

**DRAFT ECONOMIC ANALYSIS  
OF CRITICAL HABITAT DESIGNATION  
FOR THE RIVERSIDE FAIRY SHRIMP**

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Prepared for:

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## 1. INTRODUCTION AND BACKGROUND

1. In September 2000, the U.S. Fish and Wildlife Service (hereafter, the Service) proposed designation of critical habitat for the Riverside fairy shrimp (*Streptocephalus woottoni*) on approximately 4,880 hectares (ha) (12,060 acres (ac)) of lands in southern California. The purpose of this report is to identify and analyze the potential economic impacts that would result from the proposed critical habitat designation. This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the Service's Division of Economics.
2. Section 4(b)(2) of the Endangered Species Act (ESA) 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.
3. The analysis must distinguish between economic impacts caused by the ESA listing of the fairy shrimp and those additional effects that would be caused by the proposed critical habitat designation. *The analysis only evaluates economic impacts resulting from the proposed critical habitat designation beyond those impacts attributable to the ESA listing of the fairy shrimp.* In the event that 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.
4. The proposed critical habitat designation for the Riverside fairy shrimp encompasses land owned or managed by Federal, State, and local governments, and private land owners. This analysis assesses how critical habitat designation for the fairy shrimp may affect current and planned land uses and activities on these lands. For federally managed land, designation of critical habitat may affect activities, land uses, and other actions that threaten to modify habitat adversely. For State and local holdings and private 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, local, and private lands that do not involve a Federal nexus are not affected by critical habitat designation.
5. To be considered in the economic analysis, activities must be "reasonably foreseeable," i.e., 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 modifications are considered. Because activities of concern on occupied lands will most likely jeopardize the continued existence of the species, i.e., will constitute a listing effect, the Service expects that any impacts or modifications attributable to critical habitat designation will occur only on unoccupied lands.

## 1.1 Description of Species and Habitat

6. The Riverside fairy shrimp is a small aquatic crustacean that occurs in vernal pools, ephemeral ponds, and human-modified depressions.<sup>1</sup> Basins, ponds, and depressions that support Riverside fairy shrimp are located on coastal terraces and plateaus found in a range from coastal southern California to northwestern Baja California, Mexico. Typically, this species is found in vernal pools that are deeper and cooler than those basins which support the related species, the endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*).
7. Basins that support Riverside fairy shrimp are typically dry a portion of the year, but usually are filled by late fall, winter, or spring rains, and may persist into April or May. Critical to the formation of vernal pool basins is the presence of nearly impermeable surface or subsurface soil layers and flat or gently sloping topography. Historically, vernal pool soils and habitats covered extensive areas on the coastal plains and mesas of Los Angeles, Orange, Riverside, San Diego, and Ventura counties. Significant losses of vernal pools supporting the Riverside fairy shrimp have occurred throughout these areas due to urban and water development, flood control, highway and utility projects, as well as the conversion of wildlands to agricultural and other anthropogenic uses.
8. 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 the Riverside fairy shrimp. Primary constituent elements for the fairy shrimp include:
  - small to large pools with moderate to deep depths that hold water for sufficient lengths of time necessary for Riverside fairy shrimp incubation and reproduction, but not necessarily every year;
  - associated watershed(s) and other hydrologic features that support pool basins and their related pool complexes;
  - flat or gently sloping topography; and

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<sup>1</sup> Information on the Riverside fairy shrimp and its habitat is taken from the *Proposed Designation of Critical Habitat for the Riverside Fairy Shrimp*, September 21, 2000 (65 FR 57136).

- any soil type with a clay component and/or an impermeable surface or subsurface layer known to support vernal pool habitat.

## 1.2 Proposed Critical Habitat

9. The Service has proposed critical habitat for the Riverside fairy shrimp on approximately 4,880 ha (12,060 ac) in Los Angeles, Orange, Riverside, San Diego, and Ventura counties in southern California. Approximately 2,335 ha (5,770 ac), or roughly 48 percent of the total acreage proposed, are located on Federal government lands. Only 5 acres (less than one percent) are found on state or local government land, while the remaining 2,540 ha (6,280 ac) (52 percent) of critical habitat are located on private land. The proposed critical habitat consists of six units, with the majority of the proposed critical habitat (84 percent) located in western Riverside and North San Diego counties (Units 3 and 4). These units are described in greater detail below.

- **Unit 1: Transverse Range Critical Habitat Unit** - This unit consists of 145 ha (350 ac), and includes the vernal pools at Cruzan Mesa in Los Angeles County and the former Carlsberg Ranch in Ventura County. These vernal pools represent the northern limit of occupied habitat for the Riverside fairy shrimp, and they also provide habitat for two other federally listed species: California orcutt grass (*Orcuttia californica*) and Spreading navarretia (*Navarretia fossalis*).
- **Unit 2: Los Angeles Basin-Orange Management Area** - The Los Angeles coastal prairie unit includes an approximately 12 ha (30 ac) area not currently occupied by the species within and adjacent to the El Segundo Blue Butterfly Preserve, west of Pershing Drive at the Los Angeles International Airport. This unit, located in Los Angeles County, also supports the western spadefoot toad (*Scaphiopus hammondi*). In Orange County, the proposed critical habitat unit includes the vernal pools and vernal pool-like ephemeral ponds at the Marine Corps Air Station El Toro, Chiquita Ridge, Tijeras Creek, Rancho Viejo, Saddleback Meadows, and along the southern Orange County foothills.
- **Unit 3: Western Riverside County** - The Western Riverside County critical habitat unit includes approximately 1,780 ha (4,400 ac) and consists of the vernal pools on the Santa Rosa Plateau and in Murrieta. These populations represent the eastern limit of occupied habitat for Riverside fairy shrimp and comprise two of the three remaining populations in Riverside County. The

third population, Skunk Hollow, is protected as part of an approved mitigation bank that is within the Rancho Bella Vista Habitat Conservation Plan (HCP) area, and therefore not included in the proposed critical habitat designation. Other federally listed vernal pool species that occur in this unit include versatile fairy shrimp (*Branchinecta lynchi*), San Diego button-celery, California orcutt grass and spreading navarettia.

- **Unit 4: North San Diego County** -The North San Diego County critical habitat unit includes approximately 2,340 ha (5780 ac) of land at Marine Corps Base Camp Pendleton and within the City of Carlsbad. This unit encompasses approximately 2,295 ha (5,670 ac) of land containing vernal pool complexes that support the Riverside fairy shrimp within Camp Pendleton. An additional vernal pool complex containing the Riverside fairy shrimp located within the jurisdiction of the City of Carlsbad is being proposed as critical habitat. This vernal pool complex (approximately 45 ha (110 ac)) is associated with a remnant parcel of coastal terrace habitat and is located at the Poinsettia Lane train station. Other federally listed vernal pool species that occur in this unit include San Diego fairy shrimp, San Diego button-celery, California orcutt grass, and Spreading navarettia.
- **Unit 5: Central San Diego County** - This unit includes 30 ha (75 ac) and contains a vernal pool within Marine Corps Air Station, Miramar. This location is the only known occurrence of Riverside fairy shrimp within the Central Coastal Mesa Management Area, San Diego County. In addition, this pool is identified in the Recovery Plan as necessary to stabilize the Riverside fairy shrimp in central San Diego County. Vernal pools on Miramar contain all of the federally listed vernal pool species that occur in southern California with the exception of Otay mesa mint (*Pogogyne nudiuscula*) and the versatile fairy shrimp.
- **Unit 6: South San Diego County** - The South San Diego County critical habitat unit includes approximately 65 ha (160 ac) and contains the ephemeral basin along the United States-Mexico border. This ephemeral basin is on Federal land (Immigration and Naturalization Service) and represents the southern limit of occupied habitat for the Riverside fairy shrimp in the United States.

## 2. FRAMEWORK, METHODOLOGY, AND IMPACTS

### 2.1 Framework for Analysis

10. As noted above, this economic analysis examines the impacts to specific land uses or activities within those areas designated as critical habitat for the Riverside fairy shrimp. An impact of critical habitat designation includes any effect of the designation above and beyond the impacts associated with the listing of the species. This report employs a framework that compares economic activity with critical habitat designation to economic activity without critical habitat designation. 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 to the fairy shrimp under State and Federal laws, such as the National Environmental Policy Act. The difference between the two scenarios measures the net change in economic activity attributable to the designation of critical habitat for the fairy shrimp. Protection afforded the federally endangered Riverside fairy shrimp under the ESA is the most significant aspect of the baseline situation.

## **2.2 Methodological Approach**

11. Based on past critical habitat designations and Service guidance, this report relies on a methodology that focuses on determining relevant aspects of potential economic impacts of designation. This methodology consists of:
- Considering what specific activities take place on Federal, State, local, and private lands affected by critical habitat designation;
  - Identifying whether activities taking place on State, local, and private lands are likely to involve a Federal nexus;
  - Evaluating the likelihood that identified Federal nexuses will result in consultations and, in turn, that consultations will result in modifications to projects;
  - Determining if critical habitat designation on Federal land will lead to intra-agency consultations and project modifications;
  - Evaluating whether critical habitat designation is likely to create costs for small businesses as a result of modifications or delays to projects;
  - Evaluating the likelihood of economic costs associated with public perception about the effect of critical habitat on the private land subject to the designation;
  - Establishing benefits of critical habitat designation.

### **2.3 Information Sources**

12. The methodology outlined above relies on input and information from Service staff at field and regional offices and affected State and local agencies. Service staff provided an assessment of activities likely to occur on these lands.

### **2.4 Relevant Baseline Information**

13. As described in *Economic Analysis of Critical Habitat Designation for the San Diego Fairy Shrimp*, and at the time the proposed critical habitat for the Riverside fairy shrimp was published, vernal pool complexes (and related ephemeral ponds) which support Riverside fairy shrimp (and other vernal pool species) received significant baseline protection under the Clean Water Act due to their relative scarcity.<sup>2</sup> The Service advised that under section 404 of the Clean Water Act, and because the number of vernal pools remaining in southern California is so limited, any proposed development of vernal pools in this region was given the highest level of scrutiny in the permitting process. As was the case for critical habitat for San Diego fairy shrimp, the designation of critical habitat for the Riverside fairy shrimp was thought to provide little or no additional protection above and beyond that provided by section 404 of the Clean Water Act and the listing of fairy shrimp (and other vernal pool species with which it sometimes co-occurs).
14. Under the section 404 permitting process, the preferred outcome for a proposed development that may impact a vernal pool is to avoid any negative effect on the pool. The next level of protection is to preserve the highest quality vernal pools at the expense of lower quality pools. If avoidance is impossible, then the Army Corps of Engineers, in coordination with the Service and the U.S. Environmental Protection Agency (EPA), required that compensatory mitigation activities be undertaken. Mitigation of vernal pools included preservation, restoration, and enhancement of vernal pool habitat with the goal of no net loss of vernal pool habitat, regardless of the presence or absence of the shrimp.
15. On January 9, 2001, the United States Supreme Court issued a ruling in *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers (99-1178)*. The Court ruled that the U.S. Army Corps of Engineers (ACE) exceeded its statutory authority under section 404 of the Clean Water Act by asserting authority over "an abandoned sand and gravel pit...which provides habitat for migratory birds." The implications of the ruling are that ACE's jurisdiction over isolated wetlands such as vernal

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<sup>2</sup>*Final Economic Analysis of Critical Habitat Designation for the San Diego Fairy Shrimp*, prepared by Industrial Economics, Incorporated for the U.S. Fish and Wildlife Service (October 2000).

pools is potentially limited. At the time of this writing, ACE has not yet issued any formal guidance concerning the specific implications of the ruling, including whether they will maintain regulatory jurisdiction over isolated vernal pools in southern California. Hence, below we describe the two potential baseline scenarios that may apply to this economic analysis, depending on ACE's final interpretation of the ruling as it applies to vernal pool habitat in southern California.

16. Under the existing baseline, ACE exerts jurisdictional authority over ephemeral wetlands that meet their definition of a "vernal pool." Within this baseline, ACE consults with the Service on every activity or project being conducted in vernal pools that require permitting under section 404 of the Clean Water Act. As described above, the preferred outcome for proposed activities that may affect a vernal pool is to avoid any negative effect on the pool. If avoidance is impossible, then compensatory mitigation is the next preferred option. Because of the high level of protection already afforded vernal pool habitat under provisions of the Clean Water Act in this baseline situation, the designation of critical habitat is not expected to create any incremental economic impacts.
17. The other plausible baseline situation is one in which the ACE issues guidance on the Court's ruling indicating that they no longer exert jurisdictional authority over activities being conducted in vernal pools. Under such an interpretation, ACE's regulatory authority may be much more limited. While actions occurring in occupied vernal pools would still be regulated under the listing provisions of the Act due to the presence of federally listed species, vernal pools not inhabited by the species would not be affected by critical habitat if no Federal nexus exists. Thus, the resulting economic impact may be a reduction in the total number of section 7 consultations conducted by Federal agencies on projects affecting unoccupied vernal pools that lie within critical habitat.
18. Other relevant baseline statutes include the California Environmental Quality Act (CEQA), which requires identification of 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, 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 finds a project will cause significant impacts, the

landowners must prepare a Environmental Impact Report (EIR).<sup>3</sup>

19. Any economic impacts identified by the EIR process are due to the presence of a particular species on the project land, regardless of whether it is designated critical habitat. Review of the CEQA statute and conversations with the California Resources Agency (one of the agencies responsible for administering CEQA) revealed that when 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.<sup>4</sup> Therefore, economic impacts generated by CEQA on occupied critical habitat areas are part of the baseline and not attributable to the designation of critical habitat.

## **2.5 Potential Impacts of Critical Habitat on Federal Land**

20. The Service has proposed approximately 2,335 ha (5,770 ac) of Federal land for critical habitat designation for the Riverside fairy shrimp. The areas proposed for designation as critical habitat on Federal land include property in San Diego and Orange County held or managed by the U.S. Department of Defense, U.S. Marine Corps, U.S. Department of Justice, and the U.S. Immigration and Naturalization Service.
21. Section 7 of the ESA requires formal consultation with the Service for all Federal actions that may adversely affect listed species or designated critical habitat. Current and planned land uses and activities on Federal land that may be affected by designation of critical habitat were identified by the Service. According to the Service, critical habitat designation for the Riverside fairy shrimp is unlikely to place additional modifications on any of the identified Federal land uses and activities above and beyond modifications already afforded the endangered fairy shrimp pursuant to the ESA. Below we describe current and planned land uses and activities, and potential impacts for lands owned or managed by Federal agencies within the proposed critical habitat.

### **U.S. Department of Defense**

#### **Marine Corps Base Camp Pendleton**

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<sup>3</sup> 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](http://ceres.ca.gov/topic/env_law/ceqa/summary.html), August 23, 2000.

<sup>4</sup> Personal communication with the California Resources Agency Office, September 11, 2000.

22. Proposed critical habitat for the Riverside fairy shrimp on Camp Pendleton equals approximately 2,295 ha (5,670 ac) in northern San Diego County. Camp Pendleton hosts, among other units, I Marine Expeditionary Force (I MEF), which is tasked with achieving and maintaining combat readiness, and planning for and conducting contingency, amphibious, and other assigned missions; and the 1st Marine Division and 1st Force Service Support Group, which consists of infantry, artillery, combat engineer, amphibious vehicle, and combat service troop units. Additionally, Camp Pendleton is home to a Marine Corps Air Station and aviation units of 3d Marine Aircraft wing. The Base also hosts various military schools, including the School of Infantry for training newly enlisted Marines from the West Coast, the Field Medical Service School, and the Weapons and Field Training Battalion. Typical training activities include: combat engineering; field communications; nuclear, biological, and chemical defense; basic combat skills; marksmanship; land navigation; vehicle operations; and other military activities.<sup>5</sup>
23. The vernal pool complexes within the proposed critical habitat unit located at Camp Pendleton are occupied by the Riverside fairy shrimp. Marine Corps personnel are currently conducting section 7 consultations addressing activities taking place on the Base. The Service suggests that these on-going consultations as well as any future consultations or project modifications would therefore be attributable to the Riverside fairy shrimp being listed as an endangered species under the ESA rather than due to critical habitat designation.

**Marine Corps Air Station Miramar<sup>6</sup>**

24. Proposed critical habitat lands in San Diego County cover approximately 30 ha (75 ac) on Marine Corps Air Station (MCAS) Miramar. The lands are considered to be occupied and include only a single vernal pool.<sup>7</sup> MCAS Miramar is the largest Marine Corps Air Station in the western United States, and hosts the Commander Headquarters, Marine Corps Air Bases Western Area, the 3rd Marine Aircraft Wing (3d MAW), and a large reserve aviation group. MCAS Miramar does not carry out off-road land activities (e.g., troop deployment, vehicular exercises) of the type described at Camp Pendleton within the

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<sup>5</sup> This information was gathered in preparation for the *Final Economic Analysis of Critical Habitat Designation for the San Diego Fairy Shrimp*, prepared by Industrial Economics, Incorporated for the U.S. Fish and Wildlife Service (October 2000).

<sup>6</sup> Information on Marine Corps Air Station Miramar was provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 14, 2000.

<sup>7</sup> The exact number of vernal pools is dependent upon recent rainfall. Personal communication with a Wildlife Biologist, Carlsbad Fish and Wildlife Office, U.S. Fish and Wildlife Service, Carlsbad, California, November 14, 2000.

proposed designated habitat. Land-use activities surrounding the critical habitat designation include overhead air traffic and highway vehicular traffic.

25. This analysis finds that critical habitat will not impose costs above and beyond those already required by the listing since the Service identifies the proposed critical habitat unit as occupied. In addition, the Service asserts that the proposed critical habitat unit within MCAS Miramar lands already receives significant baseline protection based on Miramar's Integrated Natural Resource Management Plan (INRMP).<sup>8</sup> The INRMP indicates that the proposed critical habitat is designated as a "Level I Management Area." Under the Level I designation, "... the highest conservation priority...is to take proactive measures to prevent damage to vernal pool resources." The Plan also asserts the need to consult with the Service pursuant to section 7 of the ESA.<sup>9</sup> For this reason, the Service does not believe that the proposed critical habitat designation will impose *additional* restrictions, since both Federal law and local military land use policy explicitly provide for the protection of the species and vernal pool habitat.

**Marine Corps Air Station El Toro**<sup>10</sup>

26. The vernal pool-like ephemeral ponds within the proposed critical habitat unit located at MCAS El Toro is occupied by the Riverside fairy shrimp. In Orange County, the lands containing the vernal pool-like ponds are currently owned by the Marine Corps, but are in the process of being transferred to the Federal Bureau of Investigation. Specific details on future land use are not currently known. If the FBI decides to develop the site in the future, the Service believes there will be no incremental impacts attributable to the critical habitat designation of the Riverside fairy shrimp because the site is occupied by a federally listed species.

**U.S. Department of Justice**

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<sup>8</sup> MCAS Miramar's Integrated Natural Resource Management Plan can be found on the web at <http://www.miramar.usmc.mil/newmiramar/Environmental/images/Environmentalhome.html>

<sup>9</sup> Ibid, p. 5-10.

<sup>10</sup> Information on Marine Corps Air Station El Toro was provided by Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 14, 2000.

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## Immigration and Naturalization Service<sup>11</sup>

27. The U.S. Immigration and Naturalization Service (INS) owns one parcel of land that supports an occupied vernal pool complex in an ephemeral basin along the United States-Mexico International Border, in southern San Diego County. Approximately 65 ha (160 ac) have been proposed as critical habitat for the Riverside fairy shrimp on these INS lands. Current activities on these lands include construction of roads and fences, as well as off-road vehicle patrols. The Service is currently engaged in two section 7 consultations with INS: (1) An informal consultation discussing the impact of INS's daily operations, including the effects of off-road vehicle patrols through potential habitat for fairy shrimp; and (2) a formal consultation examining the impact of fence and road building activities on the listed fairy shrimp. Since both of these consultations were initiated prior to the proposal of critical habitat for the fairy shrimp, any impacts are attributable to the listing of the species, rather than the proposed critical habitat. Similarly, any future consultations addressing INS' activities on these lands will occur because of the presence of the fairy shrimp and other federally listed species. In addition, this parcel includes critical habitat for other federally listed species such as the California gnatcatcher (*Polioptila californica californica*) and the Quino checkerspot butterfly (*Euphydryas editha quino*).

### 2.6 Potential Impacts of Critical Habitat on Non-Federal Land

28. The Service has proposed approximately 2,545 ha (6,290 ac) of non-Federal land (including approximately 5 ha (10 ac) of local and State managed land) for critical habitat designation for the Riverside fairy shrimp. The areas proposed for designation as critical habitat for the fairy shrimp include property held or managed by housing developers, conservation partnerships, the Los Angeles World Airport (Los Angeles International Airport), the City of Carlsbad (the Poinsettia Lane train station) and the Calvary Chapel.
29. Similar to the case for Federal lands, current baseline protection of vernal pool habitat plays a prominent role on non-Federal land as well. The Service advises because of the limited number of vernal pools remaining in southern California, any proposed development of vernal pools on State, local, and private lands in southern California are likely to be given the highest level of protection. The designation of critical habitat for the Riverside fairy shrimp is likely to provide little or no additional protection above and beyond that provided by the ESA and the Clean Water Act, given that the ACE maintains jurisdictional authority over vernal pools in light of the recent Supreme Court ruling. Absent this jurisdictional authority under section 404 of the Clean Water Act, the baseline protection afforded

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<sup>11</sup> Information on Marine Corps Air Station Miramar was provided by Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 14, 2000.

unoccupied vernal pool habitat under section 404 will be diminished, whereas vernal pools occupied by the species will remain subject to baseline protections under the Act.

30. Current and planned land uses and activities on non-Federal land that may be affected by designation of critical habitat were identified by the Service. Below we describe current and planned land uses and activities, possible Federal nexuses, and potential impacts for each major non-Federal land owner or manager within the proposed critical habitat.

## Ventura County

### Carlsberg Ranch<sup>12</sup>

31. The vernal pool complex located at Carlsberg Ranch in Ventura County is owned by Lennar Homes, Incorporated, and measures approximately 1.6 ha (4 ac). Future activity within this unit is unlikely due to the designation of the unit as part of the Moorpark Vernal Pool Preserve. Other federally endangered species inhabiting this unit include the coastal California gnatcatcher, Lyons pentachaeta (*Pentachaeta lyonii*), and California Orcutt grass.
32. Prior to the construction of the existing development on the Carlsberg Ranch site, the Service and the Army Corps conducted an informal section 7 consultation to address impacts on the gnatcatcher. During this consultation, the Service recommended that the development proponent, Lennar Homes, Inc., apply for an incidental take permit for adverse effects of the development on the gnatcatcher. During this informal consultation on the upland species (i.e., the gnatcatcher) there was no clear Federal nexus linking the proposed development to a Federal agency since neither the Riverside fairy shrimp nor its habitat were likely to be affected by the proposed development. However, when the Service discussed the vernal pool complex with the development proponent, Lennar Homes' hydrologist recommended construction of a concrete outflow to help maintain the deep pool habitat preferred by the fairy shrimp. The Service agreed with this recommendation. This required Lennar Homes to obtain a section 404 permit from the ACE for construction of the outflow. At this point, it was clear that a Federal nexus existed and Lennar Homes agreed to address all four listed species occupying this property in a formal consultation.
33. This proposed critical habitat unit is currently included as part of the Moorpark Vernal Pool Reserve. There are no future plans to develop the land containing this vernal pool complex. Therefore, considering the current development plans for this site, the Service does not believe there will be any incremental impacts attributable to the designation of critical habitat on the Carlsberg Ranch property because the presence of the federally listed

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<sup>12</sup> Information on Carlsberg Ranch was provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, November 15, 2000.

Riverside fairy shrimp and other listed species on the property is likely to prompt any future consultation.

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**Los Angeles County**

**Cruzan Mesa**<sup>13</sup>

34. According to information supplied by the Service, the vernal pool complex located at Cruzan Mesa in Los Angeles County is owned by Pardee Construction Company. This vernal pool complex measures approximately 5 ha (11 ac) and is occupied by the species. These vernal pools also provide habitat for two other federally listed species: California orcutt grass and spreading navarettia. If future development proposes to fill in the vernal pools within this critical habitat unit, the potential impacts to these federally listed species and their habitats would have to be addressed either through a section 7 consultation, if a Federal nexus exists, or through an incidental take permit issued under section 10 of the ESA.
35. The Service advises that, although no formal construction proposal has been submitted to Los Angeles County, the land owner's intended use of these lands probably includes residential development. In the event of future development at the site, a biological survey would need to be conducted to confirm the presence of the shrimp.
36. The Service believes that resulting consultation or permitting would occur as a result of the fairy shrimp being a federally listed species and not as a result of the proposed critical habitat designation. Therefore, any incremental costs associated with this consultation, permitting and resultant field surveys would not be attributable to the designation, but would occur regardless due to the presence of several federally listed species.

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**Los Angeles International Airport/El Segundo Blue Butterfly Preserve**<sup>14</sup>

37. \_\_\_\_\_ The Los Angeles coastal prairie unit includes a 12 ha (30 ac) area within and adjacent to the El Segundo Blue Butterfly Preserve, west of Pershing Drive at the Los Angeles

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<sup>13</sup> Information on the Cruzan Mesa unit was provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, November 15, 2000.

<sup>14</sup> Information on the Los Angeles Airport/Segundo Blue Butterfly Preserve was provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 15, 2000.

International Airport. The proposed critical habitat *includes* unoccupied lands west of Pershing Drive that contain the primary constituent elements and *excludes* occupied lands east of Pershing Drive that are disturbed and altered as a result of historical development and current activities (e.g., mowing). This unit also supports western spadefoot toad.

38. The Service is not aware of any plans to develop this site. As noted in the relevant baseline section above, economic impacts on this unoccupied unit will depend, in part, upon guidance issued by the ACE indicating their interpretation of their jurisdictional authority over activities being conducted in vernal pools. Since this unit is unoccupied, and since it is plausible that ACE may no longer exert jurisdiction over vernal pools in the future, economic impacts in the form of section 7 consultations and/or project modifications attributable to the proposed critical habitat may only occur if a Federal nexus exists. A Federal nexus is uncertain but may include an ACE permit or authorization from the Federal Aviation Administration. The magnitude of economic impact of these incremental consultations and/or project modifications have not been estimated due to uncertainty surrounding future development, ACE's interpretation of the ruling on isolated wetlands, and the existence of a Federal nexus.

## **Orange County**

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### **Chiquita Ridge**<sup>15</sup>

39. The vernal pool complex included in the proposed critical habitat designation for the Riverside fairy shrimp includes two occupied pools in Orange County. One of these pools is the focus of enhancement efforts to offset impacts associated with the 1996 extension of Antonio Parkway. The Biological Opinion summarizing the formal consultation with the ACE resulted in the Service recommending that the Chiquita Ridge parcel be conserved to mitigate for the highway expansion. One of these two vernal pools also provides habitat for the San Diego fairy shrimp. In addition, the Chiquita Ridge unit supports one of the densest concentrations of gnatcatchers in southern California, although their presence in the immediate vicinity of the vernal pools is uncertain.
40. Lands surrounding the vernal pool complex within the Chiquita Ridge unit have also been the focus of conservation efforts by the Rancho Mission Viejo (RMV) Company as mitigation for the Ladera Development. The portion of lands set aside by the RMV Company will eventually be turned over to the County who will receive fee-title ownership

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<sup>15</sup> Information on Chiquita Ridge was provided a Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 15, 2000.

"through dedication" so long as RMV maintains the parcel as open space.<sup>16</sup>

41. The Service does not foresee any future development or activities that would trigger a consultation since the parcel is already preserved as part of a mitigation agreement. In addition, because this unit is considered occupied, any consultations or project modifications would be attributable to the listing of the species, as would any incremental costs associated with these consultations.

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**Tijeras Creek**<sup>17</sup>

42. \_\_\_\_\_ The property that has been proposed for critical habitat designation at Tijeras Creek in Orange County, which is adjacent to a regional park and a roadway, is currently owned by the Calvary Chapel. The Service indicates that the parcel's vernal pool complex is known to contain Riverside fairy shrimp, and that the gnatcatcher occupies upland portions of the parcel as well. The current landowner recently acquired the parcel from a development company (RMV Company), but their intentions for developing the site are unclear. The Service indicates that Calvary Chapel may be considering selling the parcel to a third party, who intends to use the Tijeras Creek parcel as mitigation for a development project elsewhere. If this mitigation agreement takes place, it will be compatible with Orange County's Southern Subregional Natural Community Conservation Plan. If Calvary Chapel chooses instead to retain ownership to the land, future development of the site is uncertain.
43. To the extent that the current landowner wishes to sell this piece of land to a third party developer interested in purchasing mitigation credit, the critical habitat designation could theoretically provide a benefit based on the Service's official recognition of the primary constituent elements required by the fairy shrimp. However, the Service does not believe the proposed designation provides any incremental protection not already afforded the species due to the listing under the ESA.
44. The Service has not conducted a section 7 consultation addressing this parcel in the past. In the event of future development on the site (either by Calvary Chapel or an alternative landowner), the Service asserts that development of the vernal pools may require permitting through section 7 or section 10 of the ESA and, as such, the designation of critical habitat would not be responsible for incremental costs and/or modification to future land uses or activities. Furthermore, the Service believes that the presence of the fairy shrimp provides

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<sup>16</sup> Information provided by Resources Director for Orange County Office of Planning and Development, November 30, 2000.

<sup>17</sup> Information for Tijeras Creek provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 15, 2000.

a clear impetus for future consultations under section 7 or section 10 of the ESA and that critical habitat designation will not result in additional requirements for potential development projects.

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**Rancho Viejo**<sup>18</sup>

45. \_\_\_\_\_ The Rancho Viejo critical habitat unit in Orange County is currently owned by Southern California Edison and is considered to be occupied by the fairy shrimp. According to the Service, this property is explicitly identified in the Orange County Central/Coastal Subregional Natural Community Conservation Plan as a priority acquisition and may be included as part of a mitigation banking program.<sup>19</sup> In accordance with this program, Southern California Edison is considering selling the property to a developer seeking mitigation credit. If the Rancho Viejo unit is sold as a mitigation parcel, the unit would be turned over to a non-profit organization for future management and species' protection.<sup>20</sup> In the event that the Rancho Viejo unit is not sold for mitigation purposes and development were to occur in the future, a Federal nexus may be exercised as a result of Federal actions taken by the Federal Energy Regulatory Commission (FERC), ACE, Federal Communications Commission (FCC), and/or Federal Highways Administration (FHWA).
46. The Service considers this unit to be occupied based on the documented presence of fairy shrimp on the property in 1997. Currently, the owners have no plans to develop the site. Since it is likely this parcel will be purchased as part of a mitigation agreement, the Service does not believe the proposed critical habitat designation will result in a future consultation or other economic impacts. Furthermore, if a consultation were to occur, it would be attributable to the species being listed as federally endangered rather than to the proposed critical habitat designation.

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**Saddleback Meadows**<sup>21</sup>

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<sup>18</sup> Information on Rancho Viejo provided by Wildlife Biologists, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 15 and 17, 2000.

<sup>19</sup> The Rancho Viejo parcel is a high probability for mitigation since this parcel has been explicitly identified as a priority acquisition. The Tijeras Creek owners, on the other hand, are only exploring the possibility of offering their land as part of a mitigation effort.

<sup>20</sup> Southern California Edison may, in turn, make this property available to the California Quartet, Limited which is in the process of meeting state and Federal requirements for a development project at the Saddleback Meadows site in Orange County.

<sup>21</sup> Information on Saddleback Meadows provided by Wildlife Biologists, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 15 and 17, 2000.

47. The critical habitat unit located at Saddleback Meadows in Orange County is owned by California Quartet, Limited. The Service considers this unit to be occupied, and part of the critical habitat unit for the Riverside fairy shrimp overlaps with critical habitat designation for the listed coastal California gnatcatcher.
48. This property is currently the focus of a formal section 7 consultation between the Service and the ACE regarding section 404 permitting for a proposed residential development. The Service advises that the Biological Opinion summarizing this consultation will be issued in March 2001. Recently, the State of California ruled that the development proponent failed to meet CEQA state requirements identifying environmental impacts for the project. The Service asserts, however, that formal consultation with the action agency (the ACE) will still result in the issuance of the Biological Opinion as expected, regardless of the proponent's ability to fulfill state requirements.
49. Because this consultation was initiated before the proposed critical habitat was designated, any economic impacts are attributable to the listing of the Riverside fairy shrimp, rather than the proposed critical habitat designation. The Service asserts that any future consultations regarding the vernal pools will also be attributable to the species being listed as federally endangered.

## **Riverside County**

### **Santa Rosa Plateau**<sup>22</sup>

50. The critical habitat unit located at Santa Rosa Plateau in Riverside County is part of the Santa Rosa Ecological Preserve and is occupied by the Riverside fairy shrimp. This Preserve is managed by four different entities including the California Department of Fish and Game, The Nature Conservancy, the City of Riverside Parks and the Metropolitan Water District.
51. The Service does not anticipate any development occurring on or near the Preserve that would require a section 7 consultation. The Service believes that there will be no incremental impacts attributable to the proposed critical habitat designation for the Riverside fairy shrimp at Santa Rosa because this land is protected as part of a nature preserve.

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<sup>22</sup> Information on the Santa Rosa Plateau was provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 1, 2000.

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**Murrieta**<sup>23</sup>

52. The vernal pool complex located in Murrieta in Riverside County is located on a residential housing development. These vernal pools were identified when the landowner conducted a biological survey and determined that this property is occupied by the Riverside fairy shrimp. Currently, the Service does not know of any development or other land uses planned for this site.
53. Thus, the Service does not anticipate that any consultations or other project modifications associated with this designation will occur. Because this unit is occupied by the fairy shrimp, any incremental economic impacts would likely occur regardless of critical habitat, due to protections afforded the species under the ESA.

**San Diego County**

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**Poinsettia Lane Train Station**<sup>24</sup>

54. The critical habitat unit at the Poinsettia Lane train station is owned by the City of Carlsbad, and covers 45 ha (110 ac).<sup>25</sup> This train station, which is occupied by the fairy shrimp, is also inhabited by other federally listed species including the San Diego fairy shrimp, California orcutt grass, and button-celery. The unit contains two vernal pool complexes within the train station's right-of-way. The first set of vernal pools is found between the railroad tracks and the train station and resides under a footbridge used by commuter passengers. These pools have been protected as part of a mitigation agreement developed between the Service, North County Transit District, and the U.S. Department of Transportation during a section 7 consultation for impacts to vernal pools resulting from the construction of the train station. The second set of vernal pools is situated between the railroad tracks and adjacent private land located further from the train station.
55. While the vernal pools found under the passenger footbridge are adequately protected under the mitigation agreement, the Service is concerned about a new residential

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<sup>23</sup> Information on the Murrieta was provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 1, 2000.

<sup>24</sup> Information on the Poinsettia Lane train station was provided by a Wildlife Biologist, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, November 14, 2000.

<sup>25</sup> Information on the acreage of the Poinsettia Lane Train Station unit is based on a revision to the acreage information provided by the Federal Register. E-mail correspondence, Wildlife Biologist, Carlsbad Fish and Wildlife Office, November 28, 2000.

development project on private lands adjacent to the second set of vernal pools. Construction activity on this private parcel includes movement of graders and other land-clearing equipment that could potentially impact this second set of vernal pools, even though the development is not within the train station's right-of-way. The Service advises, however, that any future consultation due to the construction activity would be attributable to the presence of a federally listed species on the adjacent lands, and not due to the critical habitat designation on the train station property. If activities affecting the vernal pools within the boundary of Poinsettia Lane train station require a consultation, a Federal nexus would exist due to subsidies for the commuter rail train.<sup>26</sup> However, a consultation addressing impacts to the vernal pools identified in this proposed critical habitat designation would be attributable to the fairy shrimp being listed as federally endangered, and not the designation itself, since the area is considered occupied.

## **2.7 Summary of Impacts**

56. Exhibit 1 summarizes the current land use activities, possible Federal nexuses, and the likelihood of future consultations and economic impacts for each of the units proposed for critical habitat designation for the Riverside fairy shrimp.

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<sup>26</sup> The Service identified the Federal nexus and the Marketing Director at the San Diego Coaster Commuter Rail confirmed that Federal funds comprise a portion of the operating expenses for the commuter rail using Poinsettia Lane Train Station, Personal Communication, November 14, 2000.

Exhibit 1					
SUMMARY OF ECONOMIC IMPACTS ASSOCIATED WITH CRITICAL HABITAT DESIGNATION FOR THE RIVERSIDE FAIRY SHRIMP					
Land Owner or Manager	Parcel Name	Federal Nexus	Reasonably Foreseeable Activities and Land Uses within Proposed Critical Habitat	Likelihood of New Consultations and/or Project Modifications due to Critical Habitat Designation	Expected Costs due to Critical Habitat Designation
<b>FEDERAL LAND</b>					
Department of Defense	Marine Corps Base Camp Pendleton	Federal land ownership	Field communications, basic combat skills, marksmanship, land navigation, vehicle and other military operations <sup>a</sup>	Low; Consultation on- going due to listing	None
	Marine Corps Air Station Miramar	Federal land ownership	Moderate restrictions of land uses under Integrated Natural Resource Management Plan	Low	None
	Marine Corps Air Station El Toro	Federal land ownership	Transfer of surrounding land to Federal Bureau of Investigation; future land use not currently known	Low	None
Department of Justice	Immigration and Naturalization Service	Federal land ownership	Construction of roads and fences; off- road vehicle patrols	Low; formal and informal consultation on-going due to listing	None

<b>Land Owner or Manager</b>	<b>Parcel Name</b>	<b>Federal Nexus</b>	<b>Reasonably Foreseeable Activities and Land Uses within Proposed Critical Habitat</b>	<b>Likelihood of New Consultations and/or Project Modifications due to Critical Habitat Designation</b>	<b>Expected Costs due to Critical Habitat Designation</b>
<b>NON-FEDERAL LAND</b>					
<b>Los Angeles County</b>					
Pardee Construction Company	Cruzan Mesa	Potential section 404 permitting	No development proposal submitted, but likely to occur in future	Low	None
<b>Ventura County</b>					
Lennar Homes, Incorporated	Carlsberg Ranch	Potential section 404 permitting	Vernal pools part of a preserve due to mitigation agreement	Low	None
<b>Orange County</b>					
City of Los Angeles	Los Angeles International Airport/El Segundo Blue Butterfly Preserve	Potential 404 permitting or authorization by ACE or FAA	No development proposal submitted, part of El Segundo Blue Butterfly Preserve	Moderate	Unknown <sup>b</sup>
Orange County	Chiquita Ridge	Potential section 404 permitting	Land protected as part of mitigation agreement	Low	None

<b>Land Owner or Manager</b>	<b>Parcel Name</b>	<b>Federal Nexus</b>	<b>Reasonably Foreseeable Activities and Land Uses within Proposed Critical Habitat</b>	<b>Likelihood of New Consultations and/or Project Modifications due to Critical Habitat Designation</b>	<b>Expected Costs due to Critical Habitat Designation</b>
Calvary Chapel	Tijeras Creek	Potential section 404 permitting	Future development uncertain; potential sale to third party developer seeking mitigation credit	Low	None
Southern California Edison	Rancho Viejo	Possible relevant Federal nexus under either FERC, ACE, FCC, and/or FHWA	Potential purchase for mitigation credit	Low	None
California Quartet, Limited	Saddleback Meadows	Potential section 404 permitting	Proposed residential development	Low; Consultation on-going due to listing	None
<b>Riverside County</b>					
California Dept. of Fish and Game; The Nature Conservancy; City of Riverside Parks & Metropolitan Water District	Santa Rosa Plateau	Potential section 404 permitting	Conservation/preservation land management	None	None

<b>Land Owner or Manager</b>	<b>Parcel Name</b>	<b>Federal Nexus</b>	<b>Reasonably Foreseeable Activities and Land Uses within Proposed Critical Habitat</b>	<b>Likelihood of New Consultations and/or Project Modifications due to Critical Habitat Designation</b>	<b>Expected Costs due to Critical Habitat Designation</b>
Private Landowner	Murrieta	Unknown	None	Low	None
<b>San Diego County</b>					
City of Carlsbad	Poinsettia Lane Train Station	Subsidies of train operations by U.S. Department of Transportation	Development of adjacent lands	Low	None
<p><sup>a</sup> This information was gathered in preparation for the Economic Analysis of the Critical Habitat Designation for the San Diego Fairy Shrimp, prepared by Industrial Economics, Incorporated for the U.S. Fish and Wildlife Service. (October 2000)</p> <p><sup>b</sup> Costs due to critical habitat on the privately owned parcel within the Los Angeles International Airport/El Segundo Blue Butterfly Preserve Unit cannot be estimated due to the uncertainty surrounding future development, ACE's interpretation of the ruling on isolated wetlands, and the existence of a Federal nexus.</p>					

## **2.8 Potential Impacts to Small Businesses**

57. 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).<sup>27</sup> 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. The amended Regulatory Flexibility Act requires 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.

58. Because the presence of the fairy shrimp is established in each area proposed for critical habitat designation and these areas consist exclusively of rare vernal pool habitat, any future consultations or project modifications associated with the proposed areas would take place as a result of the species being federally listed as endangered, rather than to the designation. Therefore, the designation of critical habitat for the Riverside fairy shrimp should not have any incremental economic impact on small businesses (or other small entities) within southern California.

## **2.9 Potential Impacts Associated with Project Delays and Property Values**

59. Due to the lack of information regarding privately owned lands, the full range of potential uses of and activities on these lands is somewhat uncertain. However, these private parcels are relatively small, or are devoted to relatively low-impact commercial or recreational uses, and would not likely support large-scale developments. Furthermore, discussions with Service staff indicate that for the most part, section 7 consultations and any subsequent project delays associated with potential developments could result from the protections afforded the species under the ESA.

60. Based on the relatively small expanse of the proposed critical habitat on private land, Service staff do not believe that property values of private lands would be impacted by public perceptions of the critical habitat designation beyond those impacts created as a result of the listing of the species as federally endangered. However, this will be further explored in communications with private landowners prior to completing the final economic analysis.

## **2.10 Benefits**

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<sup>27</sup> 5 U.S.C. 601 et.seq.

61. The designation of critical habitat for the Riverside fairy shrimp may result in economic benefits by providing public recognition of the ecological value associated with lands proposed for mitigation agreements, as well as lands already protected as ecological preserves. For example, the owners of both the Tijeras Creek and Rancho Viejo property have indicated an interest in selling their land for mitigation purposes. Critical habitat designation could provide economic benefits to these landowners by confirming the ecological value of these parcels, thereby making the land more attractive to prospective buyers. Landowners for the Chiquita Ridge and Santa Rosa parcels, where ecological preserves have already been established, can similarly benefit through improved public relations attributable to the designation's endorsement of the conservation value of these units. Critical habitat may provide additional land use planning benefits for the Tijeras Creek and Rancho Viejo units since both of these parcels are explicitly identified in regional conservation plans as important components of local efforts to protect "endangered habitat."
62. Economic benefits in the form of improved land use planning may also be derived from critical habitat due to a reduction in uncertainty regarding a parcel's inherent biological resources. For example, expenditures on biological surveys required under baseline environmental regulations (e.g., CEQA) may be avoided due to the availability of *a priori* information describing the location and extent of critical habitat for relevant vernal pool species. Economic benefits derived from these avoided costs are likely relevant only to those development projects that have not initiated preliminary surveying activities. Estimating the magnitude of potential avoided costs is difficult, however, due to the uncertainty associated with development occurring in the future and the possibility that other critical habitat designations may overlap on a given parcel.

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