of the frog as mentioned above. Alternatively, additional consultations attributable to the designation of critical habitat may not in any way increase the probability of recovery for the species. In this case, the incremental benefits of designating critical habitat for the frog would be limited to the educational benefits, increased support for existing conservation efforts, and reduced uncertainty regarding the extent of red-legged frog habitat. In all likelihood, the actual benefits of the designation of critical habitat for the red-legged frog will lie in between the benefits presented in these extreme examples.

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[48] Personal communication with Wildlife Biologist, Vandenberg Air Force Base, California, September 25, 2000.

[49] Personal communication with Ecologist, Santa Monica National Recreation Area, California, September 26, 2000.

[50] Personal communication with state biologists, Natural Resource Conservation Service, Davis, California Office, October 19, 2000.

[51] Transcripts of public hearings held by the Service in Dublin, California, September 26, 2000; Ventura, California, September 19, 2000; and San Luis Obispo, California, September 21, 2000.

REFERENCES

(Interviews and other personal communications are cited in footnotes within the report)

Bureau of Economic Analysis. *Personal Income by Major Source and Earnings by Industry*, http://www.bea.doc.gov/bea/ regional/reis/ca05/, August 30, 2000.

California, State Department of Finance. *City/County Population and Housing Estimates, 1991-2000, with 1990 Census Counts*, Sacramento, California, May, 2000.

Leadership Directories. *State Yellow Book*. New York, NY, Leadership Directories Inc.: http://www.leadershipdirectories.com, September, 2000.

Transcripts of public hearings held by the U.S. Fish and Wildlife Service in Dublin, California, September 26, 2000; Ventura, California, September 19, 2000; and San Luis Obispo, California, September 21, 2000.

U.S. Fish and Wildlife Service. *Proposed Designation of Critical Habitat for the California Red-Legged Frog*, U.S. Fish and Wildlife Service, September 11, 2000 (65 FR 54898).

U.S. Fish and Wildlife Service. *Draft Recovery Plan for the California red-legged frog (Rana aurora draytonii)*, U.S. Fish and Wildlife Service, 258 pp, Portland, OR, 2000.