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**DRAFT ECONOMIC ANALYSIS
OF CRITICAL HABITAT DESIGNATION
FOR THE ROBUST SPINEFLOWER**

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PREFACE

1. On May 11, 2001, the U.S. Court of Appeals for the Tenth Circuit issued a ruling that addressed the analytical approach used by the Service to estimate the economic impacts associated with the critical habitat designation for the southwestern willow flycatcher.¹ Specifically, the court rejected the approach used by the Service to define and characterize baseline conditions.² Defining the baseline is a critical step within an economic analysis, as the baseline in turn identifies the type and magnitude of incremental impacts that are attributed to the policy or change under scrutiny. In the flycatcher analysis, the Service defined baseline conditions to include the effects associated with the listing of the flycatcher and, as is typical of many regulatory analyses, proceeded to present only the incremental effects of the rule.
2. The court's decision, in part, reflects the uniqueness of many of the more recent critical habitat rulemakings. Specifically, the flycatcher was initially listed by the Service as an endangered species in 1995, several years prior to designating critical habitat. Once a species has been officially listed as endangered under the Act, it is afforded special protection under Federal law. In particular, it is illegal for any one to "take" a protected species once it is listed. Take is defined to mean harass, harm pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Implementing regulations promulgated by the Service further define "harm" to mean "... an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patters, including breeding, feeding, or sheltering."³

¹ New Mexico Cattle Growers Association, et al. v. U.S. Fish and Wildlife Service, No. 00-2050, U.S. Court of Appeals, Tenth Circuit, May 11, 2001.

² In a previous case, Middle Rio Grande Conservancy District v. Bruce Babbitt, No. CIV 99-870, 99-872, and 99-1445M/RLP (consolidated), U.S. District Court for the District of New Mexico, the court similarly questioned the approach used by the Service to identify the economic effects of designating critical habitat for the Rio Grande silvery minnow. Although the court openly questioned the definition used by the Service to establish the baseline of the economic analysis, the court did not expressly rule on this approach as it set aside the rule for other reasons.

³ 50 CFR 17.3. The Service's definition of harm to include significant habitat modification was later confirmed by the U.S. Supreme Court (*Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 1F3d 1 (D.C. Cir. 1993)).

3. Because the southwestern willow flycatcher was initially listed as endangered by the Service in 1995, several years before the designation of critical habitat, the flycatcher, along with its habitat, already received considerable protection before the designation of critical habitat in 1997.⁴ As a result, the economic analysis concluded that the resulting impacts of the designation would be insignificant.⁵ This conclusion was based on the facts that: (1) the designation of critical habitat only requires the Federal government to consider whether their actions could adversely modify critical habitat; and (2) the Federal government already was required to ensure that its actions did not jeopardize the flycatcher.
4. For a Federal action to adversely modify critical habitat the action would have to adversely affect the critical habitat's constituent elements or their management in a manner likely to appreciably diminish or preclude the role of that habitat in both the survival and recovery of the species.⁶ However, the Service defines jeopardy, which was a pre-existing condition prior to the designation of critical habitat, as to "engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."⁷ The "survival and recovery" standard is used in the definition of both terms and as a result, the additional protection afforded the flycatcher due to the designation of critical habitat was determined to be negligible.
5. The court, however, considered why Congress would require an economic analysis performed by the Service when making a decision about designating critical habitat if in fact the designation of critical habitat adds no significant additional protection to a listed species. In the court's mind, "(b)ecause (the) economic analysis done using the FWS's baseline model is rendered essentially without meaning by 50 CFR 402.02, we conclude Congress intended that the FWS conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes."⁸

⁴ See 60 FR 10694 and 62 FR 39129.

⁵ *Economic Analysis of Critical Habitat Designation for the Southwestern Willow Flycatcher*, Division of Economics, U.S. Fish and Wildlife Service, June 1997.

⁶ *Consultation Handbook*, U.S. Fish and Wildlife Service, March 1998, p. 4-39.

⁷ 50 CFR 402.02.

⁸ 50 CFR 402.02 defines the terms used by the Service in implementing sections 7(a)-(d) [16 U.S.C. 1536(a)-(d)] of the Endangered Species Act of 1973, as amended. The regulatory definitions for the terms "jeopardy" and "adverse modification" can be found in this section.

6. Even though the court's ruling applies only to the designation of critical habitat for the southwestern willow flycatcher, this analysis attempts to comply with the court's instructions by revising the level of detail in the description of baseline conditions within the areas of proposed critical habitat. Specifically, this analysis quantifies, to the extent possible, the effects of section 7 in its entirety on current and planned activities that are reasonably expected to occur in the near future within proposed critical habitat. Subsequently, the analysis identifies whether these effects are associated with the jeopardy provisions of section 7 or the critical habitat provisions of that section. The approach to baseline definition employed in this analysis is consistent with that of previous analyses, in that the goal is to understand the *incremental* effects of a designation. Typical economic analyses concentrate mostly on identifying and measuring, to the extent feasible, economic effects most likely to occur because of the action being considered. Baseline conditions, while identified and discussed, are rarely characterized or measured in any detailed manner because by definition, these conditions remain unaffected by the outcome of the decision being contemplated.

7. In sum, while the goal of this analysis remains the same as previous critical habitat economic analyses (i.e., to identify and measure the estimated incremental effects of the proposed rulemaking), the implementation has been altered such that information on baseline conditions is more detailed than that presented in previous studies.

1. INTRODUCTION AND BACKGROUND

8. On February 15, 2001, the U.S. Fish and Wildlife Service (Service) proposed designation of critical habitat for the robust spineflower (*Chorizanthe robusta* var. *robusta*) on approximately 1,635 acres of land in Santa Cruz County, California (66 FR 10419). The purpose of this report is to identify and analyze the potential economic impacts that could result from this designation. This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service's Division of Economics.
9. Section 4(b)(2) of the Endangered Species Act (Act) requires the Service to base proposed designation of critical habitat 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.
10. Under the listing of a species, section 7(a)(2) of the Act requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, or carry out are not likely to jeopardize the continued existence of the species. The Act defines jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. For designated critical habitat, section 7(a)(2) also requires Federal agencies to consult with the Service to ensure that activities they fund, authorize, or carry out do not result in destruction or adverse modification of critical habitat. Adverse modification of critical habitat is defined as any direct or indirect alteration that appreciably diminishes the value of critical habitat for the survival and recovery of the species.
11. If the Service finds, in a biological opinion, that a proposed action is likely to adversely modify the critical habitat of the species, it provides the agency with reasonable and prudent alternatives to avoid adverse modification. Regulations (50 CFR §402.02) implementing section 7 of the Act define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) would, the Service believes, avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat. If no reasonable and prudent alternatives are available, the Service will notify the agency and provide an explanation of that conclusion. The agency may choose to implement the reasonable and prudent alternative, proceed with the action as proposed at the risk of violating the Act, revise its proposed action, or apply for an exemption from the Act.

12. The proposed critical habitat designation for the robust spineflower encompasses land owned or managed by the Federal government, state and local agencies, and private landowners. This analysis assesses how critical habitat designation for the robust spineflower may affect current and planned land uses and activities on these lands. For federally managed land, designation of critical habitat can directly impact any activities, land uses, or other actions that may adversely affect critical habitat. For state and local land holdings and privately owned land subject to critical habitat designation, consultations and modifications to land uses and activities can only be required when a Federal nexus, or connection, exists. A Federal nexus arises if the activity or land use of concern involves Federal permits, Federal funding, or another form of Federal involvement. Activities on state and private land that do not involve a Federal nexus are not affected by critical habitat designation.
13. To be considered in the economic analysis, activities must be "reasonably foreseeable," i.e., activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. This report considers current and future activities that are likely to occur within proposed critical habitat over the next ten years and could potentially result in new or reinitiated section 7 consultations or modifications. A ten-year time horizon is used because many landowners and managers do not have specific plans for projects beyond ten years. In addition, the predictions of future economic activity in this report are based on current socioeconomic trends and the current state of technology, both of which are likely to change in the long term.

1.1 Description of Species and Habitat

14. The robust spineflower is a low-growing herb that is soft-hairy and grayish or reddish in color and has flowers that are white to rose in color.⁹ The robust spineflower is only found in sandy soils in coastal areas of southern Santa Cruz and northern Monterey counties. Based on field surveys and research, the Service has identified physical and biological habitat features, referred to as primary constituent elements, that are essential for the survival and recovery of this species. Primary constituent elements for the robust spineflower include: sandy soils associated with both active coastal dunes and inland sites; plant communities supporting associated species, including coastal dune, coastal scrub, grassland, maritime chaparral, and oak woodland communities, and having a structure with openings between the dominant elements (e.g., scrub, shrub, oak trees, clumps of herbaceous vegetation); plant communities containing no or little cover by nonnative species that would compete for resources available for growth and reproduction of the robust spineflower; pollinator activity

⁹ Information on the robust spineflower and its habitat comes from the *Proposed Designation of Critical Habitat for the Robust Spineflower*, February 15, 2001 (66 FR 10419).

between existing colonies of robust spineflower; physical processes, such as occasional soil disturbance, that support natural dune dynamics along coastal areas; and seed dispersal mechanisms between existing colonies and other potentially suitable sites.

1.2 Proposed Critical Habitat

15. The Service has proposed seven units of critical habitat for the robust spineflower on approximately 1,635 acres of land in Santa Cruz and Monterey counties, California. The proposed critical habitat comprises 805 acres of Federal land, 180 acres of state land, 254 acres of city and other local-agency land, and 396 acres of privately held land.

- **Unit A, Pogonip**, comprises 50 acres of state-owned land managed by the University of California, Santa Cruz, 250 acres of land owned by the City of Santa Cruz, and 115 acres of privately owned land. Portions of Unit A are the within the geographic area known to be occupied by the robust spineflower.
- **Unit B, Branciforte**, consists of ten acres of privately owned lands, a portion of which is within the geographic area known to be occupied by the robust spineflower.
- **Unit C, Aptos**, covers 80 acres of privately owned land, a portion of which is within the geographic area known to be occupied by the robust spineflower.
- **Unit D, Freedom**, comprises 0.5 acres of land managed by the Pajaro Valley Unified School District and 9.5 acres of privately owned land. Portions of Unit D are the within the geographic area known to be occupied by the robust spineflower.
- **Unit E, Buena Vista**, consists of 185 acres of privately owned land, a portion of which is within the geographic area known to be occupied by the robust spineflower.
- **Unit F, Sunset**, consists of 130 acres of state-owned land managed by the California Department of Parks and Recreation. Portions of Unit F are within the geographic area known to be occupied by the robust spineflower.

- **Unit G, Marina**, covers 805 acres of land within the site of the former Fort Ord. The U.S. Army maintains all of this federally owned land. At this time, it has not been conclusively determined whether this land is occupied by the robust spineflower.

16. Although some of the proposed critical habitat is not currently known to support populations of the robust spineflower, the Service finds it necessary to propose critical habitat in all of these units. Those areas within the proposed designation that are unoccupied by the species but possess the primary constituent elements have been proposed for critical habitat designation because they are essential for the discovery or establishment of new populations, continued growth of current populations, and the recovery of the species as a whole. Due to the limitations of mapping, some lands have been included within the boundaries of the proposed critical habitat that are not occupied by the species and do not possess the primary constituent elements. These lands will not be subject to any additional consultations as a result of critical habitat designation for the robust spineflower because they could not support the species. Nevertheless, critical habitat designation on these lands could result in costs associated with an increase in the amount of technical assistance offered by the Service to private landowners. Technical assistance costs represent the estimated economic costs of informational exchanges between landowners or managers and the Service regarding the designation of critical habitat for the robust spineflower. Most likely, such exchanges would consist of phone conversations or correspondences between municipal or private property owners and the Service regarding lands designated as critical habitat or lands adjacent to critical habitat. Costs associated with these informational exchanges include the opportunity cost of time spent in conversation or in preparing correspondence for the municipal or private property owner, as well as staff costs for the Service.

2. FRAMEWORK, METHODOLOGY, IMPACTS, AND BENEFITS

2.1 Framework for Analysis

17. As noted above, this economic analysis identifies the impacts to specific land uses or activities within those areas proposed as critical habitat for the robust spineflower. Impacts include future effects associated with the listing of the species, as well as any effect of the designation above and beyond those impacts associated with listing. The listing of the robust spineflower provides the most significant aspect of baseline protection because it makes it illegal for any person to: remove or reduce to possession the species from areas under Federal jurisdiction; maliciously damage or destroy the species on any such area; or remove, cut, dig up, or damage or destroy the plant species on any other area in knowing violation of any law or regulation of any state or in the course of any violation of a state criminal trespass law. These restrictions will not be affected by critical habitat designation.

18. To quantify the increment of economic impacts attributable to the critical habitat designation for the robust spineflower the analysis evaluates a "without critical habitat" scenario and compares it to a "with critical habitat" scenario. The "without critical habitat" baseline for analysis represents current and expected economic activity under all modifications prior to critical habitat designation, including protections already accorded the robust spineflower under Federal and state laws, such as the California Environmental Quality Act. The difference between the two scenarios represents the net change in economic activity attributable to the designation of critical habitat for the robust spineflower.

2.2 Methodological Approach

19. The methodological approach consists of:
- Considering what specific activities take place or are expected to take place in the future within each unit of proposed critical habitat;
 - Identifying whether activities taking place on the state, local, and private land are likely to involve a Federal nexus;
 - Evaluating the likelihood that activities associated with identified Federal nexuses will result in consultations and, in turn, that consultations may lead to modifications of projects;
 - Attributing costs to any expected consultations and project modifications;
 - Assessing the extent to which small businesses will incur costs as a result of modifications or delays to projects;
 - Enumerating economic costs associated with public perceptions regarding the effect of critical habitat on the private land subject to the designation;
 - Determining the portion of the identified costs attributable to the proposed critical habitat designation and not the listing of the robust spineflower;
 - Establishing the benefits of critical habitat designation.

2.3 Information Sources

20. The methodology outlined above relies on information supplied by staff from the Service, U.S. Army Corps of Engineers, California Department of Parks and Recreation, University of California, Santa Cruz, the Trust for Public Land, Pajaro Valley Unified School District, City of Santa Cruz Department of Planning and Community Development, and Pacific Gas and Electric Company. Information on land uses was not available from all landowners, so this analysis uses information from the Service, U.S. Army Corps of Engineers, Trust for Public Land, and the City of Santa Cruz Department of Planning and Community Development to address activities occurring on private land, including the likelihood of Federal nexuses being associated with these activities.

2.4 Impacts

2.4.1 Unit A, Pogonip

City of Santa Cruz

21. The portion of this unit owned by the City of Santa Cruz is a park consisting of open space, community gardens, a clubhouse, and horse stable. This area is known to support populations of the robust spineflower, as well as the Ohlone tiger beetle, which has been proposed for Federal listing. The City of Santa Cruz has recently completed a management plan that calls for the protection of the land in this parcel. Therefore, it is unlikely that any activity that would affect the robust spineflower will take place in the park. Furthermore, if any activity does take place, it is unlikely that a Federal nexus would exist because the City of Santa Cruz Parks and Recreation Department does not use Federal funding or permitting for activities that take place in Pogonip Park.¹⁰ Thus, no consultations, and therefore no costs, are expected to occur for activities taking place within propose critical habitat for the robust spineflower on the land owned by the City of Santa Cruz in Unit A.

¹⁰Personal communication with City of Santa Cruz Parks and Recreation Department, March 26, 2001.

University of California, Santa Cruz

22. Proposed critical habitat on the campus of the University of California, Santa Cruz (UCSC) includes a small section of developed land and a larger section of undeveloped grassland.¹¹ UCSC does not consider either of these sections to be occupied by the robust spineflower. The section of developed lands does not possess the primary constituent elements. Currently, UCSC has no plans for developing the grassland. If an activity were to occur within the boundaries of critical habitat, a Federal nexus would not exist as UCSC does not use Federal funding or require Federal permits for land-altering activities. Therefore, future consultations regarding the robust spineflower for activities on this land will not likely occur.

23. Although costs associated with the consultation process are unlikely, the designation of critical habitat for the robust spineflower could still lead to increased costs for UCSC. In the case that development or some other land-altering activity takes place in critical habitat in the future, UCSC would voluntarily hire biologists to conduct surveys for the robust spineflower. Without critical habitat designation, surveys would not be conducted because, as noted previously, UCSC does not currently consider the campus to be occupied by the spineflower. The cost associated with this additional surveying is estimated at \$2,000.¹² It is assumed that any surveying would occur once and not be required on a regular basis.

Private Land

24. The privately owned land in Unit A is located on the outskirts of the City of Santa Cruz in a multiple-use area that includes industrial and residential sections. Personnel from the Service report that this land does not possess the primary constituent elements necessary for the robust spineflower and was included in the proposed designation as a result of the scale of mapping that was used.¹³ A Federal nexus would not likely exist for activities taking place on this land. Due to the lack of primary constituent elements and Federal nexuses for this land, future

¹¹ Personal communication with Environmental Assessment Group, University of California, Santa Cruz, March 16 and 27, 2001.

¹² The cost for surveying is based on an analysis of similar surveys that have taken place for other listed plants.

¹³ Personal communication with Botanist, U.S. Fish and Wildlife Service, Ventura Office, March 22, 2001.

consultations regarding the robust spineflower for activities on this land will not likely occur. Critical habitat designation could result in the need for the Service to provide technical assistance to the private landowner in Unit A. The cost to the private landowner for seeking technical assistance is not expected to exceed \$1,000 and will likely be considerably less. The cost to the Service should not exceed \$1,000.¹⁴

2.4.2 Unit B, Branciforte

25. Critical habitat Unit B consists of a vacant lot in the City of Santa Cruz that is bounded by a creek, a freeway, and development. This site is currently occupied by the robust spineflower. The City of Santa Cruz Department of Planning and Community Development indicates that this parcel is zoned for residential development.¹⁵ While no applications for development have been submitted at this time, in the future, this parcel could potentially be developed. Because this parcel includes a creek bank, development could require a section 404 permit from the Army Corps of Engineers (Corps). The Corps reports that it does not typically consult with the Service on how projects requiring section 404 permits affect upland plant species, unless the project has the potential to directly affect the listed plant.¹⁶ After critical habitat designation, Corps will be more likely to consult with the Service regarding upland plants.¹⁷ Therefore, if development does occur in Unit B, a consultation could be required. A consultation would result in costs of approximately \$4,000

¹⁴ Costs associated with technical assistance include the opportunity cost of time spent in conversation or in preparing correspondence for the municipal or private property owner, as well as staff costs for the Service.

¹⁵ Personal communication with Planner, City of Santa Cruz Department of Planning and Community Development, March 28, 2001.

¹⁶ Personal communication with U.S. Army Corps of Engineers, San Francisco District, March 27, 2001.

¹⁷ Personal communication with South Section Chief, U.S. Army Corps of Engineers, San Francisco District, March 22, 2001.

to the developer, \$3,000 to the Corps, and \$2,000 to the Service.¹⁸ It is assumed that this would be a one-time consultation at the time the parcel is developed.

26. The consultation process, if required, could potentially lead to an adverse modification determination by the Service. Although such an outcome would be highly unlikely, if it were to occur, the developer could incur significant costs to implement the reasonable and prudent alternatives put forth by the Service. In such cases, however, the Service must ensure that any modifications are economically and technically feasible and can be implemented in a manner consistent with the basic design of the proposed project.¹⁹
27. It is likely that the developer could modify the project or take measures to protect the robust spineflower even without an adverse modification determination. At this time, it is not possible to predict what such modifications and measures might entail, because the Service has never consulted on the robust spineflower and no information is known about a potential project on this land. However, based on the types of modifications and measures that have been implemented for other species, the developer may take such steps as installing fencing or re-aligning the project to avoid sensitive areas. The cost for implementing these measures is expected to be of the same order of magnitude as the total cost of the consultation process, i.e., approximately \$10,000.²⁰ It should be noted that the developer likely would already be required to undertake such measures due to regulations in CEQA.
28. All costs stemming from the consultation process and modifications to the project would likely be attributable to designation of critical habitat for the robust spineflower because a consultation for development would likely not be required absent critical habitat designation.

¹⁸ 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. Estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during consultations. Section 7 consultation costs include the administrative costs associated with conducting the consultation, such as the cost of time spent in meetings, preparing letters, and the development of a biological assessment and biological opinion.

¹⁹ U.S. Fish and Wildlife Service, *Final ESA Section 7 Consultation Handbook*, March 1998.

²⁰ Sources of cost for costs stemming from modifications of projects include time to develop appropriate measures, supplies, and labor necessary to implement the measures.

2.4.3 Unit C, Aptos

29. The land in Unit C comprises 80 acres along a right-of-way held by Pacific Gas and Electric Company (PG&E). Portions of the 80 acres in this unit support known populations of the robust spineflower. The only activity likely to take place along the right-of-way is vegetation management. Personnel from PG&E report that no Federal funds or permitting are involved in vegetation management, so no Federal nexus exists.²¹ Therefore, no new consultations are expected to occur for vegetation management in Unit C after the designation of critical habitat for the robust spineflower.

2.4.4 Unit D, Freedom

Pajaro Valley Unified School District

30. The Pajaro Valley Unified School District (PVUSD) owns 0.5 acres of land around Aptos High School that has been proposed for designation. This habitat is located near playing fields in the southern section of the high school property. PVUSD has plans to construct an arts center and a stadium within two to three years. Additional consultations for these projects are not likely to occur, as construction will take place near the high school building, away from critical habitat, and will not involve Federal funding or permitting. Therefore, PVUSD should not incur any new costs for activities within proposed critical habitat for the robust spineflower on land around Aptos High School.

Private Land

31. A single owner holds the remaining 9.5 acres of land in Unit D. In the past, the owner has proposed development for this land, but the proposal was never realized. While development could possibly take place on this site in the future, it is unlikely that a Federal nexus would exist to generate the requirement for a consultation. Therefore, no future consultations for the robust spineflower are expected for the private land in Unit D. Critical habitat designation could still result in the need for the Service to provide technical assistance to the private landowner in Unit D. The cost to the private landowner for seeking technical assistance should

²¹ Personal communication with Vegetation Program Manager, Pacific Gas and Electric Company, March 26, 2001.

not exceed \$1,000 and will likely be considerably less. The cost to the Service should not exceed \$1,000.²²

2.4.5 Unit E, Buena Vista

32. The land in Unit E is currently owned by a private partnership. In the past, the owners of the land have made attempts to develop the property into a golf course and high-end residences. However, this development has not taken place, in part due to the stringent environmental standards in the County of Santa Cruz. Presently, the land in Unit E exists in an undeveloped state.
33. The Trust for Public Land (TPL) is engaged in negotiations with the owners of the land in Unit E, though a temporary impasse has been reached. If TPL acquires the land, it intends to transfer the land to the Service to be included in the Ellicott Slough National Wildlife Refuge (Refuge). Federal funds could potentially be used in the acquisition of land from the private partnership, though this Federal nexus would not likely lead to a consultation, as the land transfer itself would not impact the robust spineflower. After the land transfer, the Refuge could potentially have to consult internally with the Service for management activities on the acquired land. This consultation would result in costs of approximately \$5,000 to the Service.²³ This consultation should not lead to project modifications as the Refuge manages land in a manner that protects natural resources. Due to uncertainty regarding whether the consultation process would occur absent critical habitat or as a result of critical habitat designation, it is not possible to attribute conclusively the costs stemming from the consultation process and modifications.
34. If TPL is not able to acquire the proposed critical habitat in Unit E, the private landowner may seek to develop the land, which is known to be occupied by the federally listed Santa Cruz long-toed salamander. The developer would have to get an incidental take permit under section 10(a)(1)(b) of the Act. This permitting process would constitute a Federal nexus. Therefore, if development were to occur in Unit E, an internal consultation could be required. A consultation would result in costs of approximately \$4,000 to the

²² Costs associated with technical assistance include the opportunity cost of time spent in conversation or in preparing correspondence for the municipal or private property owner, as well as staff costs for the Service.

²³ The costs for the consultation process are based on an analysis of similar efforts that have taken place at various Service offices. Sources of these costs include meetings, site visits, and biological surveys.

developer and \$5,000 to the Service.²⁴ It is assumed that this would be a one-time consultation at the time the parcel is developed.

35. The consultation process, if required, could potentially lead to an adverse modification determination by the Service. Although such an outcome would be highly unlikely, if it were to occur, the developer could incur significant costs to implement the reasonable and prudent alternatives put forth by the Service. In such cases, however, the Service must ensure that any modifications are economically and technically feasible and can be implemented in a manner consistent with the basic design of the proposed project.²⁵
36. It is likely that the developer could modify the project or take measures to protect the robust spineflower even without an adverse modification determination. At this time, it is not possible to predict what such modifications and measures might entail, because the Service has never consulted on the robust spineflower and no information is known about a potential project on this land. However, based on the types of modifications and measures that have been implemented for other species, the developer may take such steps as installing fencing or re-aligning the project to avoid sensitive areas. The cost for implementing these measures is expected to be of the same order of magnitude as the total cost of the consultation process, i.e., approximately \$10,000.²⁶ It should be noted that the developer likely would already be required to undertake such measures due to regulations in CEQA.
37. Due to uncertainty regarding whether the consultation process would occur absent critical habitat or as a result of critical habitat designation, it is not possible to attribute conclusively the costs stemming from the consultation process and modifications.

²⁴ 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. Estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during consultations. Section 7 consultation costs include the administrative costs associated with conducting the consultation, such as the cost of time spent in meetings, preparing letters, and the development of a biological assessment and biological opinion.

²⁵ U.S. Fish and Wildlife Service, *Final ESA Section 7 Consultation Handbook*, March 1998.

²⁶ Sources of cost for costs stemming from modifications of projects include time to develop appropriate measures, supplies, and labor necessary to implement the measures.

2.4.6 Unit F, Sunset

38. The California Department of Parks and Recreation (CA Parks) does not receive Federal funding for activities taking place at Sunset State Beach, so a Federal nexus can result only from Federal permitting. Personnel from CA Parks report that Sunset State Beach is currently developing a management plan for restoration work in a wetlands natural preserve.²⁷ CA Parks will submit this management plan to the Corps for approval for a section 404 permit. As noted above, the Corps would be more likely to consult with the Service regarding the impacts of a project on upland plant species after critical habitat has been designated than when the species has only been listed. Therefore, critical habitat designation could potentially lead to a consultation that would not have occurred absent critical habitat designation. A consultation would result in costs of approximately \$4,000 to CA Parks, \$3,000 to the Corps, and \$2,000 to the Service.²⁸ At this time, these costs are viewed as one-time expenses.
39. The consultation process, if required, could potentially lead to an adverse modification determination by the Service. Although such an outcome would be highly unlikely, if it were to occur, CA Parks could incur significant costs to implement the reasonable and prudent alternatives put forth by the Service. In such cases, however, the Service must ensure that any modifications are economically and technically feasible and can be implemented in a manner consistent with the basic design of the proposed project.²⁹
40. It is likely that CA Parks could modify the project or take measures to protect the robust spineflower even without an adverse modification determination. At this time, it is not possible to predict what such modifications and measures might entail, because the Service has never consulted on the robust spineflower and specific information about this project is not known. However, based on the types of modifications and measures that have been implemented for other species, the CA Parks may take such steps as installing fencing or re-aligning the project to avoid sensitive areas. The cost for implementing these measures

²⁷ Personal communication with Ecologist, California Department of Parks, March 16, 2000.

²⁸ The costs for the consultation process are based on an analysis of similar efforts that have taken place at various Service offices. Sources of these costs include meetings, site visits, and biological surveys.

²⁹ U.S. Fish and Wildlife Service, *Final ESA Section 7 Consultation Handbook*, March 1998.

is not expected to exceed \$20,000.³⁰ It should be noted that such measures likely would already be required due to regulations in CEQA.

41. Due to uncertainty regarding whether the consultation process would occur absent critical habitat or as a result of critical habitat designation, it is not possible to attribute conclusively the costs stemming from the consultation process and modifications to the designation of critical habitat or the listing of the robust spineflower.

2.4.7 Unit G, Marina

42. The Service has proposed critical habitat designation on 805 acres of land located within the boundaries of former Fort Ord. Personnel from CA Parks report that the robust spineflower has not been conclusively identified as inhabiting the land that is being transferred.³¹ Currently the U.S. Army manages this land but is in the process of transferring the land to CA Parks. As part of the transfer, the U.S. Army has already formally consulted with the Service on the habitat management plan (HMP) for the lands being transferred. Included in this consultation were considerations of the impact on the robust spineflower of activities occurring under the HMP. Because a consultation has already occurred to address the effect of the land transfer on the habitat of multiple species, including the robust spineflower, personnel from CA Parks believe that critical habitat designation should not affect the transfer of the lands of the former Fort Ord from the Army to CA Parks. Personnel from the Service agree that the land transfer should not be affected by critical habitat designation.³²
43. After acquiring the land from the Army, CA Parks intends to restore and manage as wildlife habitat approximately 700 acres of the 805 acres proposed as critical habitat.³³ The remaining land will likely be developed for recreation use. CA Parks may use Federal funding from the Department of Transportation (DOT) administered through the California Department of Transportation (Caltrans) and funding from the U.S. Department of the

³⁰ Sources of cost for costs stemming from modifications of projects include time to develop appropriate measures, supplies, and labor necessary to implement the measures.

³¹ Personal communication with Ecologist, Marina State Beach, March 16, 2001.

³² Personal communication with Ecologist, U.S. Fish and Wildlife Service, Ventura Office, March 22, 2001.

³³ Personal communication with Environmental Planner, California Department of Parks and Recreation, March 16, 2001.

Interior (DOI) administered through CA Parks for projects such as construction of campsites and parking lots. Designation of critical habitat for the robust spineflower could lead to consultations for these projects that would not have occurred absent designation, because the plant was not previously known to occur on this land. If a consultation does occur for these projects, costs will be incurred by CA Parks, the Service, and the Federal agency providing funding to CA Parks. Assuming that one consultation takes place, CA Parks would incur costs on the order of \$4,000, the Service would incur costs on the order of \$2,000, and the Federal agency providing funding (or Caltrans) would incur costs on the order of \$3,000.³⁴

44. The consultation process, if required, could potentially lead to an adverse modification determination by the Service. Although such an outcome would be highly unlikely, if it were to occur, CA Parks could incur significant costs to implement the reasonable and prudent alternatives put forth by the Service. In such cases, however, the Service must ensure that any modifications are economically and technically feasible and can be implemented in a manner consistent with the basic design of the proposed project.³⁵
45. It is likely that CA Parks could modify the project or take measures to protect the robust spineflower even without an adverse modification determination. At this time, it is not possible to predict what such modifications and measures might entail, because the Service has never consulted on the robust spineflower and specific information about this project is not known. However, based on the types of modifications and measures that have been implemented for other species, the CA Parks may take such steps as installing fencing or re-aligning the project to avoid sensitive areas. The cost for implementing these measures is not expected to exceed \$20,000.³⁶ It should be noted that such measures likely would already be required due to regulations in CEQA.
46. All costs stemming from the consultation process and modifications to the project would be attributable to designation of critical habitat for the robust spineflower because a consultation for recreation development would likely not have been required absent designation.

2.5 Summary of Impacts

³⁴ The costs for the consultation process are based on an analysis of similar efforts that have taken place at various Service offices. Sources of these costs include meetings, site visits, and biological surveys.

³⁵ U.S. Fish and Wildlife Service, *Final ESA Section 7 Consultation Handbook*, March 1998.

³⁶ Sources of cost for costs stemming from modifications of projects include time to develop appropriate measures, supplies, and labor necessary to implement the measures.

47. Overall, no additional costs are expected to result from critical habitat designation for the robust spinesflower in Units C. Additional costs may be associated with technical assistance or activities in the other units. For Unit A, these costs will likely be limited to \$4,000. In Unit B, consultation costs for all affected parties are not expected to exceed \$10,000, and, given existing regulations and the relatively small size of the parcel, costs for potential modifications to a development project in this unit should not exceed \$10,000. For Unit D, costs associated with technical assistance should not exceed \$2,000. In Unit E, a consultation could result in total costs ranging from \$5,000 up to \$20,000 for all affected parties, depending on the future use of the land in the unit. For Units F and G, both consultation costs and project modification costs could be incurred; consultation costs for these two units are estimated to be less than \$10,000 per unit, for all affected parties, while costs associated with project modifications should not exceed \$20,000 per unit.
48. Exhibit 1 summarizes the potential activities that could lead to new consultations and project modifications and the expected costs attributable to critical habitat designation for the robust spinesflower.

Exhibit 1				
SUMMARY OF POTENTIAL ECONOMIC IMPACTS WITHIN PROPOSED CRITICAL HABITAT FOR THE ROBUST SPINEFLOWER FROM 2001 TO 2010				
Critical Habitat Unit	Affected Party	Potentially Affected Activity	Estimated Cost to Party	Cost Due to Critical Habitat
Unit A, Pogonip	University of California, Santa Cruz	Surveying for species	\$2,000	\$2,000
	City of Santa Cruz	None	None	None
	Private landowner	Technical assistance	\$1,000	\$1,000
	U.S. Fish and Wildlife Service	Technical assistance	\$1,000	\$1,000
Unit B, Branciforte	Private landowner	Development	\$14,000	\$14,000
	Army Corps of Engineers	Section 404 permitting for development	\$3,000	\$3,000
	U.S. Fish and Wildlife Service	Consultation for development	\$2,000	\$2,000
Unit C, Aptos	Pacific Gas and Electric Company	None	None	None
Unit D, Freedom	Aptos High School District	None	None	None
	Private landowner	Technical assistance	\$1,000	\$1,000
	Technical Assistance	Technical assistance	\$1,000	\$1,000
Unit E, Buena Vista	U.S. Fish and Wildlife Service	Internal consultation for land management activities	\$5,000	\$5,000
	Private landowner	Development	\$14,000	\$14,000
	U.S. Fish and Wildlife Service	Internal consultation for development	\$5,000	\$5,000
Unit F, Sunset	California Department of Parks and Recreation	Wetlands restoration	\$24,000	\$24,000
	Army Corps of Engineers	Section 404 permitting for wetlands restoration	\$3,000	\$3,000
	U.S. Fish and Wildlife Service	Consultation for wetlands restoration	\$2,000	\$2,000
Unit G, Marina	U.S. Army	None	None	None
	California Department of Parks and Recreation	Construction of campsites and parking lots	\$24,000	\$24,000
	U.S. Fish and Wildlife Service	Consultation for construction of campsites and parking lots	\$2,000	\$2,000
	Federal Agency Providing Funding	Funding for construction of campsites and parking lots	\$3,000	\$3,000

Source: IEC analysis based on conversations with personnel from U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, California Department of Parks and Recreation, University of California at Santa Cruz, the Trust for Public Land, Pajaro Valley Unified School District, City of Santa Cruz Department of Planning and Community Development, and Pacific Gas and Electric company.

2.6 Potential Impacts to Small Businesses

49. 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).³⁷ 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.
50. Development on private land constitutes the only commercial, land-altering activity that could take place within the area of proposed critical habitat. Critical habitat designation on private land in Unit B may lead to an additional consultation that would occur absent critical habitat designation. The cost of an additional consultation and any resulting modifications could be borne by a small business in the development industry. In this case the small business would face costs of up to \$14,000. Compared to the market value of a residential development on this land, expenses due to section 7 would be minor. Assuming conservatively that the developer would develop 5 single units on the ten acres in Unit B, with a selling price equal to the median home price in the County of Santa Cruz, the market value of the development would be approximately \$2.5 million³⁸. The costs of an additional consultation and any resulting modifications would represent approximately 0.6 percent of the market value of the development. Therefore, it is unlikely that any consultations or modifications that may occur as a result of critical habitat designation would impose prohibitive constraints on the ability of a small business to undertake a project in Unit B.
51. For Units F and G, the cost of any required consultation would be borne by state and Federal agencies, not by private businesses. Any other costs would also be borne by state and Federal agencies and would not be expected to affect the overall economic viability of projects in these units. Therefore, small businesses should not be affected by critical habitat designation in these units.

³⁷ 5 U.S.C. 601 et seq.

³⁸ Santa Cruz Association of Realtors, Incorporated; <http://www.scaor.org/html/stats.htm>, July 12, 2001.

2.7 Potential Impacts Associated with Property Values

52. Critical habitat designation could lead to reductions in the property values of privately owned land in Units A, B, D, and E. Reductions could occur if the perception exists that designation will limit the ability of parties to develop land, even though no specific project plans exist. Reductions could be temporary or permanent, depending upon whether the designation will, in fact, restrict land uses or lead to increased costs. A temporary decline in property value, if it occurs, would last until uncertainty regarding the effects of the designation is resolved. At this time, sufficient information is not available to estimate accurately the extent of temporary or permanent reductions in the value of privately owned land within the proposed critical habitat. Casual evidence, however, suggests that significant impacts are unlikely.

2.8 Benefits

53. To determine the benefits of the critical habitat designation of the robust spineflower, this report considers those categories of benefit that will be enhanced as a result of the listing of the species and the proposed critical habitat designation.
54. The primary goal of listing a species as endangered is to preserve the species from extinction. However, various economic benefits, measured in terms of enhanced national social welfare, result from species preservation as well. 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 robust spineflower while on a hike, or the recreational use of habitat area preserved as a result of the robust spineflower. 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.
55. The following examples represent benefits derived from the listing of the robust spineflower and, potentially, critical habitat:
- **Ecosystem health.** Absent the robust spineflower, other natural organisms may suffer. Actions to protect the robust spineflower may also 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.

56. The benefits identified above arise primarily from the protection afforded to the robust spineflower 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 robust spineflower 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 robust spineflower will recover. Critical habitat also provides a legal definition of the extent of robust spineflower 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.

57. 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 robust spineflower will recover as a result of critical habitat designation. A single project modification associated with the designation of critical habitat has the potential to protect the robust spineflower. While such a scenario is unlikely, such a hypothetical project modification would bear the entire economic value of the listing of the robust spineflower 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 robust spineflower would be limited to the educational benefits, increased support for existing conservation efforts, and reduced uncertainty regarding the extent of robust spineflower habitat. In all likelihood, the actual benefits of the designation of critical habitat for the robust spineflower will lie in between the benefits presented in these extreme examples.