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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp; Final Rule

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Fish and Wildlife Service

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[Docket No. FWS–R8–ES–2011–0013; 4500030114]

RIN 1018–AX15

Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, revise the critical habitat for the Riverside fairy shrimp under the Endangered Species Act of 1973, as amended. The previous critical habitat consisted of land in four units in Ventura, Orange, and San Diego Counties, California. We now designate land in three units in Ventura, Orange, and San Diego Counties, California, for a total of approximately 1,724 ac (698 ha), which represents critical habitat for this species. Areas in Riverside County are excluded from critical habitat in this final revised rule.

DATES: This rule becomes effective on January 3, 2013.

ADDRESSES: This final rule and the associated final economic analysis are available on the Internet at *http://www.regulations.gov.* Comments and materials received, as well as supporting documentation used in preparing this final rule, are available for public inspection, by appointment during normal business hours, at the U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Suite 101, Carlsbad, CA 92011; telephone 760–431–9440; facsimile 760–431–5901.

The coordinates or plot points or both from which the maps for this critical habitat designation were generated are included in the administrative record and are available on our Internet site (*http://www.fws.gov/carlsbad/*), at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2011–0013, and at the Carlsbad Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information developed for this critical habitat designation is available at the Fish and Wildlife Service Web site and Field Office set out above, and may also be on *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Jim Bartel, Field Supervisor, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Suite 101, Carlsbad, CA 92011; telephone 760–431–9440; facsimile 760–431–5901. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule and the basis for our action. Under the Endangered Species Act (Act), any species that is determined to be endangered or threatened shall, to the maximum extent prudent and determinable, have habitat designated that is considered to be critical habitat. Designations and revisions of critical habitat can only be completed by issuing a rule. We listed Riverside fairy shrimp as an endangered species on August 3, 1993 (58 FR 41384). We published our first rule designating critical habitat on May 30, 2001 (66 FR 29384). In response to a settlement agreement, we revised critical habitat in a final rule published April 12, 2005 (70 FR 19154). That rule was also challenged in court, and based on the provisions of the new settlement agreement, we are publishing this final revised critical habitat rule.

The critical habitat areas we are designating in this rule constitute our current best assessment of the areas that meet the definition of critical habitat for Riverside fairy shrimp. We are designating:

- Approximately 466 acres (ac) (189 hectares (ha)), in 2 subunits, as critical habitat in Ventura County.
- Approximately 396 ac (160 ha), in 4 subunits, as critical habitat in Orange County.
- Approximately 862 ac (348 ha), in 7 subunits, as critical habitat in San Diego County.

In total, we are designating approximately 1,724 ac (698 ha) as critical habitat for this species. We are also:

- Exempting 1,988 ac (804 ha) from critical habitat designation in Orange County and San Diego County.
- Excluding 1,259 ac (510 ha) from critical habitat designation in Orange County, Riverside County, and San Diego County.

We have prepared an economic analysis of the designation of critical habitat. We announced the availability of the draft economic analysis (DEA) on March 1, 2012 (77 FR 12543), allowing the public to provide comments on our analysis. We have incorporated the comments and completed the final economic analysis (FEA).

Peer reviewer and public comment. We sought comments from four independent specialists to ensure that our designation is based on scientifically sound data and analysis. We also considered all comments and information we received during the public comment periods.

Background

It is our intent to discuss in this final rule only those topics directly relevant to the revision of critical habitat for the Riverside fairy shrimp under the Act (16 U.S.C. 1531 *et seq.*). For more information on the taxonomy, biology, and ecology of Riverside fairy shrimp, please refer to the final listing rule published in the **Federal Register** on August 3, 1993 (58 FR 41384); the first and second rules proposing critical habitat published in the **Federal Register** on September 21, 2000 (65 FR 57136), and April 27, 2004 (69 FR 23024), respectively; and the subsequent final critical habitat designations published in the **Federal Register** on May 30, 2001 (66 FR 29384), and April 12, 2005 (70 FR 19154). Additionally, more species information can be found in the 1998 Recovery Plan for the Vernal Pools of Southern California (1998 Recovery Plan) finalized on September 3, 1998 (Service 1998a, pp. 1–113), in the City of San Diego's 2002–2003 Vernal Pool Inventory (City of San Diego 2004, pp. 1–125), and in the Riverside fairy shrimp 5-year review (Service 2008, pp. 1–57). For new information on Riverside fairy shrimp genetics across the species' range and on the status and distribution of Riverside fairy shrimp, see the most recent proposed critical habitat rule published on June 1, 2011 (76 FR 31686). Information on the associated draft economic analysis (DEA) for the proposed rule to designate revised critical habitat was published in the **Federal Register** on March 1, 2012 (77 FR 12543).

Previous Federal Actions

The Riverside fairy shrimp was listed as an endangered species on August 3, 1993 (58 FR 41384). For a history of Federal actions prior to 2001, please refer to the September 21, 2000, proposed critical habitat rule (65 FR 57136). On May 30, 2001, we published a final rule designating critical habitat for the Riverside fairy shrimp (66 FR 29384). On November 6, 2001, the Building Industry Legal Defense Foundation, Foothill/Eastern Transportation Corridor Agency, National Association of Home Builders, California Building Industry Association, and Building Industry Association of San Diego County filed a lawsuit in the U.S. District Court for the District of Columbia challenging the

designation of Riverside fairy shrimp critical habitat and alleging errors in our promulgation of the May 30, 2001, final rule. We requested a voluntary remand, and on October 30, 2002, critical habitat for this species was vacated by order of the U.S. District Court for the District of Columbia, and the Service was ordered to publish a new final rule with respect to the designation of critical habitat for the Riverside fairy shrimp (*Building Industry Legal Defense Foundation,* et al., v. *Gale Norton, Secretary of the Interior,* et al., *and Center for Biological Diversity, Inc. and Defenders of Wildlife, Inc.* Civil Action No. 01–2311 (JDB) (U.S. District Court, District of Columbia)).

On April 27, 2004, we again proposed to designate critical habitat for the Riverside fairy shrimp (69 FR 23024). The final critical habitat rule was published in the **Federal Register** on April 12, 2005 (70 FR 19154). On January 14, 2009, the Center for Biological Diversity filed a complaint in the U.S. District Court for the Southern District of California challenging our 2005 designation of critical habitat for Riverside fairy shrimp (*Center for Biological Diversity* v. *U.S. Fish and Wildlife Service and Dirk Kempthorne, Secretary of the Interior,* Case No. 3:09–CV–0050–MMA–AJB). A settlement agreement was reached with the plaintiffs (Case No. 3:09–cv–00051–JM–JMA; November 16, 2009) in which we agreed to submit a proposed revised critical habitat designation for the Riverside fairy shrimp to the **Federal Register** by May 20, 2011, and submit a final revised critical habitat designation to the **Federal Register** by November 15, 2012. The proposed revised critical habitat designation was delivered to the **Federal Register** on May 20, 2011, and published on June 1, 2011 (76 FR 31686). This rule complies with the conditions of the settlement agreement.

Summary of Changes From Proposed Rule

(1) We added updated information on the general impacts of climate change and its potential impacts to Riverside fairy shrimp in the *Climate Change* section of this document. We also performed a climate change analysis using software available through Climate Wizard, a web-based climate change prediction program jointly produced by The Nature Conservancy, the University of Washington, and University of Southern Mississippi. We incorporated the results of our analysis into the *Climate Change* section of this rule.

(2) We added a discussion to the *Criteria Used To Identify Critical Habitat* section to supplement our discussion in the proposed rule (76 FR 31686; June 1, 2011) and the March 1, 2012, publication that made available our DEA of the proposed rule (77 FR 12543) and to clarify the rationale for designation of critical habitat units. At the time of listing, we did not have surveys confirming the presence of Riverside fairy shrimp in each critical habitat unit and subunit. However, we confirm that the vernal pool complexes within each unit and subunit were in existence at the time of listing (with the exception of Subunit 3g (Johnson Ranch Created Pool)), and the units and subunits in which the vernal pool complexes are found are within the geographical area occupied by the species at the time of listing and contain the physical or biological features essential to the conservation of the species. Therefore, we consider Unit 1 (1a, 1b), Unit 2 (2c, 2dA, 2dB, 2e, 2f, 2g, 2h, 2i), Unit 3 (3c, 3d, 3e, 3f, 3h), Unit 4 (4c), and Unit 5 (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h) to meet the definition of critical habitat under section 3(5)(A)(i) of the Act (i.e., to be areas within the geographical area occupied by the Riverside fairy shrimp at the time of listing) for the reasons explained in the March 1, 2012, publication (77 FR 12543) despite the absence of proof of occupancy at the time of listing.

Regardless of the occupancy status (documented or presumed; pre- or post-listing) of each unit, in Table 1 of the March 1, 2012, publication (77 FR 12543), we provided our justification for determining why these areas are essential for the conservation of the species under section 3(5)(A)(ii) of the Act. For those units for which we lack data confirming occupancy at the time of listing, we are alternatively designating them under section 3(5)(A)(ii) because they are essential for the conservation of Riverside fairy shrimp and a designation limited to areas confirmed to be occupied at the time of listing would be inadequate to ensure the conservation of the species. We provide further explanation of our method and rationale for defining critical habitat boundaries in the *Criteria Used To Identify Critical Habitat* section below.

(3) Based on a public comment, we updated the name of the vernal pool complex at Marine Corps Air Station (MCAS) Miramar from ''AA 1–7, 9–13 East Miramar (Pool 10) (AA1 East)'' to its recommended name ''East Miramar (AA1 South + Group) (Pool 4786; previously Pool 12).''

(4) In the proposed revised critical habitat rule, Table 4 incorrectly identified 6 ac (3 ha) of land in Subunit 4c as State-owned. The land is actually owned by the North [San Diego] County Transit District. Table 3 in this final revised rule has been updated to show the correct land ownership.

(5) We are now excluding lands owned by the Department of Homeland Security (DHS) in Subunit 5b (29 ac (12 ha)) and a portion of the lands in Subunit 5h (11 ac (4 ha)) from this final critical habitat designation based on national security. This exclusion is consistent with the exclusion of DHS lands in our previous final critical habitat rule published April 12, 2005 (70 FR 19154), due to national security concerns related to the operation and maintenance of the Border Infrastructure System (BIS).

In our proposed revised critical habitat rule published June 1, 2011 (76 FR 31686), we sought comments on whether or not these Federal lands should be considered for exclusion under section 4(b)(2) of the Act for national security reasons, whether such exclusion is or is not appropriate, and whether the benefits of excluding any specific area outweigh the benefits of including that area as critical habitat and why. On October 16, 2012, DHS commented that designation of these lands could interfere with U.S. Customs and Border Patrol Protection activities along the border and urged exclusion of the lands for national security reasons. Based on the national security importance of DHS maintaining access to these border areas, the Secretary is exercising his discretion to exclude lands owned by DHS in this final critical habitat rule. Details on our rationale can be found in the ''Exclusions Based on National Security Impacts'' section below.

(6) In the June 1, 2011, proposed revised rule, we stated that we were considering excluding lands owned by or under the jurisdiction of the Orange County Central-Coastal Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), the Orange County Southern Subregion HCP, the Western Riverside County MSHCP, City of Carlsbad Habitat Management Plan (HMP) under the San Diego Multiple Habitat Conservation Program (MHCP), and County of San Diego Subarea Plan under the MSCP. We have now made a final determination that the benefits of exclusion outweigh the benefits of inclusion of lands covered by these plans. Therefore, the Secretary is exercising his discretion to exclude approximately 89 ac (36 ha) covered by the Orange County Central-Coastal NCCP/HCP, 233 ac (94 ha) covered by the Orange County Southern Subregion

HCP, 865 ac (350 ha) covered by the Western Riverside County MSHCP, 9 ac (4 ha) covered by the City of Carlsbad HMP, and 23 ha (9 ac) covered by the County of San Diego Subarea Plan under the MSCP. In all, the Secretary is exercising his discretion to exclude a total of 1,259 ac (510 ha). For a complete discussion of the benefits of inclusion and exclusion, see the Exclusions section below.

TABLE 1—SUBUNIT OCCUPANCY STATUS AND JUSTIFICATIONS FOR DETERMINING SPECIFIC AREAS ESSENTIAL FOR THE CONSERVATION OF RIVERSIDE FAIRY SHRIMP [1]

Unit/subunit [2]	Service status at listing [3]	Current status [4]; year of first record [5]	Act section 3(5)(A)(i) justification [6]	Act section 3(5)(A)(ii) justification [7]
Ventura County				
1a: Tierra Rejada Preserve.	Presumed occupied ...	Occupied; 1998 (CNDDB, EO 9).	Primary Constituent Elements (PCEs) 1–3; may require management.	Necessary to stabilize Riverside fairy shrimp populations per Recovery Plan (RP); possesses unique soils and habitat type; disjunct population maintains genetic diversity and population stability at species' northernmost distribution.
1b: South of Tierra Rejada Valley.	Presumed occupied ...	Presumed occupied; no protocol surveys have been completed.	PCEs 1–3; may require management.	Provides appropriate inundation ponding; proximity and connectivity to 1a at northern distribution; protects existing vernal pool composition; ecological linkage.
Orange County				
2c: MCAS El Toro	Confirmed occupied ...	Occupied; 1993 (Service 1993, MCAS El Toro survey).	PCEs 1–3; may require management.	
2dA: Saddleback Meadow.	Presumed occupied ...	Occupied; 1997 (HELIX 2009 Report #10537).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; maintains current geographical, elevational, and ecological distribution; maintains current population structure; provides connectivity; large continuous block; ecological linkage.
2dB: O'Neil Regional Park (near Trabuco Canyon).	Presumed occupied ...	Occupied; 2001 (CNDDB, EO 17).	PCEs 1–3; may require management.	Maintains current geographical, elevational, and ecological distribution; maintains current population structure; provides connectivity.
2e: O'Neil Regional Park (near Cañada Gobernadora).	Presumed occupied ...	Occupied; 1997 (CNDDB, EO 4).	PCEs 1–3; may require management.	Maintains current geographical, elevational, and ecological distribution; maintains current population structure; provides connectivity.
2f: Chiquita Ridge	Presumed occupied ...	Occupied; 1997 (CNDDB, EO 5).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; maintains current geographical, elevational, and ecological distribution; maintains current population structure; provides connectivity.
2g: Radio Tower Road	Presumed occupied ...	Occupied; 2001 (CNDDB, EO 15, 16).	PCEs 1–3; may require management.	Maintains current geographical, elevational, and ecological distribution; maintains current population structure; provides connectivity.
2h: San Onofre State Beach, State Park leased land.	Presumed occupied ...	Occupied; 1997 (CNDDB, EO 6).	PCEs 1–3; may require management.	Unique soils and wetland type; maintains habitat function, genetic diversity, and species viability; ecological linkage.
2i: SCE Viejo Conservation Bank.	Presumed occupied ...	Occupied; 1998 (CNDDB, EO 10).	PCEs 1–3; may require management.	Maintains current geographical, elevational, and ecological distribution; maintains current population structure; provides connectivity.
Riverside County				
3c: Australia Pool	Presumed occupied ...	Occupied; 1998 (CNDDB, EO 11).	PCEs 1–3; may require management.	Maintains habitat function, genetic diversity, and species viability; ecological linkage.
3d: Scott Road Pool ..	Presumed occupied ...	Occupied; 2002 (CNDDB, EO 24).	PCEs 1–3; may require management.	Maintains current geographical, elevational, and ecological distribution; disjunct habitat.
3e: Schleuniger Pool	Presumed occupied ...	Occupied; 1998 (CNDDB, EO 8).	PCEs 1–3; may require management.	Maintains current geographical, elevational, and ecological distribution.
3f: Skunk Hollow and Field Pool.	Confirmed occupied ...	Skunk Hollow: Occupied; 1988 (CNDDB, EO 3). Field Pool: Occupied; 1988 (Service, GIS ID 9).	PCEs 1–3; may require management.	

TABLE 1—SUBUNIT OCCUPANCY STATUS AND JUSTIFICATIONS FOR DETERMINING SPECIFIC AREAS ESSENTIAL FOR THE CONSERVATION OF RIVERSIDE FAIRY SHRIMP [1]—Continued

Unit/subunit [2]	Service status at listing [3]	Current status [4]; year of first record [5]	Act section 3(5)(A)(i) justification [6]	Act section 3(5)(A)(ii) justification [7]
3g: Johnson Ranch Created Pool.	Created (in 2002)	Occupied; 2003 (Service, GIS ID 13).	PCEs 1–3; may require management.	Provides connectivity among pools; maintains current population structure.
3h: Santa Rosa Plateau-Mesa de Colorado.	Presumed occupied ...	Occupied; 2009 (Selheim and Searcy 2010, Report # 11005).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; unique soils and habitat type; large continuous blocks of occupied habitat; ecological linkage.
San Diego County				
4c: Poinsettia Lane Commuter Train Station (JJ2).	Presumed occupied ...	Occupied; 1998 (CNDDB, EO 7).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; unique soils and habitat type; disjunct habitat; provides protection for existing vernal pool composition and structure.
5a: J33 (Sweetwater High School).	Presumed occupied ...	Occupied; 2003 (City of San Diego 2004).	PCEs 1–3; may require management.	Maintains current population structure; genetic diversity.
5b: J15 (Arnie's Point)	Presumed occupied ...	Occupied; 2006 (ERS, Report #8639).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; maintains current population structure; ecological linkage.
5c: East Otay Mesa ...	Presumed occupied ...	Occupied; 2000 GIS ID 4; 2001 (EDAW 2001) (CNDDB, EO 25).	PCEs 1–3; may require management.	Unique soils and habitat type; maintains current geographical, elevational, and ecological distribution; disjunct habitat; protects existing vernal pool composition.
5d: J29–31	Confirmed occupied ...	Occupied; 1986 (Bauder 1986a); (Simovich and Fugate 1992) (CNDDB, EO 2).	PCEs 1–3; may require management.	
5e: J2 N, J4, J5	Presumed occupied ...	Occupied; 2003 (City of San Diego, 2004).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; provides connectivity among pools; maintains current population structure.
5f: J2 S and J2 W	Presumed occupied ...	Occupied; 2001 (CNDDB, EO 18).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; provides connectivity among pools; maintains current population structure.
5g: J14	Presumed occupied ...	Occupied; 2002 (HELIX 2002, Report #2386).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; provides connectivity among pools; maintains current population structure.
5h: J11, J12, J16–18	Presumed occupied ...	Occupied; 2002 (City of San Diego 2004).	PCEs 1–3; may require management.	Necessary to stabilize populations per RP; provides connectivity among pools; maintains current population structure.

[1] As discussed above, we consider the areas for which we lack positive survey results to be ''areas within the geographical area occupied by the species'' under section 3(5)(A)(i) of the Act as explained in the March 1, 2012, publication at 77 FR 12543, pp. 12545–49. Table 1 summarizes the bases for that conclusion. However, we are alternatively designating areas that lack positive occupancy data at the time of listing under section 3(5)(A)(ii) of the Act because these areas are essential to the conservation of the species and a designation limited to known occupied areas would be inadequate to ensure the conservation of the species.

[2] Unit/Subunit name as it appears in Table 1 of proposed revised rule (76 FR 31698). For additional information, see the Recovery Plan (RP) for Vernal Pools of Southern California (Service 1998a, 113+ pp.).

[3] Service status: ''Confirmed occupied'' indicates that there is a record of occupancy at or before the time of listing; ''Presumed occupied'' indicates no documentation of occupancy for the specific areas (subunits) prior to 1993, but the areas are presumed to have been occupied at the time of listing based on best available science and post-1993 positive survey results in the possession of the Service. ''Created'' refers to a vernal pool enhancement or restoration after the time of listing.

[4 5] Current status: ''Occupied'' indicates a positive survey result documenting species occurrence and ''Presumed occupied'' indicates no protocol surveys have been completed. The listed year is the year of first record followed by source. EO (element occurrence) is the number assigned to that occurrence, as defined and described according to the California Natural Diversity Data Base (CNDDB 2011). GIS ID is the occurrence information number for multiple species within jurisdiction of the Carlsbad Fish and Wildlife Office (Service 2011). City of San Diego (2004) is from the ''Vernal pool inventory 2002–2003'' or Contractor, and Report # is the number from a section 10(A)(1)(a) survey report, available in Service files.

[6] Reasons determined essential to the conservation of the species, as defined according to criteria set forth in the proposed revised critical habitat rule, this document, and in section 3(5)(A)(i) of the Act, and based on current information on what we consider as the occupied geographic range of the species at the time of listing.

[7] Reasons determined essential for the conservation of the species, as defined according to criteria set forth in the proposed revised critical habitat rule, this document, in the Recovery Plan (Service 1998a, Appendix F, pp. F–1–F–5) and in section 3(5)(A)(ii) of the Act. An empty box in the ''Act section 3(5)(A)(ii) justification'' column indicates this subunit is not proposed under section 3(5)(A)(ii) of the Act, and was confirmed occupied at the time of listing (see footnote 3).

* PCE: primary constituent element; SCE: Southern California Edison; GIS: geographic information system.

Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Only where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat would the consultation requirements of section 7(a)(2) of the Act apply.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements (PCEs) such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. PCEs are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For example, an area currently occupied by the species but that was not occupied at the time of listing may be essential to the conservation of the species and may be included in the critical habitat designation. We designate critical habitat in areas outside the geographical area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) the prohibitions of section 9 of the Act if actions occurring in these areas may affect the species. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

Climate Change

Our analyses under the Act include consideration of ongoing and projected changes in climate. The terms ''climate'' and ''climate change'' are defined by the Intergovernmental Panel on Climate Change (IPCC). The term ''climate'' refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007a, p. 78). The term ''climate change'' thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007a, p. 78).

Scientific measurements spanning several decades demonstrate that changes in climate are occurring, and that the rate of change has been faster since the 1950s. Examples include warming of the global climate system, and substantial increases in precipitation in some regions of the world and decreases in other regions. (For these and other examples, see IPCC 2007a, p. 30; and Solomon *et al.* 2007, pp. 35–54, 82–85). Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate, and is ''very likely'' (defined by the IPCC as 90 percent or higher probability) due to the observed increase in greenhouse gas (GHG) concentrations in the atmosphere as a result of human activities, particularly carbon dioxide emissions from use of fossil fuels (IPCC 2007a, pp. 5–6 and figures SPM.3 and SPM.4; Solomon *et al.* 2007, pp. 21–35). Further confirmation of the role of GHGs comes from analyses by Huber and Knutti (2011, p. 4), who concluded it is extremely likely that approximately 75 percent of global warming since 1950 has been caused by human activities.

Scientists use a variety of climate models, which include consideration of natural processes and variability, as well as various scenarios of potential levels and timing of GHG emissions, to evaluate the causes of changes already observed and to project future changes in temperature and other climate conditions (for example, Meehl *et al.* 2007, entire; Ganguly *et al.* 2009, pp. 11555, 15558; Prinn *et al.* 2011, pp. 527, 529). All combinations of models and emissions scenarios yield very similar projections of increases in the most common measure of climate change, average global surface temperature (commonly known as global warming), until about 2030. Although projections of the magnitude and rate of warming differ after about 2030, the overall trajectory of all the projections is one of increased global warming through the end of this century, even for the projections based on scenarios that assume that GHG emissions will stabilize or decline. Thus, there is strong scientific support for projections that warming will continue through the 21st century, and that the magnitude and rate of change will be influenced substantially by the extent of GHG emissions (IPCC 2007a, pp. 44–45; Meehl *et al.* 2007, pp. 760–764 and 797–811; Ganguly *et al.* 2009, pp. 15555–15558; Prinn *et al.* 2011, pp. 527, 529). (See IPCC 2007b, p. 8, for a summary of other global projections of climate-related changes, such as frequency of heat waves and changes in precipitation. Also see IPCC 2011(entire) for a summary of observations and projections of extreme climate events.)

Various changes in climate may have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as interactions of climate with other variables (for example, habitat fragmentation) (IPCC 2007b, pp. 8–14, 18–19). Identifying likely effects often involves aspects of climate change vulnerability analysis. Vulnerability refers to the degree to which a species (or system) is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the type, magnitude, and rate of climate change and variation to which a species is exposed, its sensitivity, and its adaptive capacity (IPCC 2007a, p. 89; see also Glick *et al.* 2011, pp. 19–22). There is no single method for conducting such analyses that applies to all situations (Glick *et al.* 2011, p. 3). We use our expert judgment and appropriate analytical approaches to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

Global climate projections are informative, and, in some cases, the only or the best scientific information available for us to use. However, projected changes in climate and related impacts can vary substantially across and within different regions of the world (for example, IPCC 2007a, pp. 8–12). Therefore, we use ''downscaled'' projections when they are available and have been developed through appropriate scientific procedures, because such projections provide higher resolution information that is more relevant to spatial scales used for analyses of a given species (see Glick *et al.* 2011, pp. 58–61, for a discussion of downscaling). The program Climate Wizard provides regional level projections of future climate patterns, using the World Climate Research Programme's (WCRP's) Coupled Model Intercomparison Project phase 3 (CMIP3) multi-model dataset (*http://www.climatewizard.org/*). These data project an average decrease of rainfall in coastal Southern California of approximately 5 percent by the year 2050.

Documentation of climate-related changes that have already occurred in California (Croke *et al.* 1998, pp. 2128, 2130; Breshears *et al.* 2005, p. 15144), and future drought predictions for California (for example, Field *et al.* 1999, pp. 8–10; Lenihen *et al.* 2003, p. 1667; Hayhoe *et al.* 2004, p. 12422; Breshears *et al.* 2005, p. 15144; Seager *et al.* 2007, p. 1181) and North America (IPCC 2007a, p. 9), indicate prolonged drought and other climate-related changes will continue in the future. While climate change was not discussed in the 1993 listing rule, drought was noted in the rule as a stochastic (random or unpredictable) event that could have drastic effects on Riverside fairy shrimp, given its fragmented and restricted range (58 FR 41384, August 3, 1993, p. 41389; Service 1998a, p. 34). Local climate-related changes or drought-induced impacts that may negatively affect limited ephemeral wetland habitats include alterations in seasonal timing, ponding durations, or patterns of inundation and draw down (the drying period of a vernal pool). However, the magnitude and frequency of these factors remain untested.

In southern California, climatic variables affecting vernal pool habitats are most influenced by distance from the coast, topography, and elevation (Bauder and McMillian 1998, p. 64). As presence and persistence of Riverside fairy shrimp appear to be associated with precipitation patterns, draw-down factors, and other regional climatic factors, including aridity (Eriksen and Belk 1999, p. 71), the likely impacts of climate change on ecological processes for Riverside fairy shrimp are most closely tied to availability and persistence of ponded water during the winter and spring. Vernal pools are particularly sensitive to slight increases in evaporation or reductions in rainfall due to their relative shallowness and seasonality (Field *et al.* 1999, p. 19). Based on existing data, weather conditions in which vernal pool flooding promotes hatching, but pools become dry (or too warm) before embryos are fully developed, are expected to have the greatest negative impact on Riverside fairy shrimp resistance and resilience. In the 2008 5-year review, we noted that climate change may potentially cause changes in vernal pool inundation patterns and pool consistency, and that drought may decrease or terminate reproductive output if pools fail to flood or dry up before reproduction is complete (Service 1998a, p. 34). Long-term or continuing drought conditions may deplete cysts (eggs) or cyst banks in affected pools due to the lack of new reproductive cysts.

Additionally, localized climate-related changes may alter the temporal

spatial array of occupied habitat patches across the species' geographic range (in other words, the presence of Riverside fairy shrimp across and between pool complexes). The ability of Riverside fairy shrimp to survive is likely to depend in part on their ability to disperse to pools where conditions are suitable (Bohonak and Jenkins 2003, p. 786) through passive dispersal mechanisms utilizing reproductive cysts (see the *Life History* section in the proposed rule, published June 1, 2011 (76 FR 31686)).

As discussed above, climate projections produced through Climate Wizard predict a decrease in annual rainfall by 2050. For a species that depends on long-term filling of vernal pools, any decrease in rainfall amount could affect the persistence of the species and the quality of available habitat. However, such projections are not straightforward, because filling of vernal pools may also depend on local watershed characteristics not directly related to annual rainfall. Additionally, the climate projections do not take storm events into account that could provide for filling of vernal pools. Therefore, designation of a wide variety of vernal pool habitat types is necessary to buffer against the projected future impacts of climate change. We find the designation herein provides for the array of habitat to provide for the conservation of the species.

Physical or Biological Features

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, or rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

We derive the specific physical or biological features essential for the Riverside fairy shrimp from studies of this species' habitat, ecology, and life history as described in the Critical Habitat section of the proposed rule to designate critical habitat published in the **Federal Register** on June 1, 2011 (76 FR 31686), and in the information presented below. Additional information can be found in the final listing rule published in the **Federal Register** on August 3, 1993 (58 FR 41384), and the 1998 Recovery Plan (Service 1998a). We have determined that the Riverside fairy shrimp requires the physical or biological features described below.

Space for Individual and Population Growth and for Normal Behavior

Riverside fairy shrimp require vernal pool habitat to grow and reproduce. Their life cycle requires periods of inundation as well as dry periods (Ripley *et al.* 2004, pp. 221–223). Habitats (ephemeral wetlands) that provide space for growth and persistence of Riverside fairy shrimp include areas that generally pond for 2 to 8 months and dry down for a period during the late spring to summer months. Habitats include natural and created pools (usually greater than 12 inches (in) (30 centimeters (cm)) deep) that support these longer inundation periods; some of these habitats are artificial pools (cattle watering holes and road embankments) that have been modified or deepened with berms (Hathaway and Simovich 1996, p. 670). Artificial depressions, often associated with degraded vernal pool habitat, are capable of functioning as habitat and can support vernal pool species, including Riverside fairy shrimp (Moran 1977, p. 155; Service 1998a, p. 22). Space for the Riverside fairy shrimp's normal growth and behavior requires an underlying soil series (typically clay soil inclusions with a subsurface claypan or hardpan component), which forms an impermeable layer that sustains appropriate inundation periods (water percolates slowly once filled) and provides necessary physiological requirements including, but not limited to, appropriate water temperature and water chemistry (mineral) regimes, a natural prey base, foraging opportunities, and areas for predator avoidance.

Intact vernal pool hydrology (including the seasonal filling and drying down of pools) is the essential feature that governs the life cycle of the Riverside fairy shrimp. An intact hydrological regime includes seasonal hydration (during most but not all years) followed by drying out of the substrate to promote overwintering of cysts and provide conditions for a viable cyst bank for the following season. Proper timing of precipitation and the associated hydrological and soil processes in the upland watershed contribute to the provision of space for growth and normal behavior. Seasonal filling and persistence of the vernal pool are necessary for cyst hatching and successful reproduction of Riverside fairy shrimp (see ''Sites for Breeding, Reproduction, and Rearing (or Development) of Offspring'', below).

To maintain high-quality vernal pool ecosystems, the vernal pool basin (a specific vernal pool and surrounding landscape) or complex and its upslope watershed (adjacent vegetation and upland habitat) must be available and functional (Hanes and Stromberg 1998, p. 38). Adjacent upland habitat supplies important hydrological inputs to sustain vernal pool ecosystems. Protection of the upland habitat between vernal pools within the watershed is essential to maintain the space needs of Riverside fairy shrimp and to buffer the vernal pools from edge effects. Having the spatial needs that create pools of adequate depth also supports the temporal needs of Riverside fairy shrimp, as deep pools provide for inundation periods of adequate length to support the entire life-history function and reproductive cycles necessary for Riverside fairy shrimp.

Vernal pools generally occur in complexes, which are defined as two or more vernal pools in the context of a larger vernal pool watershed. The local watershed associated with a vernal pool complex includes all surfaces in the surrounding area that flow into the vernal pool complex. Within a vernal pool complex, vernal pools are hydrologically connected to one another within the local geographical context. These vernal pool complexes may connect by either surface or subsurface flowing water. Pools and complexes are dependent on adjacent geomorphology and microtopography for maintenance of their unique hydrological conditions (Service 1998a, p. 23). Water may flow over the surface from one vernal pool to another (over-fill or overbanking), throughout a network of swales or low-point depressions within a watershed. Due to an impervious clay or hardpan layer, water can also flow and collect below ground, such that the soil remains saturated with water. The result of the movement of water through vernal pool systems is that pools fill and hold water continuously for a number of days, weeks, or months following the initial rainfall (Hanes *et al.* 1990, p. 51). Some hydrological systems have watersheds covering a large area, which contributes to filling and the hydrological dynamics of the system,

while other hydrologic systems have very small watersheds and fill almost entirely from direct rainfall. It is also possible that subsurface inflows from surrounding soils within a watershed contribute to filling some vernal pools (Hanes *et al.* 1990, p. 53; Hanes and Stromberg 1998, p. 48).

Impervious subsurface layers of clay or hardpan soils, combined with flat to gently sloping topography, inhibit rapid infiltration of rainwater and result in ponded water in vernal pools (Bauder and McMillian 1998, pp. 57–59). These soils also act as a buffer that moderates the water chemistry and rate of water loss to evaporation (Zedler 1987, pp. 17–30). In Ventura County, soil series known to support Riverside fairy shrimp include, but are not limited to, the Azule, Calleguas, Cropley, and Linne soil series. In Orange County, soils series include the Alo, Balcom, Bosanko, Calleguas, Cieneba, Myford, and Soper soil series. In western Riverside County, vernal pool habitat known to support Riverside fairy shrimp includes the Altamont, Auld, Bosanko, Cajalco, Claypit, Murrietta, Porterville, Ramona, Traver, and Willows soil series. In San Diego County, vernal pool habitat known to support Riverside fairy shrimp includes the Diablo, Huerhuero, Linne, Placentia, Olivenhain, Salinas, Stockpen, and Redding soil series. Soil series data are based on 2008 Soil Survey Data and are available online at: *http://websoilsurvey.nrcs.usda.gov.* For additional information on soils, see the ''Primary Constituent Elements for Riverside Fairy Shrimp'' section below.

Food, Water, Air, Light, Minerals, or Other Nutritional or Physiological Requirements

Many fairy shrimp species are filter feeders with a diet that consists mostly of algae, bacteria, and other microorganisms (Parsick 2002, pp. 37–41, 65–70). In a natural vernal pool setting, these food items are readily available. Typically, an undisturbed, intact surface and subsurface soil structure (not permanently altered by anthropogenic land use activities such as deep, repetitive discing or grading), and the associated hydrogeomorphic processes within the basin and upland watershed, are necessary to provide food, water, minerals, and other physiological needs for Riverside fairy shrimp. Water temperature, water chemistry, and length of time that vernal pools are inundated are the important factors in the hatching and temporal appearance of Riverside fairy shrimp (Gonzalez *et al.* 1996, pp. 315–316; Hathaway and Simovich 1996, p. 669). Riverside fairy shrimp hatch and reproduce in water at temperatures that range generally from 5 to 20 degrees Celsius (C) (41 to 68 degrees Fahrenheit (F)), and typically do not hatch at temperatures greater than 25 degrees C (77 degrees F) (Hathaway and Simovich 1996, pp. 674–675). Riverside fairy shrimp have a wider thermal tolerance than San Diego fairy shrimp (*Branchinecta sandiegonensis*), which allows Riverside fairy shrimp to hatch later in the season when deeper vernal pools are still filled with water.

Cover or Shelter

Ponding of vernal pool habitat (water) also provides cover and shelter for Riverside fairy shrimp. During the period when these habitats are inundated, water plays an important role in providing the necessary aquatic environment (shelter) for the fairy shrimp to complete its life-history requirements. Without water to protect them from desiccation, fairy shrimp would be unable to hatch, grow, mature, reproduce, and disperse within the vernal pool habitat (Helm 1998, p. 136; Service 1998a, p. 34; Eriksen and Belk 1999, pp. 71, 105). Additionally, the wet (ponding) period excludes plant and animal species that are exclusively terrestrial, providing a level of shelter from predation and competition for the fairy shrimp, which are adapted to short-lived, ephemeral wetland habitats.

The undisturbed soil bank also provides cover and shelter for fairy shrimp cysts during the draw-down period of the vernal pool habitat. The drying phase allows reproductive cysts to overwinter, as they lay dormant in the soil. Basin soils provide cover and shelter to Riverside fairy shrimp as the vernal pool dries out (Simovich and Hathaway 1997, p. 42; Eriksen and Belk 1999, p. 105). By maintaining the population in a dormant state, reproductive cysts and the undisturbed soil in which they rest protect Riverside fairy shrimp from predators and competitors during the vernal pool dry period. Cyst dormancy is an important life-history adaptation for surviving arid phases, and is important for synchronizing life cycles in unstable and ephemeral wetland habitats (Belk and Cole 1975, pp. 209–210). Like the wet period exclusion of terrestrial plants, the draw-down period excludes species that are exclusively aquatic (such as fish), providing shelter for specially adapted Riverside fairy shrimp.

Sites for Breeding, Reproduction, and Rearing (or Development) of Offspring

Mature Riverside fairy shrimp are typically observed from mid-March through April (Eng *et al.* 1990, p. 259). In years with early or late rainfall, the hatching period may be extended. Riverside fairy shrimp can reach sexual maturity and begin mating approximately 8 weeks from the time a vernal pool fills with water (Hathaway and Simovich 1996, p. 673). Length of time to maturity restricts Riverside fairy shrimp to a small subset of relatively long-lasting vernal pools and ephemeral wetlands in southern California (Hathaway and Simovich 1996, p. 673). This maturation rate, which is distinctly longer than for other fairy shrimp, presumably restricts Riverside fairy shrimp typically to moderate to deep vernal pools and ephemeral basins (generally ranging from 12 in (30 cm) to 5 to 10 feet (ft) (1.5 to 3 meters (m)) in depth) (Hathaway and Simovich 1996, p. 675).

Because the length of time that pools remain filled in vernal pool ecosystems is highly variable, Riverside fairy shrimp have become adapted to some degree of unpredictability in their habitat (Eriksen and Belk 1999, pp. 104–105) and to a system where the requisite conditions are transitory. Depending on rainfall and environmental conditions, a vernal pool may fill and recede numerous times. Often, the pool may evaporate before Riverside fairy shrimp are able to mature and reproduce (Ripley *et al.* 2004, pp. 221–223). The females' eggs begin to develop as soon as they are fertilized and then the development stops at an early stage (after a few cell divisions) and the eggs enter diapause (become dormant) as cysts or resting eggs (Lavens and Sorgeloos 1987, p. 29; Ericksen and Belk 1999, p. 105). Riverside fairy shrimp cysts are smaller than a tip of a pencil and contain a dormant fairy shrimp embryo encased in a hard outer shell. Cysts are generally retained in a brood pouch on the underbelly of the female until she dies, when both drop to the bottom of the vernal pool to become part of a cyst bank in the soil. During subsequent filling events, eggs may emerge from dormancy and hatch, or continue to diapause. Signals that break diapause include temperature and oxygen concentrations (Belk and Cole 1975, p. 216; Thorp and Covich 2001, p. 767). Resting eggs of freshwater crustaceans such as fairy shrimp have been shown to survive drying, heat, freezing, and ingestion by birds (Fryer 1996, pp. 1–14). Resting stages (dormancy) appear to be an adaptation

to temporary habitats and may aid in long-distance dispersal because they can survive unfavorable conditions during dispersal by birds or tires of off-highway vehicles (OHVs) (Belk and Cole 1975, pp. 209, 222; Williams 1985, p. 97).

Researchers have found that only a small proportion of Riverside fairy shrimp cysts in the cyst bank hatch each time the vernal pool fills. Therefore, if the pool dries before the species is able to mature and reproduce, there are still many more cysts left in the soil that may hatch the next time the pool fills (Simovich and Hathaway 1997, p. 42). Simovich and Hathaway (1997, pp. 40–43) referred to this as bet-hedging and concluded that it allows fairy shrimp, including Riverside fairy shrimp, to survive in an unpredictable environment. Bet-hedging ensures that some cysts will be available for hatching when the vernal pools hold water for a period long enough for Riverside fairy shrimp to complete their entire life cycle. Thus, reproductive output is spread over several seasons for small aquatic crustaceans, such as fairy shrimp, living in variable environments. Allowing conditions within the above parameters to occur on a natural basis is essential for the survival and conservation of Riverside fairy shrimp.

Habitats That Are Protected From Disturbance or Are Representative of the Historical, Geographical, and Ecological Distributions of the Species

Pools that support Riverside fairy shrimp are generally found in flat or moderately sloping areas, primarily in annual, disturbed (such as grazed or deep disced) grassland and chaparral habitats. The majority of complexes and pools that currently support Riverside fairy shrimp have experienced some level of disturbance, primarily from agriculture, cattle, and OHV activity.

Estimates of the historical distribution of Riverside fairy shrimp suggest that 90 to 97 percent of vernal pool habitat has been lost in southern California (Mattoni and Longcore 1997, pp. 71–73, 86–88; Bauder and McMillan 1998, p. 66; Keeler-Wolf *et al.* 1998, p. 10; Service 1998a, p. 45). Consideration should be given to conserve much of the remaining Riverside fairy shrimp occurrences from further loss and degradation in a configuration that maintains habitat function and species viability (Service 1998a, p. 62). Historically, there were larger complexes of vernal pools, including areas on the Los Angeles coastal prairie (Mattoni and Longcore 1997, p. 88). In other places, such as Riverside County, which has not yet been developed and fragmented to the same extent as Los Angeles County, we believe it is possible that additional occurrences of the Riverside fairy shrimp may be documented through more intensive survey efforts and reporting.

The conservation of Riverside fairy shrimp is dependent on several factors including, but not limited to, maintenance of areas (of sufficient size and configuration to sustain natural ecosystem components, functions, and processes) that provide appropriate inundation and ponding durations, natural hydrological regimes and appropriate soils, intermixed wetland and upland watershed, connectivity among pools within geographic proximity to facilitate gene flow among complexes, and protection of existing vernal pool composition and structure.

In a few locations, two species of fairy shrimp—San Diego fairy shrimp and Riverside fairy shrimp—are known to co-occur (Hathaway and Simovich 1996, p. 670). However, where these species do co-occur, they rarely have been observed to coexist as adults (Hathaway and Simovich 1996, p. 670). San Diego fairy shrimp are usually found earlier in the season than Riverside fairy shrimp, due to the Riverside fairy shrimp's slower rate of development (Hathaway and Simovich 1996, p. 675). Maturation rates are responsible for the sequential appearance of the species as adults in pools where they co-occur (Hathaway and Simovich 1996, p. 675). Neither species is found in the nearby desert or mountain areas, as temperature has been shown to play an important role in the spatial and temporal appearance of fairy shrimp.

Primary Constituent Elements for Riverside Fairy Shrimp

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of Riverside fairy shrimp in areas occupied at the time of listing, focusing on the features' primary constituent elements. Primary constituent elements are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent elements specific to Riverside fairy shrimp are:

(1) Ephemeral wetland habitat consisting of vernal pools and ephemeral habitat that have wet and dry periods appropriate for the incubation, maturation, and reproduction of the Riverside fairy shrimp in all but the driest of years, such that the pools:

(a) Are inundated (pond) approximately 2 to 8 months during winter and spring, typically filled by rain, and surface and subsurface flow;

(b) Generally dry down in the late spring to summer months;

(c) May not pond every year; and

(d) Provide the suitable water chemistry characteristics to support the Riverside fairy shrimp. These characteristics include physiochemical factors such as alkalinity, pH, temperature, dissolved solutes, dissolved oxygen, which can vary depending on the amount of recent precipitation, evaporation, or oxygen saturation; time of day; season; and type and depth of soil and subsurface layers. Vernal pool habitat typically exhibits a range of conditions but remains within the physiological tolerance of the species. The general ranges of conditions include, but are not limited to:

(i) Dilute, freshwater pools with low levels of total dissolved solids (low ion levels (sodium ion concentrations generally below 70 millimoles per liter (mmol/l)))

(ii) Low alkalinity levels (lower than 80 to 1,000 milligrams per liter (mg/l)); and

(iii) A range of pH levels from slightly acidic to neutral (typically in range of 6.4–7.1).

(2) Intermixed wetland and upland habitats that function as the local watershed, including topographic features characterized by mounds, swales, and low-lying depressions within a matrix of upland habitat that result in intermittently flowing surface and subsurface water in swales, drainages, and pools described in PCE 1. Associated watersheds provide water to fill the vernal or ephemeral pools in the winter and spring months. Associated watersheds vary in size and therefore cannot be generalized, and they are affected by factors including surface and underground hydrology, the topography of the area surrounding the pool or pools, the vegetative coverage, and the soil substrates in the area. The size of associated watersheds likely varies from a few acres to greater than 100 ac (40 ha).

(3) Soils that support ponding during winter and spring which are found in areas characterized in PCEs 1 and 2 that have a clay component or other property that creates an impermeable surface or subsurface layer. Soil series with a clay component or an impermeable surface or subsurface layer typically slow percolation, increase water run-off (at

least initially), and contribute to the filling and persistence of ponding of ephemeral wetland habitat where the Riverside fairy shrimp occurs. Soils and soil series known to support vernal pool habitat include, but are not limited to:

(a) The Azule, Calleguas, Cropley, and Linne soils series in Ventura County;

(b) The Alo, Balcom, Bosanko, Calleguas, Cieneba, and Myford soils series in Orange County;

(c) The Cajalco, Claypit, Murrieta, Porterville, Ramona, Traver, and Willows soils series in Riverside County; and

(d) The Diablo, Huerhuero, Linne, Placentia, Olivenhain, Redding, Salinas, and Stockpen soils series in San Diego County.

This final rule identifies the PCEs necessary to support one or more of the life-history functions of Riverside fairy shrimp and those areas containing the PCEs. We conclude that conservation of the Riverside fairy shrimp is dependent upon multiple factors. We consider the criteria for conservation of Riverside fairy shrimp to include: (1) Conservation and management of areas across the species' range that maintain normal hydrological and ecological functions where existing populations survive and reproduce and that are representative of the geographical distribution of the species; (2) conservation of areas representative of the ecological distribution of Riverside fairy shrimp (various combinations of soil types, vernal pool chemistry, geomorphic surfaces, and vegetation community associations), and (3) conservation of areas that allow for the movement of cysts between areas representative of the geographical and ecological distribution of the species (within and between vernal pool complexes).

We are designating most of the known occupied habitat of Riverside fairy shrimp because: (1) Riverside fairy shrimp are not migratory; (2) disjunct populations likely represent unique, locally adapted populations (adapted to unique site-specific or habitat-specific environmental conditions); and (3) gene exchange that should naturally occur between populations or critical habitat units is likely infrequent. Where management units are sufficiently distant (16 to 159 miles (mi) (26 to 256 kilometers (km)) from one another, the likelihood of gene exchange is reduced. All of the areas designated contain all of the PCEs essential for the species that may require special management considerations or protection, and they: (1) Maintain the genetic variability of Riverside fairy shrimp across its known geographical range and allow for a varying nature and expression of the species; (2) allow for natural levels of gene flow and dispersal where possible, in order to accommodate natural processes of local extirpation and colonization over time (and thereby reduce the risk of extinction through random and natural events); and (3) maintain a full range of varying habitat types and characteristics for the species by encompassing the full extent of the physical, biological, and environmental conditions essential for the conservation of Riverside fairy shrimp.

Not all life-history functions require all of the PCEs. For example, Riverside fairy shrimp can persist as cysts for several years when the vernal pools are not filled to the proper depth (note also PCE 1c, which recognizes that vernal pools occupied by Riverside fairy shrimp may not fill every year). Therefore, at any given time and particularly in the dry summer months, not all areas designated as revised critical habitat will demonstrate all aspects of the PCEs. However, over the longer time scale that represents the normal life-history functions of Riverside fairy shrimp, all of the PCEs are present in all of the units. Therefore, in consideration of that longer scale, we confirm that all units in this final critical habitat designation contain all of the PCEs. Further, all units and subunits designated as critical habitat are currently known to be occupied by Riverside fairy shrimp (with the exception of Subunit 1b, which is presumed to be occupied by Riverside fairy shrimp although not every portion of every unit and subunit is occupied by Riverside fairy shrimp. As discussed above, Riverside fairy shrimp require a functioning local watershed that results in intermittently flowing surface and subsurface water to fill the vernal pool basins in which the species occurs (PCE 2). Thus each unit and subunit consists of occupied vernal pool basins and the surrounding local watersheds that intermittently fill those basins. See the Final Critical Habitat Designation section below for more details.

Special Management Considerations or Protection

When designating critical habitat, we first assess whether there are specific areas within the geographical area occupied by the species at the time of listing that contain features essential to the conservation of the species that may require special management considerations or protection before considering whether any areas outside the geographical area occupied by the species at the time of listing may be essential for its conservation. The determination that special management may be required is not a prerequisite to designating critical habitat in areas essential for the conservation of the species that are outside the geographical area occupied at the time of listing. However, all areas (units/subunits) we are designating as revised critical habitat in this final rule, whether or not confirmed occupied or unoccupied at the time of listing, contain essential features that require special management considerations or protection to address current and future threats to Riverside fairy shrimp, maintain or enhance the features, and ensure the recovery and survival of the species.

The physical or biological features in areas designated as revised critical habitat in this final rule all face ongoing threats that require special management considerations or protection. For Riverside fairy shrimp, such threats include vernal pool elimination due to agricultural and urban development, including activities associated with construction of infrastructure (such as highways, utilities, and water storage) (PCEs 1, 2, 3); construction of physical barriers or impervious surfaces around a vernal pool complex (PCEs 1, 2); altered water quality or quantity (PCEs 1, 3) due to channeling water runoff into a vernal pool complex or to the introduction of water, other liquids, or chemicals (including herbicides and pesticides) into the vernal pool basin; physical disturbance to the claypan and hardpan soils within the vernal pool basin (PCEs 1, 3), including discharge of dredged or fill material into vernal pools and erosion of sediments from fill material; disturbance of soil profile by grading, digging, or other earthmoving work within the basin or its upland slopes or by other activities such as OHV use, heavy foot traffic, grazing, vegetation removal, fire management, or road construction within the vernal pool watershed (PCEs 1, 2, 3); invasion of nonnative plant and animal species into the vernal pool basin (PCEs 1, 2), which alters hydrology and soil regimes within the vernal pool; and any activity that permanently alters the function of the underlying claypan or hardpan soil layer (PCE 3), resulting in disturbance or destruction of vernal pool flora or the associated upland watershed (PCEs 2, 3). All of these threats have the potential to permanently reduce or increase the depth of a vernal pool, ponding duration and inundation of the vernal pool, or other vernal pool features beyond the tolerances of Riverside fairy shrimp (PCE 1).

Loss and degradation of wetland habitat, most directly from conversion

to agriculture and development, was cited in the final listing rule as a cause for the decline of Riverside fairy shrimp (58 FR 41387, August 3, 1993). Most of the populations of this species are located in San Diego, Orange, and Riverside Counties. These counties have had (and continue to have) increasing human populations, development, and infrastructure needs. Natural areas in these counties are frequently near or bounded by urbanized areas. Grading, discing, and scraping for urbanization results in loss of vernal pool topography and soil surface, as well as the subsurface soil layers, to the degree that they will no longer support ponding for Riverside fairy shrimp (PCE 3). Urban development modifies and removes vernal pool topography, compacts or disturbs soils such that basins and upland watershed components are altered, and likely eliminates or fragments populations of Riverside fairy shrimp through direct crushing of cysts, disruption of soils and removal of the cyst bank, and modification of upland hydrology and topography, which may potentially isolate a pool or pools within a complex. Overall, habitat loss continues to be the greatest direct threat to Riverside fairy shrimp.

Because the flora and fauna in vernal pools or swales can change if the hydrological regime is altered (Bauder 1986b), human activities that reduce the extent of the watershed or alter runoff patterns (timing, amount, or flow of water) (PCE 2) may also eliminate Riverside fairy shrimp, reduce their population size or reproductive success, or alter the duration or filling of basins such that the location of sites inhabited by this species may shift. Changes to hydrological patterns due to cattle trampling, OHV use, human trampling, road development, military activities, and water management activities impact vernal pools (PCEs 1, 2, 3) (58 FR 41387, August 3, 1993). Impacts to Riverside fairy shrimp such as the species' genetic diversity and patterns of gene flow, persistence from reductions in air and water quality due to human urbanization, or changes in nutrient availability associated with altered hydrology may be exacerbated by the species' highly fragmented and restricted range (Bauder 1986b, pp. 209–211).

Unpredictable natural events, such as fire, can be especially devastating due to the fragmented and restricted range of the species (58 FR 41390, August 3, 1993). Vernal pool habitat is naturally subject to wildfires, and cysts of other fairy shrimp species are known to survive fire events (Zedler 1987, p. 96; Wells *et al.* 1997, p. 200). However, fire can have detrimental impacts on vernal pools from direct burning of dense surrounding vegetation (Bauder and Wier 1991, p. 5–10). Fire suppression can also damage vernal pools due to grading activities, suppression activities, crushing from vehicles associated with fire control, or from sediment runoff following fire (Bauder 1986a, p. 21; Bauder and Wier 1991, pp. 5–10–5–11; Hecht *et al.* 1998, p. 33). These threats may require special management considerations or protection.

Changes in hydrology that affect the Riverside fairy shrimp's PCEs are caused by activities that alter the surrounding topography or change historical water flow patterns in the watershed (PCEs 2, 3). Even slight alterations in the hydrology can change the depth, volume, and duration of ponding inundation; water temperature; soil; mineral and organic matter transport to the pool; and water quality and chemistry, which in turn can make the ephemeral wetland habitat (PCE 1) unsuitable for Riverside fairy shrimp. Activities that impact the hydrology include, but are not limited to, road building, grading and earth moving, impounding natural water flows, and draining of pools or their immediately surrounding upland watershed. Impacts to the hydrology of vernal pools can be managed through avoidance of such activities in and around the pools and the associated surrounding upland areas.

Disturbance to the impermeable substrate layer of claypan and hardpan soils within vernal pools occupied by Riverside fairy shrimp (PCE 3) may alter the depth, ponding inundation, water temperature, and water chemistry. Physical disturbances to claypan and hardpan soils may be caused by excavation of borrow material (soil or sediments), OHV use, military training activities, repeated or deep agricultural discing, drilling during construction activities, or creation of berms that obstruct the natural hydrological surface or subsurface flow of water runoff and precipitation. Impacts to the soils of vernal pools can be managed through avoidance of these activities in and around the pools and the associated surrounding upland areas.

Nonnative plant species may alter ponding inundation and water temperature by changing the evaporation rate and shading of standing water in vernal pools (PCEs 1, 2). Invasive plant species, such as *Cotula coronopifolia* (brass-buttons) and *Agrostis avenacea* (Pacific bentgrass), compete with native vernal pool plant species and may alter the physiochemical factors of the water (PCE 1), the ponding duration (PCE 1), and the upland habitat (PCE 2) in these vernal pools. Impacts from nonnative plants can be managed to maintain the appropriate hydrology and physiochemical nature of the vernal pools required by the life-history processes of Riverside fairy shrimp.

Further discussion of specific threats to the PCEs in individual critical habitat units is provided in the unit descriptions below. In these revised critical habitat units, special management considerations or protection may be needed to ensure the long-term existence and management of ephemeral and upland habitat sufficient for the Riverside fairy shrimp's successful reproduction and growth, adequate feeding habitat, proper physiochemical and environmental regimes, linked hydrology, and connectivity within the landscape.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(1)(A) of the Act, we use the best scientific and commercial data available in determining areas within the geographical area occupied at the time of listing that contain the features essential to the conservation of the Riverside fairy shrimp. In accordance with the Act and its implementing regulations at 50 CFR 424.12(e), we considered whether designating additional areas outside the geographical area occupied at the time of listing are essential to ensure the conservation of the species. At the time of listing, Riverside fairy shrimp were known to occupy nine vernal pool complexes within Orange, Riverside, and San Diego Counties, California, and Baja California, Mexico. Occupied complexes included four vernal pools in Riverside County, one population in Orange County, two complexes in San Diego County, and two locations in Baja California, Mexico (58 FR 41384; August 3, 1993).

In determining which areas within the geographical area occupied at the time of listing currently contain the physical or biological features essential to the conservation of Riverside fairy shrimp, we used all available scientific and commercial data, including information from the 1991 proposed listing rule (56 FR 57503, November 12, 1991), the 1993 final listing rule (58 FR 41384, August 3, 1993), the 1998 Recovery Plan (Service 1998a, pp. 1–113), the 2008 5-year review for Riverside fairy shrimp (Service 2008, pp. 1–57), the California Department of Fish and Game's (CDFG) California Natural Diversity Data Base

(CNDDB) records, published peer-reviewed articles, unpublished papers and reports, academic theses, survey results, geographic information system (GIS) data (such as species occurrences, soil data, land use, topography, and ownership maps), and correspondence to the Service from recognized experts. We solicited new information collected since publication of the 1998 Recovery Plan and 2005 final critical habitat designation (70 FR 19154), including information from State, Federal, and tribal governments; scientific data on Riverside fairy shrimp collected by academia and private organizations; information in reports submitted during consultations under section 7 of the Act; information contained in analyses for individual and regional HCPs where Riverside fairy shrimp is a covered species; and data collected from reports submitted by researchers holding recovery permits under section 10(a)(1)(A) of the Act.

We acknowledge the geographical area known to be occupied by the species in the United States as presented in the listing rule (58 FR 41384; August 3, 1993) is that area bounded by the coastline to the west, east to an area near tribal land of the Pechanga Band of Luiseño Mission Indians of the Pechanga Reservation, California, in western Riverside County, north into the central foothills of Orange County near the former Marine Corps Air Station (MCAS) El Toro, and south to coastal mesa tops along the United States-Mexico Border in San Diego County. However, as with many species, listing often results in greater efforts to conduct surveys that may reveal more information related to specific occurrences across a greater geographical area than were initially known (76 FR 31690; June 1, 2011). The current known range of Riverside fairy shrimp is from Ventura County to the United States-Mexico Border in San Diego County, a north-south distance of approximately 163 miles (mi) (262 kilometers (km)) within southern California and inland from the Pacific Coast 50 mi (80 km), based on all available species occurrence data pre- and post-listing. Two additional records documented Riverside fairy shrimp in northwestern Baja California, Mexico, at the time the species was listed (58 FR 41384). Extant occurrences are located within four counties in southern California: Ventura, Orange, Riverside, and San Diego.

When we developed our proposed critical habitat, we considered areas where Riverside fairy shrimp have been documented since listing (1993), including areas outside the geographical range of the species as presented in the listing rule, to be ''within the geographical area occupied by the species at the time of listing [in 1993]'' (see proposed rule at 76 FR 31689, June 1, 2011, and discussion below). Based on our review of the species' biology and life-history traits, we conclude that occurrences documented since the 1993 listing do not represent an expansion of the species' distribution and range, but rather reflect our better understanding of the distribution and range of the species at the time of listing (Service 2008, p. 9).

The life history of Riverside fairy shrimp supports the conclusion that many of the pools surveyed after publication of the listing rule were, in fact, occupied at the time of listing. Riverside fairy shrimp are relatively sedentary and possess limited dispersal capabilities (Davies *et al.* 1997, p. 157). Dispersal is assumed to be through passive means, including movement of diapausing cysts by rain and overponding of water (Zedler 2003, p. 602) and wind (Brendonck and Riddoch 1999, p. 67; Vanschoenwinkel 2008, pp.130–133), or through active means, such as animal-mediated transport (Keeler-Wolf *et al.* 1998, p. 11; Bohonak and Jenkins 2003, p. 784; Green and Figuerola 2005, p. 150). However, evidence of passive dispersal remains limited, and the relative role of vertebrate vectors requires additional studies (see Bohonak and Jenkins 2003, p. 786).

Riverside fairy shrimp have a relatively long maturation time (Simovich 1998, p. 111), which limits the species to deeper pools with longer ponding durations (Hathaway and Simovich 1996, p. 675). Riverside fairy shrimp exhibit a diversified bet-hedging reproductive strategy (Simovich and Hathaway 1997, p. 42). In other words, the species spreads reproductive effort over more than one ponding event through diapause of eggs (production of a cyst bank) and the hatching of a fraction of the cyst bank (Simovich and Hathaway 1997, p. 42; Philippi *et al.* 2001, p. 392; Ripley *et al.* 2004, p. 222).

Riverside fairy shrimp are restricted to certain pool types (deep, long-ponding, along coastal mesas or in valley depressions) with certain underlying soils (Bauder and McMillian 1998, p. 57), which have variable but specific water chemistry (Gonzalez *et al.* 1996, p. 317) and temperature regimes (Hathaway and Simovich 1996, p. 672). Suitable pools are geographically fixed and limited in number, and influenced by position, distance from coast, and elevation (Bauder and McMillian 1998, pp. 62, 64). Typically, mima mound topography (landscapes consisting of mounds of soil) and impervious soils with a subsurface clay or hardpan layer provide the necessary ponding opportunities during winter and spring (Zedler 1987, pp. 13, 17). Underlying soil types and pool size influence the wetland habitat physiochemical parameters, associated vegetation, and faunal communities; those latter three factors are also affected by regional climate (rainfall, temperature, evaporation rate) and elevational differences (Keeler-Wolf *et al.* 1998, p. 9). Vernal pools are discontinuously distributed in several regions in southern California, and Riverside fairy shrimp are well adapted to the ephemeral nature of their habitat and to the localized climate, topography, and soil conditions (Bauder and McMillian 1998, p. 56; Keeley and Zedler 1998, p. 6). These statements are supported by careful review of the species' habitat, ecology, and life-history requirements.

Based on these habitat and life-history traits, we conclude that the additional occurrences detected since listing, both within and to the north of the species' known geographical area at the time of listing, were likely present in those areas prior to listing, but the presence of the species was not known because protocol surveys had not been conducted prior to listing. Occurrences documented since the 1993 listing should not be construed to represent an expansion of the species' distribution and range, but rather to reflect our current and better understanding of the distribution and range of the species at the time of listing based on the best information available to us at this time (Service 2008, p. 9).

After publication of the June 1, 2011, proposed rule but before the March 1, 2012, publication, the Federal Circuit Court of Appeals for the District of Columbia invalidated a portion of the final rule designating critical habitat for the San Diego fairy shrimp under section 3(5)(A)(i) of the Act. The court concluded that the Service lacked adequate information to support its conclusion that the area in question was occupied at the time of listing and qualified as critical habitat under section 3(5)(A)(i) (*Otay Mesa Property, L.P. et al.* v. *U.S. Dept. of the Interior,* 646 F.3d 914 (D.C. Cir. 2011) (*Otay Mesa*)). The court noted, however, that its ruling was narrow and directed only at the Service's reliance on section 3(5)(A)(i) of the Act. The court pointed out that the Service could choose to designate the area in question under section 3(5)(A)(ii) of the Act as long as we provide adequate justification for designation under that provision (*Otay*

Mesa, 646 F.3d at 914). Because habitat containing the physical or biological features essential for the conservation of Riverside fairy shrimp overlaps with essential habitat for the San Diego fairy shrimp at issue in *Otay Mesa,* and because the species have similar life-history and habitat requirements, we applied the circuit court's reasoning in our March 1, 2012, publication (77 FR 12543), and apply it in this final designation of revised critical habitat for the Riverside fairy shrimp.

In light of that ruling, we reiterate that Unit 1 (1a, 1b), Unit 2 (2dA, 2dB, 2e, 2f, 2g, 2h, 2i), Unit 3 (3c, 3d, 3e, 3h), Unit 4 (4c), and Unit 5 (5a, 5b, 5c, 5e, 5f, 5g, 5h) meet the definition of critical habitat under section 3(5)(A)(i) of the Act (i.e., are areas within the geographical area occupied by the Riverside fairy shrimp at the time of listing) for the reasons explained in our March 1, 2012, publication (77 FR 12543) despite the absence of proof of occupancy at the time of listing. However, assuming such areas would not meet the definition of critical habitat under section 3(5)(A)(i) of the Act under the *Otay Mesa* court's application of ''occupancy'' under that provision due to the absence of prelisting surveys confirming the presence of Riverside fairy shrimp, we conclude that the areas alternatively meet the definition of critical habitat under section 3(5)(A)(ii) of the Act. These areas are essential for the conservation of the species, and a designation limited to areas documented to have been occupied at the time of listing would be inadequate to ensure the conservation of Riverside fairy shrimp. Nine occurrences of Riverside fairy shrimp were identified in the listing rule (58 FR 41384). One of those occurrences, located in Riverside County, has been lost due to development activities (Service 1998a, Appendix 1); a further two are in Baja California, Mexico, and therefore not subject to critical habitat designation (50 C.F.R. 424.12(h)). Based on a review of the best available scientific and commercial information, only five of those remaining six occurrences known at the time of listing currently contain the physical or biological features essential to the conservation of the species (see further details on identification of critical habitat units below). Those five occurrences are MCAS El Toro (Subunit 2c), Skunk Hollow Pool (Subunit 3f), Field Pool (Subunit 3f), complex J29–31 (Subunit 5d), and East Miramar (AA1 South+ Group)(Pool 4786; previously Pool 12). The latter occurrence is on MCAS Miramar and exempt from this final critical habitat rule. The sixth occurrence identified at the time of listing was a vernal pool partially within the Pechanga Band of Luiseño Mission Indians reservation and partially on private land abutting the reservation. That occurrence has been lost as a result of agricultural activities and construction of a gravel pit. In the proposed revised critical habitat rule published in 2011 (76 FR 31686; June 1, 2011), we requested comments from the public about these vernal pools, but received no information pertaining to them. Therefore, due to insufficient occurrence information and evidence of severely modified and impacted pools from years of discing and plowing, we are not proposing to designate critical habitat on tribal lands of the Pechanga Band of Luiseño Mission Indians.

These remaining five occurrences (representing three subunits) alone are not sufficient to conserve Riverside fairy shrimp. In addition, all of the areas that support extant occurrences of Riverside fairy shrimp face threats including development, habitat fragmentation, altered hydrology, livestock grazing, nonnative vegetation, military activities, pollution, dumping, human disturbance, and climate change (Service 2008, pp. 12–37; see also the *Climate Change* section above). Protecting a wide variety of habitat will provide a buffer against these threats and provide for the conservation of the species. Therefore, given the endangered status and the small number of extant Riverside fairy shrimp populations, and the need to protect the species' genetic and habitat variability to minimize the likelihood of a stochastic event eliminating most or all of the surviving populations, a critical habitat designation limited to areas known to be occupied at the time of listing would be inadequate to provide for the conservation of the species.

We identify three subunits (Subunit 2c, 3f, and 5d) as meeting the definition of critical habitat under section 3(5)(A)(i) of the Act because the areas were known to be occupied at the time of listing. We identify Subunit 3g as meeting the definition of critical habitat under section 3(5)(A)(ii) of the Act because the pool was created after the time of listing and because we consider it to be essential for the conservation of the species. We consider the remaining 21 subunits (Subunits 1a, 1b; Subunits 2dA, 2dB, 2e, 2f, 2g, 2h, 2i; Subunits 3c, 3d, 3e, 3h; Subunit 4c; Subunits 5a, 5b, 5c, 5e, 5f, 5g, 5h) to meet the definition of critical habitat under section 3(5)(A)(i) of the Act. However, because we lack definitive evidence of their occupancy at the time of listing, which under *Otay Mesa* could disqualify the areas from designation under section 3(5)(A)(i) of the Act, we alternatively identify these areas as meeting the definition of critical habitat under section 3(5)(A)(ii) of the Act. We identify them as such to make clear that we consider these specific areas to be essential for the conservation of Riverside fairy shrimp, notwithstanding the absence of surveys confirming the presence of Riverside fairy shrimp at the time of listing. Although we consider the available evidence sufficient to conclude that these subunits were occupied by Riverside fairy shrimp at the time the species was listed, due to the lack of documentation of occupancy, such as survey results prior to 1993, for the purposes of this rulemaking we determine that these subunits also alternatively meet the definition of critical habitat in section 3(5)(A)(ii) of the Act.

Our identification of these units and of habitat essential to the conservation of Riverside fairy shrimp takes into consideration the conservation approach described in the 1998 Recovery Plan and considers areas identified therein as necessary for the species' stabilization and recovery. The 1998 Recovery Plan identifies management areas on which the long-term conservation and recovery of Riverside fairy shrimp depend. Appendices F and G in the 1998 Recovery Plan defined known vernal pool complexes essential to the conservation of several vernal pool species, including Riverside fairy shrimp (Service 1998a, pp. F1–G3). Eight distinct management areas were identified based on plant and animal distribution, soil types, and climatic variables (Service 1998a, pp. 38–39). Management areas include vernal pools and complexes known to be occupied and essential to the conservation of Riverside fairy shrimp.

We have used these same eight management areas and names, where possible, to assist us in identifying specific areas essential to the conservation of the Riverside fairy shrimp. In cases where new occurrence data identify occupied vernal pools not identified in the 1998 Recovery Plan, we have relied on the best available scientific data to update map coverage (for example, in Orange and Riverside Counties). Our 2005 final rule (70 FR 19154) used locations identified in Appendices F and G of the 1998 Recovery Plan; however, for this final revised critical habitat rule (due to revisions to the PCEs and improvements in mapping methodologies), some additions and subtractions have

occurred in areas previously identified as essential either in the 1998 Recovery Plan or in the 2005 final critical habitat designation (Table 2). In some cases, areas within subunits have been removed because, based on new information, they no longer contain the physical or biological features or PCEs that are essential to the conservation of Riverside fairy shrimp. Specific differences from the 2005 final rule are summarized in the Summary of Changes from Previously Designated Critical Habitat section of the proposed rule published on June 1, 2011 (76 FR 31686).

We are designating critical habitat in specific areas that include ephemeral wetland habitat and intermixed wetland and upland habitats of various sizes; possess appropriate soils and topography that support ponding during winter and spring; are within the known geographical and elevational range of Riverside fairy shrimp; are geographically distributed throughout the range of the species; represent unique ecological or biological features and associations; and will help protect against stochastic extirpation, allow for local adaptation, and provide connectivity to facilitate dispersal and genetic exchange. By protecting a variety of habitats throughout the species' range, we increase the probability that the species can adjust in the future to various limiting factors that may affect the population, such as changes in abundance and timing of precipitation.

As required by section 4(b)(2) of the Act, we used the best scientific data available to designate critical habitat. The steps we followed in identifying critical habitat are described in detail below.

(1) We determined, in accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, the physical or biological features that are essential to the conservation of the species (see the *Physical or Biological Features* section above).

(2) We compiled all available observational data on Riverside fairy shrimp into a GIS database. Data on locations of Riverside fairy shrimp occurrences are based on collections and observations made by biologists, biological consultants, and academic researchers. We compiled data from the following sources to create our GIS database for Riverside fairy shrimp: (a) Data used in the 1998 Recovery Plan, 2005 final critical habitat rule for Riverside fairy shrimp, and 2008 5-year review for Riverside fairy shrimp; (b) the CNDDB data report and accompanying GIS records for Riverside fairy shrimp (CNDDB 2010, pp. 1–9); (c) data presented in the City of San Diego's Vernal Pool Inventory for 2002–2003 (City of San Diego 2004, pp. 1–125); (d) monitoring reports for Riverside fairy shrimp from Marine Corps Base (MCB) Camp Pendleton and MCAS Miramar; (e) the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) species GIS database; and (f) the Carlsbad Fish and Wildlife Office's (CFWO) internal species GIS database, which includes the species data used for the County of San Diego Multiple Species Conservation Plan (MSCP) and Western Riverside County MSHCP, reports from section 7 consultations, and Service observations of Riverside fairy shrimp (CFWO internal species GIS database). Compiled data were reviewed to ensure accuracy. Each data point in our database was checked to ensure that it represented an original collection or observation of Riverside fairy shrimp and that it was mapped in the correct location. Data points that did not match the description for the original collection or observation were remapped in the correct location or removed from our database.

(3) We determined which occurrences were extant at the time of listing, based on the 1993 listing rule, as well as information that has become available since the time of listing. We considered several sources in compiling the best available data on Riverside fairy shrimp vernal pool distribution and species' occurrence. We have concluded that, with the exception of Johnson Ranch Created Pool (Subunit 3g, which was created using cysts salvaged from a nearby historical occurrence at Redhawk development), all currently occupied vernal pools were also occupied and extant at the time of listing (see Background section and the specific unit descriptions below). We have drawn this conclusion because Riverside fairy shrimp have limited dispersal capabilities, and because surveys for the species at the time of listing were incomplete. We conclude that the documentation of additional occurrences within the range of Riverside fairy shrimp after it was listed was due to an increased survey effort for this species. However, as described above, we also find these areas are essential for the conservation of the species.

(4) We identified which areas contain the PCEs for Riverside fairy shrimp, and identified those areas that may require special management considerations or protection. Units were identified based on sufficient PCEs being present to support Riverside fairy shrimp life-history processes. Some units contain all of the identified PCEs and support multiple life stages (resting cyst, nauplii (recently hatched larvae), and adult). Areas that we have identified as having one or more PCEs: (a) Contain large interconnected ephemeral wetlands, large numbers of individuals, or habitat areas that allow for connections between existing occurrences of Riverside fairy shrimp; (b) represent important occurrences of this species on the geographic edge of its distribution; (c) contain occurrences that are more isolated from other occurrences by geographic features, but may represent unique adaptations to local features (biogeochemistry, hydrology, microclimate, soil mineralogy, soil fertility, soil formation processes, evolutionary time scale); or (d) exist within the distribution of the species and provide connections between occupied areas. The conservation of stable and persistent occurrences throughout the species' range helps to maintain connectivity and gene flow between occurrences that are in proximity to one another, as well as by preserving unique genetic assemblages in vernal pools across the range, including those pools not within close proximity to one another.

(5) We circumscribed boundaries of potential critical habitat, based on information obtained from the above steps. For areas containing the physical or biological features essential to the conservation of the species, we mapped the specific areas that contain the PCEs for Riverside fairy shrimp. First, we mapped the ephemeral wetland habitat in the occupied area using occurrence data, aerial imagery, and 1:24,000 topographic maps. We then mapped the intermixed wetland and upland habitats that function as the local watersheds and the topography and soils that support the occupied ephemeral wetland habitat. We mapped these areas to identify the gently sloping area associated with ephemeral wetland habitat and any adjacent areas that slope directly into the ephemeral wetland habitat, and that contribute to the hydrology of the ephemeral wetland habitat. We delineated the border of the revised critical habitat around the occupied ephemeral wetlands and associated local watershed areas to follow natural breaks in the terrain such as ridgelines, mesa edges, and steep canyon slopes.

(6) We removed all areas not containing the physical or biological features essential to the conservation of Riverside fairy shrimp. For example, when determining critical habitat boundaries, we made every effort to

avoid including developed areas, such as lands covered by buildings, pavement, and other structures, because such lands lack physical or biological features for Riverside fairy shrimp. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this final rule have been excluded by text in the final rule and are not designated as critical habitat. Therefore, in this final revised critical habitat rule, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect any adjacent critical habitat.

(7) We exempted areas within the boundaries of MCB Camp Pendleton and MCAS Miramar in this final rule because we determined that these areas are exempt under section 4(a)(3)(B)(i) of the Act from critical habitat designation (see Exemptions section below).

The critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document in the rule portion. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. The coordinates or plot points or both on which each map is based are available to the public on *http://www.regulations.gov* at Docket No. FWS–ES–R8–2011–0013, on our Internet site (*http://www.fws.gov/carlsbad/*), and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

TABLE 2—AREAS IDENTIFIED AS NECESSARY FOR STABILIZING RIVERSIDE FAIRY SHRIMP POPULATIONS

[As listed in Appendix F of 1998 Recovery Plan, and as identified as essential and as containing the PCEs in the 2005 final critical habitat designation and this 2012 final revised critical habitat designation]

Name/Location	Listed in Appendix F of 1998 Recovery Plan	2005 final critical habitat designation (subunit)	2012 final revised critical habitat (subunit)
Unit 1: Ventura County (Goleta and Transverse MA)			
Tierra Rejada Preserve (*RP: Carlsberg (Ranch)).	Yes	1a	1a.
South of Tierra Rejada Valley (east of Hwy 23).	No	1b	1b.
Cruzan Mesa (*RP: Cruzan Mesa)	Yes	1c; Removed	Not proposed; not designated.
Unit 2: Los Angeles Basin—Orange County Foothills (Los Angeles Basin—Orange MA)			
(MCAS) El Toro (*RP: El Toro)	Yes	2c; 4(b)(2) exclusion	2c; 4(b)(2) exclusion.
SCE Viejo Conservation Bank	No	No subunit #; 4(b)(2) exclusion	2i; 4(b)(2) exclusion.
Saddleback Meadow (*RP: Saddleback Meadow).	Yes**	2d; 4(b)(2) exclusion	2dA; partial 4(b)(2) exclusion.
O'Neill Regional Park (near Trabuco Canyon).	Yes**	2d; 4(b)(2) exclusion	2dB; partial 4(b)(2) exclusion.
O'Neill Regional Park (near Cañada Gobernadora).	Yes**	2	2e; partial 4(b)(2) exclusion.
Chiquita Ridge (*RP: Chiquita Ridge)	Yes	2f; 4(b)(2) exclusion	2f; 4(b)(2) exclusion.
RP: "Orange County Foothills (undescribed)".	Yes**	Not proposed	2h; partial designation 2dB, 2e, 2g, 2h, 2i; 4(b)(2) exclusion.
Radio Tower Road	No	2g; 4(b)(2) exclusion	2g; 4(b)(2) exclusion.
San Onofre State Beach, State Park-leased land (near Christianitos Creek foothills).	No	2h; 4(a)(3)(B) exemption	2h; partial 4(a)(3)(B) exemption.
Unit 3: Riverside Inland Valleys (Riverside MA)			
March Air Reserve Base	No	3a; Removed	Not proposed; not designated.
March Air Reserve Base	No	3b; 4(a)(3)(B) exemption	Not proposed; not designated.
Australia Pool	No	No subunit #; 4(b)(2) exclusion	3c; 4(b)(2) exclusion.
Scott Road Pool	No	No subunit #; 4(b)(2) exclusion	3d; 4(b)(2) exclusion.
Schleuniger Pool	No	No subunit #; 4(b)(2) exclusion	3e; 4(b)(2) exclusion.
Skunk Hollow and Field Pool (Barry Jones Wetland Mitigation Bank) (*RP: Skunk Hollow/Murrieta).	Yes	No subunit #; 4(b)(2) exclusion	3f; 4(b)(2) exclusion.
Johnson Ranch Created Pool	No	No subunit #; 4(b)(2) exclusion	3g; 4(b)(2) exclusion.
Santa Rosa Plateau—Mesa de Colorado (*RP: Santa Rosa Plateau).	Yes	Not proposed	3h; 4(b)(2) exclusion.
No Unit #: Northern San Diego County Military Land, Exempted (San Diego North Coastal Mesa MA)			
.			
Stuart Mesa, MCB Camp Pendleton (*RP: Stuart Mesa).	Yes	No subunit #; 4(a)(3)(B) exemption	4(a)(3)(B) exemption.
Cockleburr, MCB Camp Pendleton (*RP: Cockleburr).	Yes	No subunit #; 4(a)(3)(B) exemption	4(a)(3)(B) exemption.

TABLE 2—AREAS IDENTIFIED AS NECESSARY FOR STABILIZING RIVERSIDE FAIRY SHRIMP POPULATIONS—Continued

[As listed in Appendix F of 1998 Recovery Plan, and as identified as essential and as containing the PCEs in the 2005 final critical habitat designation and this 2012 final revised critical habitat designation]

Name/Location	Listed in Appendix F of 1998 Recovery Plan	2005 final critical habitat designation (subunit)	2012 final revised critical habitat (subunit)
Las Pulgas, MCB Camp Pendleton (*RP: Las Pulgas).	Yes	No subunit #; 4(a)(3)(B) exemption	4(a)(3)(B) exemption.
Land south of San Onofre State Park	Yes	No subunit #; 4(b)(2) exclusion for National Security.	4(a)(3)(B) exemption.
San Mateo, MCB Camp Pendleton (*RP: San Mateo).	Yes	No subunit #; 4(a)(3)(B) exemption	Not proposed; not designated.
Wire Mountain, MCB Camp Pendleton (*RP: Wire Mountain).	Yes	4(a)(3)(B) exemption	Not proposed; not designated.
Portion of San Onofre State Beach, State Park-leased land (near Christianitos Creek foothills) (*RP: State Park Lease Area).	No	No subunit #; 4(b)(2) exclusion for National Security.	4(a)(3)(B) exemption.
No Unit Number: Central Sand Diego County, Military Land, Exempted (San Diego Central Coastal Mesa MA)			
East Miramar (AA1 South+ Group)(Pool 4786; previously Pool 12).	Yes	4(a)(3)(B) exemption	4(a)(3)(B) exemption.
Unit 4: San Diego North Coastal Mesas (San Diego: North Coastal MA)			
Poinsettia Lane Commuter Train Station (JJ 2) (*RP: JJ2 Poinsettia Lane).	Yes	4c	4c; 4(b)(2) exclusion.
Unit 5: San Diego Southern Coastal Mesas (San Diego: South Coastal MA)			
J33 (Sweetwater High School)	No	5a; 4(b)(2) exclusion	5a.
J15 (Arnie's Point) (*RP: J2, J5, J7, J11–21, J23–30).	Yes**	5b; 4(b)(2) exclusion	5b; 4(b)(2) exclusion.
East Otay Mesa (*RP: Otay Mesa undescribed).	Yes	5c; partial 4(b)(2) exclusion	5c.
"Otay Mesa vernal pool complexes" (*RP: J2, J5, J7, J11–21, J23–30).	Yes**	No subunit #; 4(b)(2) exclusion	Designated as subunits below.
J29–31 (*RP: J2, J5, J7, J11–21, J23–30)	Yes**	No subunit #; 4(b)(2) exclusion	5d; partial 4(b)(2) exclusion.
J2 N, J4, J5 (Robinhood Ridge–J2) (*RP: J2, J5, J7, J11–21, J23–30).	Yes	No subunit #; 4(b)(2) exclusion	5e.
J2 S and J2 W (Hidden Valley, Cal Terraces, Otay Mesa Road) (*RP: J2, J5, J7, J11–21, J23–30).	Yes	No subunit #; 4(b)(2) exclusion	5f.
J14	No	No subunit #; 4(b)(2) exclusion	5g.
J11–12, J16–18 (Goat Mesa) (*RP: J2, J5, J7, J11–21, J23–30).	Yes	No subunit #; 4(b)(2) exclusion	5h; partial 4(b)(2) exclusion.

MA: Management Area as defined in 1998 Recovery Plan.
*(*RP):* name of pool (or pool complex) as stated in the 1998 Recovery Plan.
No: not in 1998 Recovery Plan; occurrence not identified until after 1998.
Yes: location was identified in the 1998 Recovery Plan.
*Yes **:* location was considered in the 1998 Recovery Plan, but at that time was grouped (lumped) as multiple vernal pool complexes. These locations have now been separated in this 2012 final rule.

Final Critical Habitat Designation

We are designating 3 units, containing 13 subunits, as critical habitat for Riverside fairy shrimp. The three units are: Unit 1 (Ventura County), Unit 2 (Los Angeles Basin—Orange County Foothills), and Unit 5 (San Diego Southern Coastal Mesas). All of Unit 3 (Riverside County) and Unit 4 (San Diego North and Central Coastal Mesas) are excluded in this final rule. Table 3 shows all of the critical habitat units, including excluded acreages.

TABLE 3—FINAL CRITICAL HABITAT FOR RIVERSIDE FAIRY SHRIMP IS SHOWN IN THE LAST COLUMN OF THE TABLE.

[This table does not include habitat exempted under Section 4(a)(3) of the Act but does identify habitat excluded under Section 4(b)(2) in column 6.]

Critical habitat unit	Federal land	State land	Local land [1]	Private land	Total area containing essential features	Area excluded	Final critical habitat
Unit 1: Ventura County			31 ac (13 ha)	435 ac (176 ha)	466 ac (189 ha)		466 ac (189 ha).
1a. Tierra Rejada Preserve				18 ac (7 ha)	18 ac (7 ac)		18 ac (7 ac).
1b. South of Tierra Rejada Valley			31 ac (13 ha)	417 ac (169 ha)	448 ac (182 ha)		448 ac (182 ha).
Unit 2: Los Angeles Basin—Orange County Foothills			142 ac (58 ha)	576 ac (233 ha)	718ac (291 ha)	322 ac (130 ha)	396 ac (160 ha).
2c. (MCAS) El Toro			18 ac (7 ha)	8 ac (3 ha)	26 ac (11 ac)	26 ac (11 ha)	
2dA. Saddleback Meadow			4 ac (2 ha)	252 ac (102 ha)	256 ac (104 ha)	4 ac (2 ha)	252 ac (102 ha).
2dB. O'Neill Regional Park (near Trabuco Canyon)			75 ac (30 ha)	15 ac (6 ha)	90 ac (37 ha)	75 ac (30 ha)	15 ac (6 ha).
2e. O'Neill Regional Park (near Cañada Gobernadora)			45 ac (18 ha)	24 ac (10 ha)	69 ac (28 ha)	47 ac (19 ha)	22 ac (9 ha)
2f. Chiquita Ridge				56 ac (23 ha)	56 ac (23 ha)	56 ac (23 ha)	
2g. Radio Tower Road				51 ac (21 ha)	51 ac (21 ha)	51 ac (21 ha)	
2h. San Onofre State Beach, State Park-leased land (near Christianitos Creek foothills).				107 ac (43 ha)	107 ac (43 ha)		107ac (43 ha).
2i. SCE Viejo Conservation Bank				63 ac (25 ha)	63 ac (25 ha)	63 ac (25 ha)	
Unit 3: Riverside Inland Valleys		54 ac (22 ha)		811 ac (328 ha)	865 ac (350 ha)	865 ac (350 ha)	
3c. Australia Pool				19 ac (8 ha)	19 ac (8 ha)	19 ac (8 ha)	
3d. Scott Road Pool				9 ac (4 ha)	9 ac (4 ha)	9 ac (4 ha)	
3e. Schleuniger Pool				23 ac (9 ha)	23 ac (9 ha)	23 ac (9 ha)	
3f. Skunk Hollow and Field Pool (Barry Jones Wetland Mitigation Bank).				163 ac (66 ha)	163 ac (66 ha)	163 ac (66 ha)	
3g. Johnson Ranch Created Pool		54 ac (22 ha)			54 ac (22 ha)	54 ac (22 ac)	
3h. Santa Rosa Plateau—Mesa de Colorado				597 ac (242 ha)	597 ac (242 ha)	597 ac (242 ha)	
Unit 4: San Diego North and Central Coastal Mesas			6 ac (3 ha)	3 ac (1 ha)	9 ac (4 ha)	9 ac (4 ha)	
4c. Poinsettia Lane Commuter Train Station			6 ac (3 ha)	3 ac (1 ha)	9 ac (4 ha)	9 ac (4 ha)	
Unit 5: San Diego Southern Coastal Mesas	40 ac (16 ha)	256 ac (104 ha)	157 ac (64 ha)	472 ac (191 ha)	925 ac (375 ha)	63 ac (25 ha)	862 ac (348 ha).
5a. Sweetwater (J33)			2 ac (less than 1 ha).	less than 1 ac (0 ha).	2 ac (less than 1 ha).		2 ac (less than 1 ha).
5b. Arnie's Point (J15)	29 ac (12 ha)				29 ac (12 ha)	29 ac (12 ha)	
5c. East Otay Mesa				57 ac (23 ha)	57 ac (23 ha)		57 ac (23 ha).
5d. J29–31	less than 1 ac (0 ha).	211 ac (85 ha)		159 ac (64 ha)	370 ac (149 ha)	23 ac (9 ha)	347 ac (140 ha).
5e. J2 N, J4, J5 (Robinhood Ridge)			32 ac (13 ha)	12 ac (5 ha)	44 ac (18 ha)		44 ac (18 ha).
5f. J2 W and J2 S: (Hidden Trails, Cal Terraces, Otay Mesa Road).			22 ac (9 ha)	11 ac (4 ha)	33 ac (13 ha)		33 ac (13 ha).
5g. J14		45 ac (18 ha)	18 ac (7 ha)	72 ac (29 ha)	135 ac (55 ha)		135 ac (55 ha).
5h. J11 E and J11 W, J12, J16–18 (Goat Mesa)	11 ac (4 ha)		83 ac (34 ha)	161 ac (65 ha)	255 ac (103 ha)	11 ac (4 ha)	244 ac (99 ha).
Totals	40 ac (16 ha)	310 ac (126 ha)	336 ac (138 ha)	2,297 ac (929 ha)	2,984 ac (1,208 ha).	1,259 ac (510 ha)	1,724 ac (698 ha).

Note: Sums of land areas may not total due to rounding.
Details on excluded acres and HCPs are given in Table 5.
[1] Local land includes land owned by local government agencies.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for Riverside fairy shrimp, below.

Unit 1: Ventura County Unit (Transverse Range)

Unit 1 is located in central Ventura County and consists of two occupied subunits totaling approximately 466 ac (189 ha), with 31 ac (13 ha) of local land and 435 ac (176 ha) of private land. Unit 1 is within the geographical area occupied by the species at the time of listing. This unit includes vernal pools near the City of Moorpark in Ventura County at Tierra Rejada Preserve (formerly Carlsberg Ranch) on the west side of State Highway 23, and a basin to the southeast of the Carlsberg Ranch site called South of Tierra Rejada Valley, east of State Highway 23. This unit occurs within the larger Santa Clara-Calleguas/Calleguas-Conejo Tierra Rejada Valley watershed, within the east-west trending Transverse (mountain) Range. The Transverse Range system was formed by the interaction of an east-west oceanic fault zone with the San Andreas Fault. Because the interaction of the two fault systems has been extensive and continues with rapid local uplift, Riverside fairy shrimp habitat within the Transverse Range reflects past activities of tectonic processes and their effects on watershed development. Accelerated erosion, sedimentation, and debris processes, such as mud and rock flows, landslides, wind flows, and debris flows (soil development processes), contribute to a unique set of physiochemical and geomorphic features for pools occupied by Riverside fairy shrimp.

Subunit 1a: Tierra Rejada Preserve

Subunit 1a is located near the City of Moorpark in southeastern Ventura County, California. This subunit is located on what was formerly known as the Carlsberg Ranch, at the north end of the Tierra Rejada Valley and just west of State Highway 23. It is near the northeast intersection of Moorpark Road and Tierra Rejada Road in a residential housing development. Subunit 1a consists of 18 ac (7 ha) of privately owned land. The vernal pool (pond), 4.6 acres (1.7 ha) in size, is located in the Tierra Rejada Vernal Pool Preserve, owned and managed by Mountains Recreation and Conservation Authority (MCRA). Subunit 1a contains areas identified in the 1998 Recovery Plan (Appendix F) as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp.

We consider this subunit to have been occupied at the time of listing, and it is currently occupied. Subunit 1a is within the geographical area occupied by the species at the time of listing. Resting cysts were detected in recent soil analyses (C. Dellith 2010, pers. comm.) and adult fairy shrimp were observed on April 7, 2011 (J. Tamasi 2011, pers. comm.), the first observation of adults since the 2000–2001 ponding season. This area is essential to the conservation of this species for several reasons. The pool supports endangered *Orcuttia californica* (Orcutt's grass), which is an indicator of the longer ponding duration necessary to support the life-history needs of Riverside fairy shrimp. This pool is fundamentally different in terms of size, origin, depth, and duration of ponding, contributing areas (watershed), and the thickness of the underlying sediments compared to flat areas of older soils with highly developed claypans and hardpans throughout the State (Hecht *et al.* 1998, p. 47). This pool was formed primarily by tilting and subsidence along the Santa Rosa fault (Hecht *et al.* 1998, p. 5). Given its geological and hydrological features and associated wetland vegetation within the subunit, this pool possesses a set of physical and biological factors unique to this occurrence to which the Riverside fairy shrimp has likely become adapted. The present biological resources and value of the pool have been sustained despite ''substantial disturbance and change [in] the general area of the vernal pool'' and given the history of land and water use and analysis of 60 years of aerial photography (Hecht *et al.* 1998, p. 6 and Appendix A). Although Lahti *et al.* (2010) did not survey this pool during their completion of a rangewide genetic analysis, this occurrence represents the northernmost extension of the species' occupied range within a notably unique vernal wetland type (Hecht *et al.* 1998, p. 5, and see discussion below).

Subunit 1a contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including appropriate soil series (Azule, Calleguas, Linne; PCE 3) situated on a saturated fault between rocks of different permeability (''tectonogenic''; Hecht *et al.* 1998, p. 5), and it is ''sediment-tolerant'' given that it possesses a watershed with reasonably steep slopes (10–50 percent) that yield substantial amounts of sediment that provide nutrients and minerals (Hecht *et al.* 1998, p. 6). The fine clay sediment deposited in the basin settles and allows the pool to fill; this is in contrast to most other vernal pools, where hydrology is maintained through clay soils created by soil forming processes (Hecht *et al.* 1998, p. 5). Additionally, because of adjacent urban development, altered hydrology, and potential for runoff, the PCEs in this subunit may require special management considerations or protection for the recovery of Riverside fairy shrimp. This subunit has one large ponding feature, and is essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65) at the species' northernmost geographical distribution.

Due to its unique geographic location and other features stated above, Subunit 1a is essential to the conservation of Riverside fairy shrimp. Although preliminary genetic studies are not definitive with regard to gene flow and genetic variability across the range of this species, populations at the edge of a species' distribution have been demonstrated to be important sources of genetic variation, may provide an important opportunity for colonization or recolonization of unoccupied vernal pools, and, thus, contribute to long-term conservation (and recovery) of the species (Gilpin and Soule´ 1986, pp. 32–33; Lande 1999, p. 6). Research on genetic differentiation among fairy shrimp species across their known distributions has demonstrated that geographically distinct populations may or may not be genetically distinct, but that they have unique genetic characteristics that may allow for adaption to environmental changes (Bohonak 2003, p. 3; Lahti *et al.* 2010, p. 17). These characteristics may not be present in other parts of a species' range (Lesica and Allendorf 1995, p. 756), making preservation of this subunit and the unique genetic diversity it contains essential for the recovery of the species.

We are lacking specific documentation of Riverside fairy shrimp occupancy in Subunit 1a at the time of listing. However, Subunit 1a contains the physical or biological features necessary to the conservation of the species, and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 1a under section 3(5)(A)(ii) of the Act because the subunit is essential for the conservation

of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 1a meets the definition of critical habitat in section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species (nonnative grasses and *Schinus molle* (Peruvian pepper) groves) and alterations to the hydrological cycle, including type conversion of habitat; activities that remove or destroy the habitat assemblage of the pools, such as creation of fuel breaks, mowing, and grading; and human encroachment that occurs in the area. These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2). For example, inundation from artificial water sources can cause pools to stay inundated longer than normal or even convert vernal pools into perennial pools that are not suitable for Riverside fairy shrimp (Service 2008, p. 16). Please see *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 1b: South of Tierra Rejada Valley

Subunit 1b is located near the City of Moorpark in Ventura County, California. This subunit is approximately 1 mi (1.5 km) southeast of Subunit 1a and east of State Highway 23. Subunit 1b consists of 31 ac (13 ha) of locally owned land and 417 ac (169 ha) of private land. We assume that Subunit 1b was not identified in the 1998 Recovery Plan (Appendix F) because at that time we were unable to confirm occupancy. To the best of our knowledge, this subunit has never been protocol surveyed to confirm the presence or absence of Riverside fairy shrimp (C. Dellith 2010, pers. comm.). This subunit, however, was proposed and designated as critical habitat in the 2005 final revised critical habitat rule because we considered it occupied (see discussion below) and because the necessary PCEs were present. We continue to presume that Subunit 1b is occupied, despite the absence of protocol survey results, and have determined that the subunit contains the PCEs.

Subunit 1b is located approximately 1 mile to the south of Tierra Rejada Preserve (Subunit 1a) within the Tierra Rejada Valley watershed. Like Subunit 1a, this pool is one of the last representatives of what is believed to be a historical distribution of coastal terrace vernal pools common to the marine terraces and inland area of Ventura County prior to the 1950s (Hecht *et al.* 1998, p. 6 and Appendix A). This subunit is considered occupied based on several factors that strongly suggest the likelihood of Riverside fairy shrimp occurrence. As discussed in the 2005 proposed rule (70 FR 19154; April 12, 2005), these are: (1) The important biotic and abiotic conditions (soil type, geology, morphology, local climate, topography, and plant associations, for example, *Orcuttia californica,* which suggests the presence of vernal pool ponding at the appropriate season and for the appropriate duration); (2) topographic features and ponding evidence based on aerial surveys that confirm a ponding pool basin; (3) several large permanent and semipermanent pools observed within the subunit's local watershed; (4) proximity (less than 1 mi (< 1 km)) to a known Riverside fairy shrimp occurrence, and likely within the known dispersal distance expected for an invertebrate species with a resistant cyst stage; and (5) the determination that Subunit 1a and Subunit 1b are adjoined, based on fluvial and geomorphic evidence that suggest the Tierra Rejada Valley river system once likely connected the two pools and would have provided the connectivity to disperse cysts between the two subunits.

Subunit 1b is designated as revised critical habitat because we have determined it is essential for the conservation of the species. It includes one or more pools capable of maintaining habitat function, genetic diversity, and species viability (Service 1998a, p. 65) for Riverside fairy shrimp at the northern limit of its current distribution, and is near, and likely has connectivity with, a known occupied location of ecological and distributional significance. It is also essential because the best supporting evidence indicates the basin contains the appropriate depth and ponding duration (PCE 1), soils and topography (PCEs 2 and 3), elevation, and water chemistry (pH, temperature, salinity, etc.; PCE 1) to satisfy the life-history needs of existing Riverside fairy shrimp populations.

Though the life history of Riverside fairy shrimp suggests that Subunit 1b was occupied at the time of listing, specific documentation of occupancy is lacking. Based on the biology and life history of Riverside fairy shrimp, we believe that the subunit was indeed occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing and contains all of the PCEs. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 1b under section 3(5)(A)(ii) of the Act because we consider this subunit essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 1b meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

Unit 2: Los Angeles Basin—Orange County Foothills

Unit 2 is located in central coastal Orange County and consists of 4 subunits totaling approximately 396 ac (160 ha) of privately owned land. Unit 2 falls within the Los Angeles Basin-Orange County Management Area as outlined in the 1998 Recovery Plan. The majority of vernal pools in this management area were extirpated prior to 1950, and only a small number of vernal pools remain in Los Angeles and Orange Counties (Service 1998a, p. 40).

This unit includes the vernal pools and vernal pool-like ephemeral ponds located along a north-south band in the Orange County Foothills. It includes examples of the historical distribution of coastal terraces at moderate elevations (183 to 414 m (600 to 1,358 ft)), and includes ephemeral ponds formed by landslides and fault activity, and remnant stream (fluvial) terraces along foothill ridgelines (Taylor *et al.* 2006, pp. 1–2). Occupied Riverside fairy shrimp pools occur on former MCAS El Toro; Southern California Edison (SCE) Viejo Conservation Bank; Saddleback Meadows; O'Neill Regional Park (near Trabuco Canyon east of Tijeras Creek at the intersection of Antonio Parkway and the Foothill Transportation Corridor (FTC-north segment)); O'Neill Regional Park (near Cañada Gobernadora); Chiquita Ridge; Radio Tower Road; and San Onofre State Beach, State Park-leased land (near Christianitos Creek foothills) that falls partially within MCB Camp Pendleton. These vernal pools are the last remaining vernal pools in Orange County known to support this species (58 FR 41384; August 3, 1993) and represent a unique type of vernal pool habitat that differs from the

traditional mima mound vernal pool complexes of coastal San Diego County, the coastal pools at MCB Camp Pendleton, and the inland pools of Riverside County (70 FR 19182).

Unit 2 is within the geographical area occupied by the species at the time of listing. The areas within Unit 2 are occupied and contain the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and the topography and soils that support ponding during winter and spring months (PCE 3); in almost all cases, slow-moving or still surface water and saturated soils are present at or near vernal pool habitat. Conservation of an array of vernal pools that contain the physical or biological features essential to the conservation of Riverside fairy shrimp in the foothill region of Orange County provides for necessary habitat function, natural genetic diversity and exchange, and species viability in the central portion of the species' range.

Subunit 2dA: Saddleback Meadows

Subunit 2dA is located in the community of Silverado in southern Orange County, California. This subunit is near the St. Michael's College Preparatory School, east of El Toro Road and southwest of Live Oak Canyon Road. Subunit 2dA consists of 252 ac (102 ha) of privately owned land. It contains areas identified in the 1998 Recovery Plan (Appendix F) as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp, as well as other proposed and listed vernal pool species. This subunit is essential to the conservation and recovery of Riverside fairy shrimp because it is currently occupied and includes one or more pools necessary to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. This vernal pool complex includes a series of natural and impounded cattle troughs that have been breached and degraded by past agricultural activities and urban development. Additionally, Subunit 2dA is an important link to the northern occupied locations, and represents a nearby source for recolonization of pools in the Orange County foothills.

Subunit 2dA contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3).

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 2dA at the time of listing. However, Subunit 2dA contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 2dA under section 3(5)(A)(ii) of the Act because we consider this subunit to be essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 2dA meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species, development, or grazing that may occur in the vernal pool basins. These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 2dB: O'Neill Regional Park (Near Trabuco Canyon)

Subunit 2dB is located approximately 1.5 km (1 mi) southeast of Subunit 2dA in southern Orange County, California. This subunit is west of Live Oak Canyon Road and northeast of the O'Neill Regional Park, near Cañada Gobernadora (see Subunit 2e below). In the 2008 5-year review, this area was referred to as ''O'Neill Park/Clay Flats pond property'' (Service 2008, p. 7). Subunit 2dB consists of 15 ac (6 ha) of privately owned land. Subunit 2dB was not specifically identified in the 1998 Recovery Plan (Appendix F), but is classified as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''Orange County Foothills (undescribed)'' heading in Appendix F (Service 1998a, p. F1).

This subunit is essential for the conservation of Riverside fairy shrimp because it is currently occupied and includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. Subunit 2dB contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3). A portion of this subunit lies at 1,413 ft (431 m), and is among the highest elevation occurrences of Riverside fairy shrimp.

We are lacking specific documentation of Riverside fairy shrimp occupancy in Subunit 2dB at the time of listing. However, Subunit 2dB contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 2dB under section 3(5)(A)(ii) of the Act because we consider the subunit essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 2dB meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require

special management considerations or protection to address threats from nonnative plant species and activities, such as unauthorized recreational use, OHV use, and fire management. These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 2e: O'Neill Regional Park (Near Cañada Gobernadora)

Subunit 2e is located near the city of Rancho Santa Margarita in southern Orange County, California, and is currently occupied. This subunit is east of Cañada Gobernadora and bounded to the west by State Highway 241. In the 2008 5-year review this area was referred to as ''east of Tijeras Creek complex'' (Service 2008, p. 7). Subunit 2e consists of 22 ac (9 ha) of private land. Subunit 2e was not specifically identified in the 1998 Recovery Plan (Appendix F), but was classified as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''Orange County Foothills (undescribed)'' heading in Appendix F (Service 1998a, p. F1).

This subunit is essential for the conservation of Riverside fairy shrimp because it includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. Areas within this subunit contain clay, clay loam, or sandy loam, and consist primarily of dry-land agriculture and sagebrush-buckwheat scrub habitat. Located in the water drainages of the foothills of the Santa Ana Mountains, this pool rests in a canyon bottomland at approximately 919 ft (280 m) of elevation.

Subunit 2e contains the physical or biological features essential to the conservation of Riverside fairy shrimp including clay soils and loamy soils underlain by a clay subsoil (PCE 3); areas with a natural, generally intact surface and subsurface soil structure (PCE 2); and the ephemeral habitat (PCE 1) that supports Riverside fairy shrimp, including slow-moving or still surface water and/or saturated soils. Subunit 2e also supports a stable, persistent occurrence of the species.

We are lacking specific documentation of Riverside fairy shrimp occupancy in Subunit 2e at the time of listing. However, Subunit 2e contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 2e under section 3(5)(A)(ii) of the Act because we consider the subunit to be essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 2e meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, surrounding residential and commercial development, unauthorized recreational use, OHV use, and fire management). These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 2h: San Onofre State Beach, State Park-Leased Lands

Subunit 2h is located along the border between Orange and San Diego Counties, southeast of Richard Steed Memorial Park and north of Christianitos Road. Nearly half of this subunit (105 ac (42 ha)) occurs on Department of Defense (DOD) land on MCB Camp Pendleton, and is exempt from critical habitat under section 4(a)(3)(B)(i) of the Act. The other half of Subunit 2h consists of 107 ac (43 ha) of privately owned land. The portion of Subunit 2h that falls within DOD land, the ''Cal State Parks Lease,'' as described in the 2007 Integrated Natural Resources Management Plan (INRMP) (U.S. Marine Corps 2007, p. 2–30), is part of a lease agreement made between the U.S. Marine Corps and California State Department of Parks on September 1, 1971, for a 50-year term. Portions of Subunit 2h exempt from this final critical habitat rule include military thoroughfares (roads), military training with advanced coordination, utility easements, fire suppression activities, and public recreation. The presence of Riverside fairy shrimp in Subunit 2h was discovered after the 1993 listing rule and 1998 Recovery Plan were written.

This subunit is essential for the conservation of Riverside fairy shrimp because it is currently occupied and includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). It represents an important ecological linkage for genetic exchange between the coastal mesa pools of San Diego and the Orange County Foothills occurrences. Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs.

Subunit 2h consists of two sag ponds (a pool that forms as a result of movement between two plates on an active fault line) at the eastern section of the unit and their associated upland watersheds on land within Orange County near the city of San Clemente. Subunit 2h contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3).

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 2h at the time of listing. However, Subunit 2h contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that

it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. As discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 2h under section 3(5)(A)(ii) of the Act because we consider the subunit essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 2h meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, military activities, unauthorized recreational use, agricultural runoff, OHV use, and fire management). These threats could disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations. The 105 ac (42 ha) of lands identified as critical habitat within the boundaries of MCB Camp Pendleton are exempt from critical habitat under section 4(a)(3)(B)(i) of the Act.

Unit 5: San Diego Southern Coastal Mesas

Unit 5 is located in Southern San Diego County and consists of seven subunits totaling 862 ac (349 ha). This unit contains 250 ac (101 ha) of State-owned land, 157 ac (64 ha) of locally owned land, and 455 ac (184 ha) of private land. This unit falls within the San Diego Southern Coastal Management Area, as identified in the 1998 Recovery Plan. Land we are designating as critical habitat includes vernal pool complexes within the jurisdiction of the Service, City of San Diego, County of San Diego, other DOD land, and private interests. This unit contains several mesa-top vernal pool complexes on western Otay Mesa (Bauder vernal pool complexes J2 N, J2 S, J2 W, J4, J5, J11 W, J11 E, J12, J16–18, J33) and eastern Otay Mesa (Bauder pool complexes J29–31, J33) as in Appendix D of City of San Diego (2004).

These vernal pool complexes are associated with coastal mesas from the Sweetwater River south to the U.S.-Mexico International Border, and represent the southernmost occurrences of Riverside fairy shrimp in the United States. This unit is also genetically diverse, including two haplotypes (a unique copy or form of a sequenced gene region) not found outside of the Otay Mesa area (Lahti *et al.* 2010, Table 5). Additionally, Otay Mesa pools are significantly differentiated from one another (Lahti *et al.* 2010, p. 19). This area is essential for the conservation of Riverside fairy shrimp for the following reasons: (1) These vernal pool complexes represent the few remaining examples of the much larger and mostly extirpated vernal pool complexes on the highly urbanized Otay Mesa (Bauder 1986a); (2) recent genetic work indicates that complexes within this unit (J26, J29–30) support Riverside fairy shrimp with the unique haplotype B; and (3) this is one of only three locations that supports haplotype C (Lahti *et al.* 2010). Maintaining this unique genetic structure may be crucial in the conservation of this species. Unit 5 is within the geographical area occupied by the species at the time of listing.

Subunit 5a: Sweetwater (J33)

Subunit 5a is located in the City of San Diego in southern San Diego County, California. This subunit is at Sweetwater High School (site J33), south of the intersection between Otay Mesa and Airway Roads. Subunit 5a consists of 2 ac (less than 1 ha) of locally owned land and less than 1 ac (< 1 ha) of private land. Subunit 5a contains areas identified in the 1998 Recovery Plan (Appendix F) as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp, as well as other proposed and listed vernal pool species.

This subunit is essential for the conservation of Riverside fairy shrimp because it includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. This subunit is under the ownership of the Sweetwater Union High School District.

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 5a at the time of listing. However, Subunit 5a contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. As discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 5a under section 3(5)(A)(ii) of the Act because we consider the subunit essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 5a meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

Subunit 5a contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils (Olivenhain cobbly loam soil series) that support ponding during winter and spring months (PCE 3). The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species, unauthorized recreational use and OHV use, and other human-related activities. These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 5c: East Otay Mesa

Subunit 5c is located in the eastern Otay Mesa region of southern San Diego County, California. This subunit is approximately 1.75 mi (2.75 km) southeast of Kuebler Ranch and just north of the U.S.-Mexico Border. Subunit 5c consists of 57 ac (23 ha) of privately owned land. These lands fall within the County of San Diego Subarea Plan under the San Diego MSCP. Subunit 5c was not specifically identified in the 1998 Recovery Plan (Appendix F), but is classified as

necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''J2, J5, J7, J11–21, J23–30 Otay Mesa'' heading in Appendix F (Service 1998a, p. F1). The pool in Subunit 5c is not included in the list above, but is within the geographical area of those listed pools. Areas within Subunit 5c were also identified as essential in the previous critical habitat rules for Riverside fairy shrimp (66 FR 29384, May 30, 2001; 70 FR 19154, April 12, 2005). Subunit 5c contains one vernal pool; this pool is occupied by Riverside fairy shrimp. It also contains a small stream as well as the downward slope and mima mound topography that make up the watershed associated with the occupied vernal pool.

This subunit is currently occupied; dry season surveys in 2011 by Busby Biological Services documented the presence of Riverside fairy shrimp cysts (Busby Biological Services 2011, entire). This subunit was first documented as occupied in 2000 (GIS ID 4). Though the stock pond in Subunit 5c was not surveyed by Lahti *et al.* (2010), other vernal pools surveyed in Otay Mesa were found to have unique genetic diversity in the range of the species, including two haplotypes not found elsewhere. Otay Mesa pools also show significant genetic differentiation from each other (Lahti *et al.* 2010, p. 19). Given the subunit's location as the very easternmost pool in Otay Mesa, we determine that Subunit 5c may also host unique genetic diversity.

This subunit is essential for the conservation of Riverside fairy shrimp because its occupied pool and surrounding watershed are essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. The vernal pool in this subunit has been impacted by OHV use, cattle grazing, development, and nonnative grasses. Subunit 5c contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3). This subunit also contains critical habitat for the endangered Quino checkerspot butterfly (*Euphydryas editha quino*) and is occupied by both the Quino checkerspot butterfly and San Diego fairy shrimp (72 FR 70648, December 12, 2007; 74 FR 28776, June 17, 2009).

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 5c at the time of listing. However, Subunit 5c contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. As discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 5c under section 3(5)(A)(ii) of the Act because we consider the subunit to be essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 5c meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, development, OHV use, water runoff, and grazing). These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 5d: J29–31

Subunit 5d is located in the Otay Mesa region of southern San Diego County, California. This subunit is to the east and west of State Highway 125, south of the Otay Valley, and north of the U.S.-Mexico Border. Subunit 5d consists of 347 ac (140 ha), including less than 1 ac (< 1 ha) of federally owned land, 205 ac (83 ha) of State-owned land (Caltrans), and 142 ac (57 ha) of private land. One vernal pool complex within Subunit 5d (J31) was not specifically identified in the 1998 Recovery Plan (Appendix F). However, pool J31 within the same watershed as pool complexes J29 and J30, both of which were listed as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''J2, J5, J7, J11–21, J23–30 Otay Mesa'' heading in Appendix F (Service 1998a, p. F1). This subunit was confirmed occupied at the time of listing by protocol surveys, and is currently occupied. Subunit 5d is within the geographical area occupied by the species at the time of listing. Therefore, we are designating it under section 3(5)(A)(i) of the Act.

This subunit is essential for the conservation of Riverside fairy shrimp because it includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. Subunit 5d is predominantly in the City of San Diego in San Diego County, California, although portions of pools J29–31 are within the County of San Diego's jurisdiction. This subunit contains a large area of habitat that supports sizable occurrences of Riverside fairy shrimp, and provides potential connectivity between occurrences of Riverside fairy shrimp in Subunits 5e and 5c. This subunit contains several mesa-top vernal pool complexes on eastern Otay Mesa (Bauder vernal pool complexes J22, J29, J30, J31 N, J31 S as in Appendix D of City of San Diego (2004) and Service GIS files). Subunit 5d contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3).

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, OHV use, unauthorized recreational use, impacts from development (including water runoff), and fire management). These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the

vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 5e: J2 N, J4, J5 (Robinhood Ridge)

Subunit 5e is located in the Otay Mesa region of southern San Diego County, California. This subunit is approximately 1 mi (1.5 km) east of Ocean View Hills Parkway, 0.6 mi (1 km) north of State Highway 905, and bounded by Vista Santo Domingo to the east. Subunit 5e consists of 44 ac (18 ha), including 32 ac (13 ha) of locally owned land and 12 ac (5 ha) of private land. Subunit 5e was not specifically identified in the 1998 Recovery Plan (Appendix F), but is classified as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''J2, J5, J7, J11–21, J23–30 Otay Mesa'' heading in Appendix F (Service 1998a, p. F1). This subunit is currently occupied.

This subunit is essential for the conservation of Riverside fairy shrimp because it includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. Subunit 5e contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and the topography and soils that support ponding during winter and spring months (PCE 3).

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 5e at the time of listing. However, Subunit 5e contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 5e under section 3(5)(A)(ii) of the Act because we consider the subunit to be essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 5e meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, OHV use, unauthorized recreational use, impacts from development, and fire management). These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 5f: J2 W, J2 S (Hidden Trails, Cal Terraces, Otay Mesa Road)

Subunit 5f is located in the Otay Mesa region of southern San Diego County, California, and consists of three pool complexes. All complexes are located north of State Highway 905 and southwest of Subunit 5e, with one complex in the lot southwest of Ocean View Hills Parkway, one bounded to the west by Hidden Trails Road, and one bounded to the west by Corporate Center Drive. Subunit 5f consists of 22 ac (9 ha) of locally owned land and 11 ac (4 ha) of private land. Subunit 5f was not mentioned by name in the 1998 Recovery Plan (Appendix F), but portions of vernal pool complexes within the units (J2 W and J2 S) were listed as necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''J2, J5, J7, J11–21, J23–30 Otay Mesa'' heading in Appendix F (Service 1998a, p. F1). This subunit is currently occupied.

This subunit is essential for the conservation of Riverside fairy shrimp because it includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. Subunit 5f contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3).

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 5f at the time of listing. However, Subunit 5f contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 5f under section 3(5)(A)(ii) of the Act because we consider the subunit to be essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 5f meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, OHV use; unauthorized recreational use; impacts from development, including water runoff; and fire management). These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 5g: J14

Subunit 5g is located in the Otay Mesa region of southern San Diego County, California. This subunit is south of State Highway 905, southeast of Caliente Avenue, west of Heritage Road, and northwest of Spring Canyon. Subunit 5g consists of 45 ac (18 ha) of State-owned land (Caltrans), 18 ac (7 ha) of locally owned land, and 72 ac (29 ha) of private land. Subunit 5g was not mentioned by name in the 1998 Recovery Plan (Appendix F), but is included in the list of vernal pool complexes necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''J2, J5, J7, J11–21, J23–30 Otay Mesa'' heading in Appendix F (Service 1998a, p. F1). This subunit is currently occupied.

This subunit is essential for the conservation of Riverside fairy shrimp because it includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. Subunit 5g contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3).

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 5g at the time of listing. However, Subunit 5g contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 5g under section 3(5)(A)(ii) of the Act because we consider the subunit to be essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 5g meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, OHV use; unauthorized recreational use; impacts from development, (including water runoff and fire management). These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Subunit 5h: J11 E, J11 W, J12, J16–18 (Goat Mesa)

Subunit 5h is located in the Otay Mesa region of southern San Diego County, California. This subunit is north and west of Subunit 5b, bounded by the U.S.-Mexico Border to the south, and bisected by Jeep Trail. Subunit 5h consists of 83 ac (34 ha) of locally owned land (City of San Diego) and 161 ac (65 ha) of privately owned land. Subunit 5h was not mentioned by name in the 1998 Recovery Plan (Appendix F), but is included in the list of vernal pool complexes necessary to stabilize and protect (conserve) existing populations of Riverside fairy shrimp within the ''J2, J5, J7, J11–21, J23–30 Otay Mesa'' heading in Appendix F (Service 1998a, p. F1). This subunit is currently occupied.

This subunit is essential for the conservation of Riverside fairy shrimp because it includes one or more pools essential to maintain habitat function, genetic diversity, and species viability (Service 1998a, p. 65). Further, it is essential because the basin contains the appropriate depth and ponding duration, soils, elevation, and water chemistry (pH, temperature, salinity, etc.) to fulfill Riverside fairy shrimp's life-history needs. Subunit 5h contains the physical or biological features essential to the conservation of Riverside fairy shrimp, including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3).

We lack specific documentation of Riverside fairy shrimp occupancy in Subunit 5h at the time of listing. However, Subunit 5h contains the physical or biological features necessary to the conservation of the species and these features support life-history characteristics of Riverside fairy shrimp (such as the presence of cyst banks that indicate long-term occupancy of a vernal pool). The presence of these traits makes it likely that the subunit was occupied at the time of listing, and that it meets the definition of critical habitat under section 3(5)(A)(i) of the Act because it is within the geographical area occupied by the species at the time of listing. However, as discussed in the *Criteria Used To Identify Critical Habitat* section above, we alternatively designate Subunit 5h under section 3(5)(A)(ii) of the Act because we consider the subunit to be essential for the conservation of Riverside fairy shrimp, regardless of occupancy data at the time of listing. Thus, for the purposes of this rulemaking, we determine that Subunit 5h meets the definition of critical habitat under section 3(5)(A)(i) or, alternatively, under section 3(5)(A)(ii) of the Act.

The physical or biological features essential to the conservation of the species in this subunit may require special management considerations or protection to address threats from nonnative plant species and anthropogenic activities (for example, OHV use; unauthorized recreational use; impacts from development, including water runoff; and fire management). These threats could impact the water chemistry characteristics that support Riverside fairy shrimp (PCE 1) and disrupt the surrounding watershed that provides water to fill the pool in the winter and spring (PCE 2) as well as the vegetative coverage and soil substrates surrounding the pool (PCE 2). Please see the *Special Management Considerations or Protection* section of this final rule for a discussion of the threats to Riverside fairy shrimp habitat and potential management considerations.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In

addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our regulatory definition of ''destruction or adverse modification'' (50 CFR 402.02) (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service,* 378 F.3d 1059 (9th Cir. 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service* et al., 245 F.3d 434, 442 (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (CWA) (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, or are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define ''reasonable and prudent alternatives'' (at 50 CFR 402.02) as alternative actions identified during 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 Federal agency's legal authority and jurisdiction;

(3) Are economically and technologically feasible; and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

Application of the ''Adverse Modification'' Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Thus, the analysis of effects to critical habitat under Section 7(a)(2) of the Act is a separate and distinct analysis from an analysis of the effects to the species. While the jeopardy analysis focuses on an action's effects on the survival and recovery of a species, the adverse modification analysis investigates the action's effects to the designated habitat's contribution to conservation. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for a species. The difference in outcomes of the jeopardy and adverse modification analyses represents the regulatory benefit of critical habitat designation.

As discussed above, the role of critical habitat is to support life-history needs of the species and provide for the conservation of the species. For Riverside fairy shrimp, this includes supporting viable vernal pools containing the species and the associated watersheds upon which the pools depend.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for Riverside fairy shrimp. These activities include, but are not limited to:

(1) Actions that result in ground disturbance. Such activities could include, but are not limited to, residential or commercial development, OHV activity, pipeline construction, new road construction, existing road maintenance (including road widening and grading), manure dumping, and grazing. These activities potentially impact the habitat and physical or biological features essential to Riverside fairy shrimp by damaging, disturbing, and altering soil composition through direct impacts, increased erosion, and increased nutrient content. Additionally, changes in soil composition may lead to changes in the vegetation composition, thereby changing the overall habitat type.

(2) Actions that would impact the ability of an ephemeral wetland to continue to provide habitat for Riverside fairy shrimp and other native species that require this specialized habitat type. Such activities could include, but are not limited to, water impoundment, stream channelization, water diversion, water withdrawal, and development activities. These activities could alter the physical or biological features essential to the conservation of Riverside fairy shrimp by eliminating ponding habitat; changing the duration and frequency of the ponding events on which this species relies; making the habitat too wet, thus allowing obligate wetland species to become established;

making the habitat too dry, thus allowing upland species to become established; causing large amounts of sediment or manure to be deposited in Riverside fairy shrimp habitat; or causing increased erosion and incising of waterways.

(3) Actions that result in alteration of the hydrological regimes typically associated with Riverside fairy shrimp habitat, including actions that would impact the soil and topography that cause water to pond during the winter and spring months. Such activities could include, but are not limited to, deep-ripping of soils, trenching, soil compaction, and development activities. These activities could alter the biological and physical features essential to the conservation of Riverside fairy shrimp by eliminating ponding habitat, impacting the impervious nature of the soil layer, or making the soil so impervious that water pools for an extended period that is detrimental to Riverside fairy shrimp (see ''Primary Constituent Elements for Riverside Fairy Shrimp'' section above). These activities could alter surface layers and the hydrological regime in a manner that promotes loss of soil components, ponding regimes, or hydrological connectivity to upland habitats that support the growth and reproduction of Riverside fairy shrimp.

(4) Road construction and maintenance (including widening and grading), right-of-way designation, regulation of agricultural activities, or any activity funded or carried out by a Federal agency that could result in excavation or mechanized clearing of Riverside fairy shrimp critical habitat. These activities could alter the habitat in such a way that cysts of Riverside fairy shrimp are crushed, Riverside fairy shrimp are removed, or ephemeral wetland habitat is permanently altered.

Exemptions

Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: ''The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.''

We consult with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations that cover lands we determined meet the definition of critical habitat for Riverside fairy shrimp to determine if they are exempt from designation under section 4(a)(3) of the Act. The following Department of Defense installations include lands that meet the definition of critical habitat for Riverside fairy shrimp and have completed, Service-approved INRMPs.

Approved INRMPs

MCB Camp Pendleton (Units 4 and Portion of 2h)

In the previous final critical habitat designation for Riverside fairy shrimp, we exempted MCB Camp Pendleton from the designation (70 FR 19154, April 12, 2005). MCB Camp Pendleton completed their INRMP in November 2001, and updated it in March 2007 (U.S. Marine Corps 2007). The INRMP includes the following conservation measures for the Riverside fairy shrimp: (1) Surveys and monitoring, studies, impact avoidance and minimization, and habitat restoration and enhancement; (2) species survey information stored in MCB Camp Pendleton's GIS database and recorded in a resource atlas that is published and updated on a semi-annual basis; (3) application of a 984-ft (300-m) radius to protect the microwatershed buffers around current and historical Riverside fairy shrimp locations; and (4) use of a resource atlas to plan operations and projects to avoid impacts to Riverside fairy shrimp and to trigger section 7 consultations if an action may affect the species. These measures are established, ongoing aspects of existing programs or Base directives (for example, Range and Training Regulations), or measures that are being implemented as a result of previous consultations.

To avoid and minimize adverse effects to Riverside fairy shrimp, MCB Camp Pendleton implements Base directives, such as: (1) Bivouac (temporary camps for military training purposes), command post, and field support activities should be no closer than 984 ft (300 m) to occupied Riverside fairy shrimp habitat year round; (2) vehicle and equipment operations should be limited to existing road and trail networks year round; and (3) environmental clearance is required prior to any soil excavation, filling, or grading. MCB Camp Pendleton has also demonstrated ongoing funding of their INRMP and management of endangered and threatened species. MCB Camp Pendleton continues to expend significant resources for management of federally listed species and habitat on their land, including management actions that provide a benefit for Riverside fairy shrimp. Moreover, in partnership with the Service, MCB Camp Pendleton provides funding for Service biologists to assist in implementing their Sikes Act program and buffer land acquisition initiative.

Based on MCB Camp Pendleton's past funding history for listed species and their Sikes Act program (including the management of Riverside fairy shrimp), we conclude there is a high degree of certainty that MCB Camp Pendleton will continue to implement the INRMP in coordination with CDFG and the Service in a manner that provides a benefit to Riverside fairy shrimp. We also find there is a high degree of certainty that the conservation efforts of their INRMP will be effective. Service biologists work closely with MCB Camp Pendleton on a variety of endangered and threatened species issues, including the Riverside fairy shrimp. The management programs and Base directives to avoid and minimize impacts to the species are consistent with current and ongoing

section 7 consultations with MCB Camp Pendleton.

In MCB Camp Pendleton, lands that contain the features essential to the conservation of Riverside fairy shrimp are within the following areas: San Onofre State Beach, State Park-leased land (near the Christianitos Creek foothills portion of Subunit 2h); Oscar One; Oscar Two; Victor area south of San Onofre State Park (Uniform Training Area); Red Beach; and Tango (U.S. Marine Corps 2007, Section 4, pp. 51–76).

State Park-leased lands are treated under the Real Estate Agreements and Lease section in the INRMP. Base real estate agreements (for example, leases, easements, outleases, assignments) cover approximately 5,000 ac (2,020 ha) of the Base (not inclusive of leased acreage within cantonment areas). These agreements include easements for public utilities and transit corridors, leases to public educational and retail agencies, State Beach leases, and agricultural leases for row crop production and seed collection.

In the portion of Subunit 2h within MCB Camp Pendleton boundaries, permissible activities include military thoroughfares (use of roads), military training (with advanced coordination), fire suppression activities, and public recreational access. Lessees are required to manage the natural resources on the lands leased for their use consistent with the philosophies and supportive of the objectives of the MCB Camp Pendleton INRMP. Each lessee that manages and/or controls use of lands leased from MCB Camp Pendleton (for example, State Parks or agriculture leases) is required to generate and submit a natural resources management plan for their leased lands for approval by the Base within 1 year of establishment of their lease or renewal. Lessees are also required to identify any activity that may affect federally regulated resources (for example, listed species, wetlands, waters of the United States) and provide information and mitigation that may be required to support consultation with the applicable regulatory agency.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that all identified lands on MCB Camp Pendleton that meet the definition of critical habitat are subject to the MCB Camp Pendleton INRMP, and that conservation efforts identified in the INRMP will provide a benefit to Riverside fairy shrimp and to vernal pool habitat on MCB Camp Pendleton. Therefore, 1,929 ac (781 ha) of land containing physical or biological features essential to the conservation of the species are exempt from the final critical habitat designation in accordance with section 4(a)(3) of the Act.

MCAS Miramar (Within Unit 4)

In the previous final critical habitat designation for Riverside fairy shrimp, we exempted MCAS Miramar from the designation of critical habitat (70 FR 19154, April 12, 2005). MCAS Miramar completed an INRMP in May 2000, which was updated in October 2006 and again in August 2011 (Gene Stout and Associates *et al.* 2011, entire). The INRMP is being fully implemented at MCAS Miramar, and provides for the conservation, management, and protection of Riverside fairy shrimp. The INRMP classifies 95.6 percent of the vernal pool basins and watersheds on MCAS Miramar, including the two pools containing Riverside fairy shrimp, as a Level I Management Area (Gene Stout and Associates *et al.* 2011, Table 5.1). A Level I Management Area receives the highest conservation priority under the INRMP. Preventing damage to vernal pool resources is the highest conservation priority in management areas with the Level I designation (Gene Stout and Associates *et al.* 2011, p. 5–2). The conservation of vernal pool basins and watersheds in a Level I Management Area is achieved through educating Base personnel; taking proactive measures, including signs and fencing, to avoid accidental impacts; developing procedures to respond to and fix accidental impacts on vernal pools; controlling nonnative vegetation within vernal pools; and maintaining an updated inventory of vernal pool basins and associated vernal pool watersheds (Gene Stout and Associates *et al.* 2011, p. 7–3).

Since the completion of MCAS Miramar's INRMP, the Service has received reports on their vernal pool monitoring and restoration program, and correspondence detailing the installation's expenditures on the objectives outlined in its INRMP. MCAS Miramar continues to monitor and manage its vernal pool resources. Ongoing programs include a study of the effects of fire management on vernal pool resources, vernal pool mapping, and species and vernal pool surveys. Based on the value MCAS Miramar's INRMP assigns to vernal pool basins and watersheds, and the management actions undertaken to conserve them, we find that the INRMP provides a benefit for the Riverside fairy shrimp.

Land that contains the features essential to the conservation of Riverside fairy shrimp is within the following area at MCAS Miramar: AA1 east complex, near the junction of Interstate 15 and Pomerado Road.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the identified lands are subject to the MCAS Miramar INRMP, and that conservation efforts identified in the INRMP will provide a benefit to Riverside fairy shrimp occurring in habitats within or adjacent to MCAS Miramar. Therefore, 59 ac (24 ha) of land containing physical or biological features essential to the conservation of the species are exempt from the final critical habitat designation in accordance with section 4(a)(3) of the Act.

Exclusions

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exercise his discretion to exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion would not result in the extinction of the species.

When identifying the benefits of inclusion for an area, we consider the additional regulatory benefits that area would receive from the protection from adverse modification or destruction as a result of actions with a Federal nexus, the educational benefits of mapping essential habitat for recovery of the

listed species, and any ancillary benefits that may result from a designation due to State or Federal laws that may apply to critical habitat.

When identifying the benefits of exclusion, we consider, among other things, whether exclusion of a specific area is likely to further national security interests; result in conservation; result in the continuation, strengthening, or encouragement of partnerships; or result in implementation of a management plan that provides equal to or more conservation than a critical habitat designation would provide.

After identifying the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh those of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion would result in extinction. If exclusion of an area from critical habitat will result in extinction, we will not exclude it from the designation. If we determine that the benefits of exclusion outweigh the benefits of inclusion and that exclusion will not result in extinction, we may, but are not required to, exercise Secretarial discretion to exclude the area from a designation of critical habitat.

Exclusions Based on Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we prepared a draft economic analysis (DEA) of the proposed critical habitat designation and related factors (Industrial Economics Inc. 2011, entire). The draft analysis, dated November 3, 2011, was made available for public review from March 1 through April 2, 2012 (77 FR 12543, March 1, 2012). Following the close of the comment period, a final analysis (dated August 30, 2012) of the potential economic effects of the designation was developed, taking into consideration the public comments and any new information (Industrial Economics Inc. 2012).

The intent of the final economic analysis (FEA) is to quantify the economic impacts of foreseeable conservation efforts for Riverside fairy shrimp; some of these costs will likely be incurred regardless of whether we designate critical habitat (baseline). The economic impact of the final critical habitat designation is analyzed by comparing scenarios both ''with critical habitat'' and ''without critical habitat.'' The ''without critical habitat'' scenario represents the baseline for the analysis, considering protections already in place for the species (for example, under the Federal listing and other Federal, State, and local regulations). The baseline, therefore, represents the costs incurred regardless of whether critical habitat is designated. The ''with critical habitat'' scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat above and beyond the baseline costs; these are the costs we consider in the final designation of critical habitat. The analysis looks retrospectively at baseline impacts incurred since the species was listed, and forecasts both baseline and incremental impacts likely to occur with the designation of critical habitat.

The FEA also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The FEA measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. Decisionmakers can use this information to assess whether the effects of the designation might unduly burden a particular group or economic sector. Finally, the FEA looks retrospectively at costs that have been incurred since the species' listing in 1993 (58 FR 41384, August 3, 1993). The analysis only considers the current critical habitat designation and estimates the costs as if the previous critical habitat designation did not exist (Industrial Economics Inc. 2012, p. 2–2). The analysis considers those costs that may occur in the 24 years following the current designation of critical habitat. This was determined to be the appropriate period for analysis because 24 years is the amount of time for which regional planning information is available (Industrial Economics Inc. 2012, p. 2–23). The FEA quantifies economic impacts of Riverside fairy shrimp conservation efforts due to critical habitat designation associated with the following categories of activity: (1) Agricultural, commercial, and residential development; (2) transportation; and (3) livestock grazing and other activities (including roadway construction and maintenance, livestock grazing, water management activities, OHV use, heavy foot traffic, vegetation removal, nonnative plants, pesticides, and fire suppression and management).

The majority of incremental costs (90 percent) related to revised critical habitat result from time delays to development activities. The remaining 10 percent of incremental costs result from the additional administrative costs of considering adverse modification to proposed projects, and from conducting environmental assessments in compliance with the California Environmental Quality Act (CEQA) (Industrial Economics Inc. 2012, pp. ES–5—ES–6). The total future incremental impacts are estimated to be $1.75 million to $2.87 million ($166,000 to $273,000 annualized) in present value terms, using a 7 percent discount rate over the next 24 years (2012 to 2035) in areas that we proposed as revised critical habitat (Industrial Economics Inc. 2012, pp. ES–1—ES–2, ES–5). The majority of the costs are expected to occur in developable areas in Unit 2 (Orange County) and Unit 5 (San Diego County). Smaller impacts are expected in Unit 1 (Ventura County) and Unit 3 (Riverside County), and no impacts are forecast in Unit 4 (San Diego County), as no developable area exists in Unit 4 (Industrial Economics Inc. 2012, p. 4–17). Only minor impacts to transportation and habitat management are anticipated from this final critical habitat designation, and no economic impacts to livestock grazing, OHV activities, vegetation removal, water management activities, nonnative plants, or fire management are forecast (Industrial Economics Inc. 2012, pp. 5–1, 5–4).

Our economic analysis did not identify any disproportionate costs likely to result from the designation, and we are not excluding any lands from this designation of critical habitat for Riverside fairy shrimp based on economic impacts.

A copy of the FEA with supporting documents may be obtained by contacting the Carlsbad Fish and Wildlife Office (see **ADDRESSES**) or by downloading it from the Internet at *http://www.regulations.gov.*

Exclusions Based on National Security Impacts

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the Department of Defense (DOD) or other agencies where a national security impact might exist. In preparing this final rule, we have

exempted from the designation of critical habitat those DOD lands with completed INRMPs determined to provide a benefit to Riverside fairy shrimp. Areas identified as owned and managed by DOD on MCB Camp Pendleton and MCAS Miramar that are exempt from critical habitat designation under section 4(a)(3) of the Act are discussed in the Exemptions section above.

In our previous final revised critical habitat rule published April 12, 2005 (70 FR 19154) rule, we excluded from critical habitat lands adjacent to the U.S.-Mexico border under the jurisdiction of the U.S. Department of Homeland Security (DHS), U.S. Border Patrol, San Diego Sector. In that rule, we found that the portion of the lands owned by the DHS that are directly adjacent to the U.S.-Mexico border have previously been disturbed and developed by the ongoing construction of the Border Infrastructure System (BIS), and those lands within the constructed portion of the footprint of the BIS do not contain any of the primary constituent elements for the Riverside fairy shrimp. The U.S. Customs and Border Protection of the DHS is tasked with maintaining National Security interests along the nation's international borders. As such, lands on which DHS activities occur may qualify for exclusion under section 4(b)(2) of the Act. The BIS is considered integral to national security, and therefore, lands owned by DHS along the U.S.-Mexico border have been excluded from the designation under section 4(b)(2) of the Act for national security impacts (see Table 4 below).

TABLE 4—AREAS EXCLUDED FROM THE RIVERSIDE FAIRY SHRIMP FINAL REVISED CRITICAL HABITAT UNDER SECTION 4(b)(2) OF THE ACT FOR NATIONAL SECURITY REASONS

Land ownership	Acreage
Department of Homeland Security	
5b. Arnie's Point (J15)	29 ac (12 ha).
5h (portion). J11 E, J11 W, J12, J16–18 (Goat Mesa)	11 ac (4 ha).
Total	40 ac (16 ha).

On February 6, 2002, the Service completed a section 7 consultation with the U.S. Army Corps of Engineers (Corps) and the former Immigration and Naturalization Service on the effects of closing a gap in the Border Fence Project's secondary fence at Arnie's Point on three endangered species: Riverside fairy shrimp, San Diego fairy shrimp, and San Diego button-celery (*Eryngium aristulatum* var. *parishii;* Service 2002). We concluded in our biological opinion that the proposed action, which included the loss of a linear vernal pool occupied by both the Riverside fairy shrimp and San Diego fairy shrimp, was not likely to jeopardize the continued existence of the three endangered species. On January 9, 2003, the Service completed a section 7 consultation with the former Immigration and Naturalization Service of the effects on the endangered Riverside fairy shrimp and endangered San Diego fairy shrimp from the construction of a secondary border fence and other road and fencing improvements in San Diego County along the U.S.-Mexico border (Service 2003). We concluded in our biological opinion that the proposed action, which included the loss of three vernal pool basins, was not likely to jeopardize the continued existence of the Riverside fairy shrimp and San Diego fairy shrimp. To offset losses for both fairy shrimp species, the DHS conducted two restoration projects and identified for conservation some DHS-owned lands located north of the BIS (at Arnie's Point), including lands identified as critical habitat in the 2011 proposed revised critical habitat rule (76 FR 31686; June 1, 2011). Though the BIS has been completed, the U.S. Border Patrol conducts ongoing operations and maintenance activities in the area, including upkeep of fences, roads, surveillance, communication, and detection equipment. These areas include lands directly adjacent to the border, including Subunit 5b and a portion of Subunit 5h. In recognition of the continuing ongoing national security concerns along the U.S.-Mexico border, the Secretary is exercising his discretion to exclude Subunit 5b (a total of 29 ac (12 ha)) and a portion of Subunit 5h (11 ac (4 ha)) from the final revised critical habitat designation.

Benefits of Inclusion—DHS Lands

The designation of critical habitat can result in regulatory, educational, and ancillary benefits. As discussed under *Application of the ''Adverse Modification'' Standard,* the regulatory benefit of including an area in a critical habitat designation is the added conservation that may result from the separate duty imposed on Federal agencies under section 7(a)(2) of the Act to ensure that actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat.

Section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), Public Law 104–208 (8 U.S.C. 1101 *et seq.*)), was passed as part of the Omnibus Consolidated Appropriations Act of 1997, and addressed construction of the BIS. Among the provisions of section 102 was the authority granted to the Attorney General (AG) to waive the provisions of the Act and of the National Environmental Protection Act (NEPA) ''to ensure the expeditious construction of barriers and roads * * *'' (Public Law 104–208, 1996; sec. 102 (c)). Although DHS was within its authority to request the AG grant a waiver from complying with the Act, it did consult with the Service on impacts associated with the proposed border fence project, including the preparation of documents to fulfill its NEPA obligations (42 U.S.C. 4321 *et seq.*). The result of that consultation was the restoration of three vernal pools within Arnie's Point, as discussed above. In 2002, the Homeland Security Act (HSA) transferred the authority to take such actions as necessary to construct the BIS to the Secretary of the DHS. In 2005, the Secretary of the DHS, under the authority granted under the HSA and section 102 of the IIRIRA, as amended by the REAL ID Act of 2005, did, in fact, make a determination to waive all ''federal, state, or other laws, regulations or legal requirements of, deriving from, or related to the subject of, * * * The National Environmental Policy Act, the Endangered Species Act * * *.'' (70 FR 55623). In light of this determination (that became effective on September 22, 2005), there is no longer a requirement

for DHS to consult with the Service on actions that may impact federally listed species, including the Riverside fairy shrimp, if those actions are related to the construction or maintenance or operations of the BIS. Further, in 2008, the U.S. Congress granted to the Secretary of Homeland Security the ability to waive all legal requirements related to construction of the BIS. Subsequently, the Secretary of Homeland Security published a determination in the **Federal Register** (73 FR 18294; April 3, 2008) waiving laws that the Secretary determined to be necessary to ensure the completion of barriers and roads related to the BIS, including the Act and the CWA. Though much of the BIS has been completed, there are ongoing operations and maintenance activities in the area, including upkeep of fences, roads, surveillance, communication, and detection equipment. These activities occur in lands directly adjacent to the border, including Subunit 5b and a portion of Subunit 5h. Because of the waiver determination, DHS would not be required to consult under Section 7 of the Act on the effects of such U.S. Border Patrol activities should critical habitat for the Riverside fairy shrimp be designated on these lands. Because of the laws and authorities granted to DHS outlined above, neither section 7 of the Act nor provisions of the CWA apply in these areas; therefore, a critical habitat designation in these areas will have no regulatory impact. Further, because the lands at issue are owned by DHS, and Border Patrol activities are not subject to compliance with state laws such as CEQA, there are no ancillary benefits of designating critical habitat on these lands.

Another possible benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about Riverside fairy shrimp and its habitat that reaches a wide audience, including parties engaged in conservation activities, is valuable. In the case of Riverside fairy shrimp, however, lands identified as essential to the conservation of the species were identified in the proposed critical habitat designation published in the **Federal Register** on June 1, 2011 (76 FR 31686), as well as the previous proposed revised critical habitat published on April 27, 2004 (69 FR 23024), and the previous final revised rule published on April 12, 2005 (70 FR 19154). Notices of these publications were announced in press releases and newspapers of general circulation, and information was posted on the Service's Web site. We also sent notifications to local, State, and Federal agencies. Therefore, any educational benefits of designating critical habitat on lands owned by DHS are negligible.

For the reasons stated above, we consider that no regulatory or ancillary benefits will result from critical habitat designation on lands owned by DHS. In addition, the Service previously thoroughly evaluated the impacts of the BIS on the Riverside fairy shrimp and its vernal pool habitat, and determined that the project will not jeopardize the continued existence of the species. As part of the BIS project, DHS has committed to restore, protect, and manage nearby Riverside fairy shrimp habitat as laid out in our biological opinions (Service 2002; Service 2003). We also conclude that the educational benefits of designating lands identified as critical habitat for Riverside fairy shrimp on lands owned by the DHS are negligible because the location of habitat for this species within San Diego County is already well known generally and to DHS. Therefore, these facts render negligible the benefits of inclusion of subunits 5b and 5h in the designation of critical habitat for Riverside fairy shrimp.

Benefits of Exclusion—DHS lands

Although designating critical habitat on DHS lands in Subunits 5b and 5h may clearly reflect our determination that these lands are essential to the conservation of the Riverside fairy shrimp, there is no regulatory requirement for the DHS or any other Federal agency directly involved with the construction and maintenance of the BIS to consult with us regarding impacts to the species. Designation of critical habitat on those lands under these circumstances would be received negatively by Federal agencies directly involved with the timely operation and maintenance of this critical national security project to safeguard our international borders and viewed negatively as well as by the public at large.

In past years, DHS has undertaken additional conservation measures in Subunit 5b. These measures include: Installation of a chain link fence along the inside edge of an existing perimeter road to prevent vehicles from driving into the restoration area; preparation of a restoration plan for the three pools; and restoration and enhancement of 1 ac (<1 ha) of native grassland in the restoration area. Excluding DHS-owned lands from critical habitat will further our partnership with DHS and could encourage future restoration actions for listed species and their habitats.

Benefits of Exclusion Outweigh Benefits of Inclusion—DHS Lands

We conclude that the minimal benefits of designating critical habitat on the DHS lands, including the vernal pool restoration area in Subunit 5b, are far outweighed by the substantial benefits to national security and our partnership with DHS. Therefore, the Secretary is exercising his discretion to exclude the DHS lands within Subunit 5b (29 ac (12 ha)) and a portion of Subunit 5h (11 ac (4 ha)) under section 4(b)(2) of the Act. No lands owned by the DHS are being designated as critical habitat.

Exclusion Will Not Result in Extinction of the Species—DHS Lands

The Service determined that exclusion of these lands will not result in extinction of the species. We have thoroughly analyzed the impacts associated with the BIS and conclude that Border Patrol activities associated with operation and maintenance of the BIS are not likely to jeopardize the continued existence of Riverside fairy shrimp. The DHS has also conserved and restored vernal pools at Arnie's Point since the construction of the border fence to support listed species such as Riverside fairy shrimp. Therefore, we conclude that the exclusion of lands in Subunits 5b and in a portion of 5h will not result in the extinction of the Riverside fairy shrimp.

Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts in addition to economic impacts and impacts on national security. We consider a number of factors, including whether landowners have developed any HCPs or other management plans for areas proposed as critical habitat, or whether there are conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities.

Based on species information and other information in our files, information provided by entities seeking exclusion, and public comments we received, we evaluated whether certain lands in the proposed critical habitat units 2, 4, and 5 that are covered by approved habitat conservation plans (HCPs) are appropriate for exclusion

from this final designation under section 4(b)(2) of the Act. Based on our review, we are excluding the following areas from critical habitat designation for Riverside fairy shrimp: Subunits 2c; 2i; portions of Subunits 2dA, 2dB, and 2e; 2f; 2g; all of Unit 3 (Subunits 3c, 3d, 3e, 3f, 3g, and 3h); Unit 4; and a portion of Subunit 5d. All of those areas were identified as under consideration for exclusion in the proposed rule published June 1, 2011 (76 FR 31686).

Table 5, below, provides approximate areas (ac (ha)) of lands that meet the definition of critical habitat, but that we are excluding under section 4(b)(2) of the Act from the final revised critical habitat rule.

TABLE 5—AREAS EXCLUDED FROM THE RIVERSIDE FAIRY SHRIMP FINAL REVISED CRITICAL HABITAT UNDER SECTION 4(b)(2) OF THE ACT

Subunit by Plan**	Acreage
Orange County Central-Coastal NCCP	
2c. (MCAS) El Toro	26 ac (11 ha).
2i. SCE Viejo Conservation Bank	63 ac (25 ha).
Subtotal for Orange County Central-Coastal Subregional NCCP/HCP	*89 ac (36 ha)*
Orange County Southern Subregion HCP	
2dA. Saddleback Meadow	4 ac (2 ha).
2dB. O'Neill Regional Park (near Trabuco Canyon)	75 ac (30 ha).
2e. O'Neill Regional Park (near Cañada Gobernadora)	47 ac (19 ha).
2f. Chiquita Ridge	56 ac (23 ha).
2g. Radio Tower Road	51 ac (21 ha).
Subtotal for Orange County Southern Subregion HCP	*233 ac (94 ha).*
Western Riverside County MSHCP	
3c. Australia Pool	19 ac (8 ha).
3d. Scott Road Pool	9 ac (4 ha).
3e. Schleuniger Pool	23 ac (9 ha).
3f. Skunk Hollow and Field Pool (Barry Jones Wetland Mitigation Bank)	163 ac (66 ha).
3g. Johnson Ranch Created Pool	54 ac (22 ha).
3h. Santa Rosa Plateau—Mesa de Colorado	597 ac (242 ha).
Subtotal for Western Riverside County MSHCP	*865 ac (350 ha).*
San Diego MHCP—Carlsbad HMP	
4c. Poinsettia Lane Commuter Train Station (JJ2)	9 ac (4 ha).
Subtotal Carlsbad HMP under the San Diego MHCP	*9 ac (4 ha).*
County of San Diego Subarea Plan under the MSCP	
5d. J29–31 (portion)	23 ac (9 ha).
Subtotal County of San Diego Subarea Plan under the MSCP	*23 ac (9 ha).*
Total	1,219 ac (493 ha).*

*Values in this table may not sum due to rounding.

**All lands that meet the definition of critical habitat and fall within the boundaries of an HCP are being excluded, with the exception of lands within the City of San Diego Subarea Plan. Because Riverside fairy shrimp is no longer a covered species under the City of San Diego's Subarea Plan under the MSCP (the City relinquished its permit on April 20, 2010), we are not excluding critical habitat areas falling within the boundaries of the City of San Diego Subarea Plan.

We are excluding these areas because we determine that they are appropriate for exclusion under the ''other relevant factor'' provisions of section 4(b)(2) of the Act.

Land and Resource Management Plans, Conservation Plans, or Agreements Based on Conservation Partnerships

As discussed above, in considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion would not result in the extinction of the species.

We find that the Orange County Central-Coastal Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), the Orange County Southern Subregion HCP, the Western Riverside County MSHCP, City of Carlsbad Habitat Management Plan (HMP) under the San Diego Multiple Habitat Conservation Program (MHCP), and County of San Diego Subarea Plan under the MSCP provide protection and management for lands that meet the definition of critical habitat for Riverside fairy shrimp based on the weighing of those factors, and the Secretary is exercising his discretion to

exclude non-Federal lands covered by these plans (see Table 5 above). Details of our analysis for each plan are described below.

We did not consider excluding non-Federal lands covered by the City of San Diego Subarea Plan under the MSCP. In a 2006 Federal district court ruling in *Center for Biological Diversity* v. *Bartel,* 470 F. Supp. 2d 1118 (S.D.Cal.), the court enjoined the incidental take permit issued to the City of San Diego based on the City's Subarea Plan, as it applied to Riverside fairy shrimp and six other vernal pool species. The court held that the City's Subarea Plan did not provide adequate protection for Riverside fairy shrimp. As a result, the City surrendered permit coverage for seven vernal pool species, including Riverside fairy shrimp, on April 20, 2010, and the Service cancelled the permit insofar as it applied to the seven species on May 14, 2010. Because the Riverside fairy shrimp is no longer a covered species under the City of San Diego Subarea Plan under the MSCP, we are not excluding critical habitat areas that fall within the boundary of the City of San Diego Subarea Plan. The City is currently preparing a new HCP to obtain incidental take coverage for the Riverside fairy shrimp and other vernal pool species. Despite the City's relinquishment of their permit, 54 percent of all currently identified vernal pool habitat, or 1,369 pools, within the boundaries of the City's subarea plan have been conserved by covenant of easement, conservation easement, or dedication in fee title to the City (City of San Diego 1997; Service 2006). The City continues to monitor and manage vernal pools in support of the MSCP.

Regulatory Benefits of Inclusion for Habitat Conservation Plans

As discussed under *Application of the ''Adverse Modification'' Standard,* the regulatory benefit of including an area in a critical habitat designation is the added conservation that may result from the separate duty imposed on Federal agencies under section 7(a)(2) of the Act to ensure that actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat.

However, for some species, including Riverside fairy shrimp, the outcome of adverse modification analysis under section 7(a)(2) will be similar to the jeopardy analysis because effects to habitat will often also result in effects to the species. Though jeopardy and adverse modification analyses must satisfy two different standards, any modifications to proposed actions resulting from a section 7 consultation to minimize or avoid impacts to Riverside fairy shrimp are likely to be habitat based, as the Riverside fairy shrimp is completely dependent on a properly functioning hydrological regime. Avoidance or adequate minimization of impacts to the wetland area and its associated watershed, which collectively create the hydrological regime necessary to support Riverside fairy shrimp, is essential not only to enable the critical habitat unit to carry out its conservation function such that adverse modification is avoided, but also to avoid a possible jeopardy determination with regard to the continued existence of the listed species. All subunits excluded within the Orange County Central-Coastal NCCP/HCP, the Orange County Southern Subregion HCP, the Western Riverside County MSHCP, City of Carlsbad HMP under the San Diego MHCP, and County of San Diego Subarea Plan under the MSCP are occupied. Thus, it is difficult to differentiate meaningfully between measures that would be implemented solely to minimize impacts to critical habitat from those required under the plans to minimize impacts to Riverside fairy shrimp. Therefore, in the case of Riverside fairy shrimp, we believe any additional regulatory benefits of critical habitat designation within areas covered by approved habitat conservation plans would be minimal because the regulatory benefits from designation are difficult to distinguish at this point in time from the benefits of listing.

Detailed discussion of the regulatory, educational, and ancillary benefits of critical habitat designation is discussed under the *Benefits of Inclusion* sections for each plan below.

Orange County Central-Coastal NCCP/HCP

The Orange County Central-Coastal Natural Community Conservation Planning/Habitat Conservation Plan (NCCP/HCP) was developed in cooperation with numerous local jurisdictions, State agencies, and participating landowners, including the cities of Anaheim, Costa Mesa, Irvine, Orange, and San Juan Capistrano; Southern California Edison; Transportation Corridor Agencies; The Irvine Company; California Department of Parks and Recreation; Metropolitan Water District of Southern California; and the County of Orange. Approved in 1996, the Orange County Central-Coastal NCCP/HCP provides for the establishment of approximately 38,738 ac (15,677 ha) of reserve land for 39 Federal or State-listed and unlisted sensitive species within the 208,713-ac (84,463-ha) plan area in central and coastal Orange County. The Orange County Central-Coastal NCCP/HCP is a multispecies conservation plan that minimizes and mitigates expected habitat loss and associated incidental take of covered species within the plan area. The ''Reserve System'' created pursuant to the NCCP/HCP is designed to function effectively as a multiple-habitat and multiple-species reserve that specifically includes vernal pool habitat and Riverside fairy shrimp (R.J. Meade Consulting, Inc. 1996, entire).

The Orange County Central-Coastal NCCP/HCP provides for monitoring and adaptive management of covered species and their habitats within this Reserve System (Consultation #1–6–FW–24, Service 1996, pp. 1–4). Conditionally covered species, including the Riverside fairy shrimp, receive protection not only through the establishment and management of the Reserve System, but also additional mitigation measures specified in the NCCP/HCP and implementing agreement (IA) (Service *et al.* 1996, p. 6). Under the NCCP/HCP, incidental take for Riverside fairy shrimp is limited to highly degraded or artificial vernal pools. Take of Riverside fairy shrimp in nondegraded, natural vernal pool habitat, such as habitat in Subunits 2c and 2i, is not authorized. If a planned activity will affect Riverside fairy shrimp in a highly degraded or artificial vernal pool, it ''must be consistent with a mitigation plan that:

- Addresses design modifications and other onsite measures that are consistent with the project's purposes, minimizes impacts, and provides appropriate protections for vernal pool habitat;
- Provides for compensatory vernal pool habitat restoration/creation at an appropriate location (which may include the reserve or other open space) and includes relocation of potential cyst-bearing soils; and
- Provides for monitoring and adaptive management of vernal pools consistent with Chapter 5 of this NCCP'' (R.J. Meade Consulting, Inc. 1996, p. 97).

Permittees implement the above conservation measures for Riverside fairy shrimp and other covered species over the 75-year permit term, as well as provide commitments in perpetuity regarding habitat protection for lands in the Reserve System and commitments outlined in the IA (R.J. Meade Consulting 1996, p. 12). Subunit 2i (SCE Viejo Conservation Bank; 63 ac (25 ha)) is part of the proposed SCE Viejo Conservation Bank and is targeted for conservation. Although Subunit 2c

((MCAS) El Toro; 26 ac (11 ha)) is not yet conserved, loss of vernal pool habitat in this area is not authorized under the Orange County Central-Coastal NCCP. To date, monitoring and management related to Riverside fairy shrimp have included reservewide vernal pool surveys conducted from 1997 through 2001, and ongoing control of invasive, nonnative vegetation in the upland environment; both Subunit 2c and 2i are within the reserve boundaries.

The Secretary is exercising his discretion to exclude a total of 89 ac (36 ha) of land that is owned by or under the jurisdiction of the permittees of the Orange County Central-Coastal NCCP/HCP (see Table 5 above).

Benefits of Inclusion—Orange County Central-Coastal NCCP/HCP

The designation of critical habitat can result in regulatory, educational, and ancillary benefits. As discussed under *Application of the ''Adverse Modification'' Standard,* the regulatory benefit of including an area in a critical habitat designation is the added conservation that may result from the separate duty imposed on Federal agencies under section 7(a)(2) of the Act to ensure that actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat.

However, for reasons stated in the *Regulatory Benefits of Inclusion for Habitat Conservation Plans* section above, we conclude any additional regulatory benefits of critical habitat designation would be minimal because the regulatory benefits from designation are difficult to distinguish at this point in time from the benefits of listing. In addition, because non-degraded Riverside fairy shrimp habitat within the Central-Coastal NCCP/HCP is required to be protected under the plan, the likelihood of a future section 7 consultation on these lands for other than conservation-related actions is remote. Thus, because we do not anticipate that the outcome of future section 7 consultations on Riverside fairy shrimp would change if critical habitat were designated, and because the likelihood of future Section 7 consultations is remote, we conclude that the regulatory benefits of designating lands identified as critical habitat within the Orange County Central Coastal NCCP/HCP (Subunits 2c and 2i) would be, at most, minor.

Another possible benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about Riverside fairy shrimp and its habitat that reaches a wide audience, including parties engaged in conservation activities, is valuable. In the case of Riverside fairy shrimp, however, there have already been multiple occasions when the public has been educated about the species. The Orange County Central-Coastal NCCP/HCP has been in place since 1996. Implementation of the plan is reviewed yearly through publicly available annual reports that extensively detail progress of the plan and status of nature reserves within the plan area. These reports provide extensive opportunity to educate the public and landowners about the location of, and efforts to conserve, areas that meet the definition of critical habitat for Riverside fairy shrimp. As discussed above, the permit holders of the Orange County Central-Coastal NCCP/HCP are aware of the value of these lands to the conservation of Riverside fairy shrimp, and conservation measures are already in place to protect essential occurrences of the Riverside fairy shrimp and its habitat.

Lands identified as critical habitat that are covered by the Orange County Central-Coastal NCCP/HCP were also included in the proposed critical habitat designation for Riverside fairy shrimp published in the **Federal Register** on June 1, 2011 (76 FR 31686), as well as the previous proposed revised critical habitat published on April 27, 2004 (69 FR 23024), and the previous final revised rule published on April 12, 2005 (70 FR 19154). These publications were also announced in press releases and information was posted on the Service's web site. We also sent notifications to local, State, and Federal agencies.

We consider the educational benefits of critical habitat designation (such as providing information to Orange County and other stakeholders and to the public regarding areas important to the long-term conservation of this species) have already been realized through development and ongoing implementation of the Orange County Central-Coastal NCCP/HCP, by proposing these areas as critical habitat, and through the Service's public outreach efforts. The educational benefits of designating critical habitat within the Orange County Central Coastal NCCP/HCP would be negligible.

Finally, critical habitat designation can result in ancillary conservation benefits to Riverside fairy shrimp by triggering additional review and conservation through other Federal and State laws. The primary State law that might be affected by critical habitat designation is CEQA. However, vernal pool habitat occupied by Riverside fairy shrimp within the central-coastal subregion of Orange County has been identified in surveys conducted since the completion of the Orange County Central Coastal NCCP/HCP and is targeted for protection under the plan and not authorized for take. Thus, reviews of development proposals affecting occupied vernal pool habitat within the plan area under CEQA already take into account the importance of this habitat to Riverside fairy shrimp and the protections required for the species and its habitat under the plan. The Federal law most likely to afford protection to designated Riverside fairy shrimp habitat is the CWA. Projects requiring a permit under the CWA, such as a fill permit under section 404 of the CWA, located within critical habitat or likely to affect critical habitat, would trigger section 7 consultation under the Act. However, as discussed above, we conclude the potential regulatory benefits resulting from designation of critical habitat would be negligible because, with regard to Riverside fairy shrimp, the outcome of an adverse modification analysis under section 7(a)(2) of the Act would not differ materially from the outcome of a jeopardy analysis. Therefore, we conclude the ancillary benefits of designating lands identified as critical habitat for Riverside fairy shrimp within the Orange County Central Coastal NCCP/HCP as critical habitat would be negligible.

For the reasons stated above, we consider section 7 consultations for critical habitat designation conducted under the standards required by the 9th Circuit Court in the *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service* decision would provide little conservation benefit and would be largely redundant with those benefits attributable to endangered species listing as well as those already provided by the Orange County Central-Coastal NCCP/HCP. Therefore, the benefits of inclusion are reduced because the regulatory benefits of designating those acres as Riverside fairy shrimp critical habitat, such as protection afforded through the section 7(a)(2) consultation process, are minimal. Additionally, the benefits of inclusion are reduced because the educational and ancillary benefits of designating lands identified as critical habitat for Riverside fairy shrimp covered by the Orange County Central-Coastal NCCP/HCP would be

negligible because the location of habitat for this species within the central-coastal subregion of Orange County and the importance of conserving such habitat are well known and are already addressed through CEQA and through implementation of the Orange County Central-Coastal NCCP/HCP.

Benefits of Exclusion—Orange County Central-Coastal NCCP/HCP

The benefits of excluding from designated critical habitat the approximately 89 ac (36 ha) of land within the Orange County Central-Coastal NCCP/HCP are significant. The benefits of excluding lands identified as critical habitat for Riverside fairy shrimp covered by the plan include: (1) Continuance and strengthening of our effective working relationships with the Central-Coastal NCCP/HCP jurisdictions and stakeholders to promote the conservation of Riverside fairy shrimp and its habitat; (2) allowance for continued meaningful collaboration and cooperation in working toward recovering this species, including conservation benefits that might not otherwise occur; (3) encouragement of other regional jurisdictions with completed NCCP or HCP plans to amend their plans to cover and benefit Riverside fairy shrimp and vernal pool habitat; (4) encouragement for local jurisdictions to fully participate in the Orange County Central-Coastal NCCP/HCP; and (5) encouragement of additional HCP and other conservation plan development in the future on other private lands that include Riverside fairy shrimp and other federally listed species.

We have developed close partnerships with the County of Orange and all other participating entities through the development of the Orange County Central-Coastal NCCP/HCP. The protections and management provided under the plan for Riverside fairy shrimp and its habitat, including the physical or biological features essential to the conservation of this species, are consistent with statutory mandate under section 7 of the Act to avoid destruction or adverse modification of critical habitat. Furthermore, this plan goes beyond the statutory mandate by protecting areas that contain the physical or biological features essential to the conservation of the species.

By excluding the approximately 89 ac (36 ha) of land within the boundaries of the Orange County Central-Coastal NCCP/HCP from critical habitat designation, we are eliminating a redundant layer of regulatory review for projects covered by the Orange County Central-Coastal NCCP/HCP, maintaining our partnership with Orange County and other plan stakeholders, and encouraging new voluntary partnerships with other landowners and jurisdictions to protect Riverside fairy shrimp and other listed species. As discussed above, the prospect of potentially avoiding a future designation of critical habitat provides a meaningful incentive to plan proponents to extend protections to endangered and threatened species and their habitats under a habitat conservation plan. Achieving comprehensive landscape-level protection for listed species, particularly rare vernal pool species, such as Riverside fairy shrimp, through their inclusion in regional conservation plans, provides a key conservation benefit for such species. Our ongoing partnership with the County of Orange and plan stakeholders, and the landscape-level multiple species conservation planning efforts they promote, are essential to achieve long-term conservation of Riverside fairy shrimp.

Some NCCP and HCP permittees have expressed the view that designation of lands covered by an NCCP/HCP devalues the conservation efforts of plan proponents and the partnerships fostered through the development and implementation of the plans and would discourage development of additional NCCP/HCPs and other conservation plans in the future (see the *Benefits of Exclusion—Orange County Southern Subregion HCP* and *Benefits of Exclusion—Western Riverside County MSHCP* sections below*).* Where an existing NCCP/HCP provides protection for a species and its habitat within the plan area, the benefits of preserving existing partnerships by excluding the covered lands from critical habitat are most significant. Under these circumstances, excluding lands owned by or under the jurisdiction of the permittees of an NCCP/HCP promotes positive working relationships and eliminates impacts to existing and future partnerships while encouraging development of additional NCCPs and HCPs for other species.

Large-scale HCPs, such as the Orange County Central-Coastal NCCP/HCP, take many years to develop, and foster an ecosystem-based approach to habitat conservation planning by addressing conservation issues through a coordinated approach. If, instead, local jurisdictions were to require landowners to individually obtain incidental take permits (ITPs) under section 10 of the Act, the conservation likely to result would be uncoordinated, patchy, and less likely to achieve listed species recovery, as conservation measures would be determined on a project-by-project basis instead of on a comprehensive, landscape-level scale. To avoid that outcome, we are committed to fostering partnerships with local jurisdictions to encourage the development and continued implementation of regional HCPs that afford proactive landscape-level conservation for multiple species. We conclude that the exclusion from critical habitat designation of lands identified as critical habitat within the Orange County Central-Coastal NCCP/HCP will result in significant partnership benefits that are likely to result in important protection for the Riverside fairy shrimp and its habitat and also other listed species and their habitats.

Benefits of Exclusion Outweigh the Benefits of Inclusion—Orange County Central-Coastal NCCP/HCP

We reviewed and evaluated the exclusion of approximately 89 ac (36 ha) of land within the boundaries of the Orange County Central-Coastal NCCP/HCP from our revised designation of critical habitat, and we determined the benefits of excluding these lands outweigh the benefits of including them. The benefits of including these lands in the designation are reduced because the regulatory, educational, and ancillary benefits that would result from critical habitat designation are almost entirely redundant with the regulatory, educational, and ancillary benefits already afforded through the Orange County Central-Coastal NCCP/HCP and under State and Federal law. In contrast to the reduced benefits of inclusion, the benefits of excluding lands covered by the Orange County Central-Coastal NCCP/HCP from critical habitat designation are significant. Exclusion of these lands will help preserve the partnerships we developed with local jurisdictions and project proponents through the development and ongoing implementation of the Orange County Central-Coastal NCCP/HCP, and aid in fostering future partnerships for the benefit of listed species. Our partnership with plan participants has already resulted in significant benefits to listed species and vernal pool habitat; based on this track record of success, we expect that this meaningful partnership will continue into the future.

The Orange County Central-Coastal NCCP/HCP will provide significant conservation and protection of the Riverside fairy shrimp and its habitat and help achieve recovery of this species through habitat enhancement and restoration, maintenance of functional connections to adjoining

habitat, and species monitoring efforts. Additional HCPs or other species-habitat plans potentially fostered by this exclusion would also help to recover this and other federally listed species. Therefore, in consideration of the relevant impact to current and future partnerships, as summarized in the *Benefits of Exclusion—Orange County Central-Coastal NCCP/HCP* section above, we determine the significant benefits of exclusion outweigh the minor benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—Orange County Central-Coastal NCCP/HCP

We determine that the exclusion of 89 ac (36 ha) of land within the boundaries of the Orange County Central-Coastal NCCP/HCP from the designation of critical habitat for Riverside fairy shrimp will not result in extinction of the species. Proposed actions that affect waters of the United States as defined under the CWA, which in many cases include vernal pools occupied by Riverside fairy shrimp, will continue to be subject to consultation under section 7(a)(2) of the Act and to the duty to avoid jeopardy to the species. The protection provided by the Orange County Central-Coastal NCCP/HCP for the length of the permit also provides assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

Therefore, the Secretary is exercising his discretion to exclude 89 ac (36 ha) of land (the entirety of subunits 2c and 2i) within the boundaries of the Orange County Central-Coastal NCCP/HCP from this final critical habitat designation.

Orange County Southern Subregion HCP

The Orange County Southern Subregion HCP is a large-scale HCP that encompasses approximately 86,021 ac (34,811 ha) in southern Orange County. It is a multispecies conservation program that minimizes and mitigates expected habitat loss and associated incidental take of 32 covered species, including Riverside fairy shrimp, incidental to residential development and related actions in southern Orange County. The Orange County Southern Subregion HCP was developed and is being implemented by the County of Orange; Rancho Mission Viejo, LLC (RMV); and the Santa Margarita Water District. The Service issued incidental take permits based on the plan on January 10, 2007. The permit and plan cover a 75-year period.

The Orange County Southern Subregion HCP provides for the conservation of covered species, including Riverside fairy shrimp, through the establishment of an approximately 30,426-ac (12,313-ha) habitat reserve and 4,456 ac (1,803 ha) of supplemental open space areas (Service 2007, p. 19), which primarily consist of land owned by Rancho Mission Viejo and three pre-existing County parks (Service 2007, pp. 10, 19).

The Orange County Southern Subregion HCP is expected to provide benefits for the conservation of Riverside fairy shrimp through implementation of the following conservation measures:

- Conserving vernal pools within the habitat reserve,
- Minimizing impacts to vernal pools from development,
- Maintaining water quality and quantity,
- Controlling nonnative, invasive species,
- Managing livestock grazing, and
- Minimizing human access and disturbance.

Specifically, any development must be located at least 1,000 ft (305 m) away from vernal pools and be built at a lower elevation than the vernal pools to avoid hydrological alterations (Service 2007, p. 133). Water quality monitoring will be conducted throughout the life of the permit at occupied vernal pools near development (Service 2007, p. 133).

The conservation strategy for this HCP provides a comprehensive habitat-based approach to the protection of covered species and their habitats by focusing on the lands and aquatic resource areas containing the physical or biological features essential for the long-term conservation of the covered species (including Riverside fairy shrimp), and by providing for appropriate management for those lands (Service 2007, p. 64). All of the portions of Unit 2 that fall within the Orange County Southern Subregion HCP have been conserved or are targeted for conservation within the plan's open space area, known as its habitat reserve. Portions of Subunits 2dB and 2e are within O'Neill Regional Park, a park permanently conserved as open space that is part of the habitat reserve system (Dudek and Associates 2006, p. 10–6). The remaining portions of Subunits 2dB and 2e are outside the plan boundaries and have not been excluded from this final revised critical habitat rule. Chiquita Ridge (Subunit 2f) and Saddleback Meadow (Subunit 2dA) are also within the habitat reserve. Lands within these subunits are conserved with conservation easements, and permittees fund the management of these areas to benefit vernal pool species, including Riverside fairy shrimp (Service 2007, pp. 15–17). Management provided by the plan includes regular monitoring of vernal pools at Chiquita Ridge (Subunit 2f) (Service 2007, p. 134). Radio Tower Road (Subunit 2g) is required to be conserved within the habitat reserve in future years in accordance with the schedule set forth in the plan. In the interim, the Orange County Southern Subregion HCP mandates that all construction must take place at a minimum of 1,000 ft (305 m) from the Radio Tower Road vernal pools (Subunit 2g) (Service 2007, p. 135). Monitoring and management for Subunit 2g will occur once the property is added to the reserve (Service 2007, p. 134).

The Secretary is exercising his discretion to exclude a total of 233 ac (94 ha) of covered lands under the Orange County Southern Subregion HCP (see Table 5 above).

Benefits of Inclusion—Orange County Southern Subregion HCP

The designation of critical habitat can result in regulatory, educational, and ancillary benefits. As discussed under *Application of the ''Adverse Modification'' Standard,* the regulatory benefit of including an area in a critical habitat designation is the added conservation that may result from the separate duty imposed on Federal agencies under section 7(a)(2) of the Act to ensure that actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat.

However, for reasons stated in the *Regulatory Benefits of Inclusion for Habitat Conservation Plans* section above, we conclude that any additional regulatory benefits of critical habitat designation would be minimal because the regulatory benefits from designation are difficult to distinguish at this point in time from the benefits of listing. In addition, because essential Riverside fairy shrimp habitat within the Orange County Southern Subregion HCP is required to be protected under the plan, the likelihood of a future section 7 consultation on these lands for other than conservation related actions is remote. Thus, because we do not anticipate that the outcome of future section 7 consultations on Riverside fairy shrimp would change if critical habitat were designated and because the likelihood of future section 7 consultations is remote, we conclude that the regulatory benefits of designating lands that meet the

definition of critical habitat within the Orange County Southern Subregion HCP (Subunits 2f and 2g and portions of Subunits 2dA, 2dB, and 2e) would be, at most, minor.

As discussed under *Benefits of Inclusion—Orange County Central-Coastal NCCP/HCP,* another possible benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. In the case of Riverside fairy shrimp, however, there have already been multiple occasions when the public has been educated about the species. The planning process for the Orange County Southern Subregion HCP began in 1992, when the County of Orange formally enrolled its unincorporated area in the NCCP program, and then signed a planning agreement with CDFG and the Service in 1993. Planning efforts were delayed for a time, but scoping and planning meetings continued. The Orange County Southern Subregion HCP was finalized in 2006. As discussed above, the permit holders of the Orange County Southern Subregion HCP are aware of the value of these lands to the conservation of Riverside fairy shrimp, and conservation measures are already in place to protect essential occurrences of the Riverside fairy shrimp and its habitat.

Lands meeting the definition of critical habitat that are covered by the Orange County Southern Subregion HCP were also included in the proposed designation published in the **Federal Register** on June 1, 2011 (76 FR 31686), as well as the previous proposed revised critical habitat published on April 27, 2004 (69 FR 23024), and the previous final revised rule published on April 12, 2005 (70 FR 19154). These publications were announced in press releases and information was posted on the Service's Web site. We consider the educational benefits of critical habitat designation (such as providing information to the participating entities and to the public regarding areas important to the long-term conservation of this species) have already been realized through development and ongoing implementation of the Orange County Southern Subregion HCP, by proposing these areas as critical habitat, and through the Service's public outreach efforts. The educational benefits of designating critical habitat within the Orange County Southern Subregion HCP would be negligible.

Finally, critical habitat designation can result in ancillary conservation benefits to Riverside fairy shrimp by triggering additional review and conservation through other Federal and State laws. The primary State law that might be affected by critical habitat designation is CEQA. However, Riverside fairy shrimp lands that meet the definition of critical habitat within the Southern Subregion of Orange County have been identified and are either already protected or targeted for protection under the plan. Thus, review of development proposals affecting lands identified as critical habitat covered by the plan under CEQA by the entities participating in the Orange County Southern Subregion HCP already takes into account the importance of this habitat to the species and the protections required for the species and its habitat under the plan. The Federal law most likely to afford protection to designated Riverside fairy shrimp habitat is the CWA. Projects requiring a permit under the CWA, such as a fill permit under section 404 of the CWA, located within critical habitat or likely to affect critical habitat, would trigger section 7 consultation under the Act. However, as discussed above, we conclude the potential regulatory benefits resulting from designation of critical habitat would be negligible because, with regard to Riverside fairy shrimp, the outcome of an adverse modification analysis under section 7(a)(2) of the Act would not differ materially from the outcome of a jeopardy analysis. Therefore, we conclude that the ancillary benefits of designating lands identified as critical habitat for Riverside fairy shrimp within the Orange County Southern Subregion HCP as critical habitat would be negligible.

For the reasons stated above and under *Benefits of Inclusion—Orange County Central-Coastal NCCP/HCP,* we consider section 7 consultations for critical habitat designation conducted under the standards required by the 9th Circuit Court in the *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service* decision would provide little conservation benefit and would be largely redundant with those benefits attributable to listing as well as those already provided by the Orange County Southern Subregion HCP. Therefore, the benefits of inclusion are reduced because the regulatory benefits of designating those acres as Riverside fairy shrimp critical habitat, such as protection afforded through the section 7(a)(2) consultation process, are minimal. Additionally, the benefits of inclusion are reduced because the educational and ancillary benefits of designating critical habitat covered by the Orange County Southern Subregion HCP would be negligible because the location of lands identified as critical habitat for this species within the County of Orange and the importance of conserving such habitat are well known and are already addressed through CEQA and through implementation of the Orange County Southern Subregion HCP.

Benefits of Exclusion—Orange County Southern Subregion HCP

The benefits of excluding from designated critical habitat the approximately 233 ac (94 ha) of land within the Orange County Southern Subregion HCP are significant. The discussion of partnership benefits under *Benefits of Exclusion—Orange County Central-Coastal NCCP/HCP* applies equally to the Orange County Southern Subregion HCP. The benefits of excluding lands identified as critical habitat covered by the Orange County Southern Subregion HCP include continuing and strengthening our existing partnerships with the HCP permittees and stakeholders across the subregion to promote the conservation of the Riverside fairy shrimp and its habitat and encouraging new partnerships with other jurisdictions to amend existing and develop future HCPs that cover and provide conservation for the Riverside fairy shrimp and other listed species.

We have developed close partnerships with participating entities through the development of the Orange County Southern Subregion HCP. The protections and management provided for the Riverside fairy shrimp and its habitat, including the physical or biological features essential to the conservation of the species, are consistent with statutory mandates under section 7 of the Act to avoid destruction or adverse modification of critical habitat. Furthermore, this plan goes beyond the statutory mandate including active management and protection of areas that contain the physical or biological features essential to the conservation of the species. By excluding the approximately 233 ac (94 ha) of land within the boundaries of the Orange County Southern Subregion HCP from critical habitat designation, we are eliminating a redundant layer of regulatory review for projects covered by the Orange County Southern Subregion HCP, maintaining our partnership with Orange County and other plan permittees, and encouraging new voluntary partnerships with other

landowners and jurisdictions to protect the Riverside fairy shrimp and other listed species. As discussed above, the prospect of potentially avoiding a future designation of critical habitat provides a meaningful incentive to plan proponents to extend protections to endangered and threatened species and their habitats under a conservation plan. Achieving comprehensive landscape-level protection for listed species, particularly rare vernal pool species such as the Riverside fairy shrimp through their inclusion in regional conservation plans, provides a key conservation benefit for such species. Our ongoing partnerships with the participating entities, and the landscape-level multiple species conservation planning efforts they promote, are essential to achieve long-term conservation of the Riverside fairy shrimp.

As noted above, some HCP permittees have expressed the view that critical habitat designation of lands covered by an HCP devalues the conservation efforts of plan proponents and the partnerships fostered through the development and implementation of the plan, and would discourage development of additional HCPs and other conservation plans in the future. Landowners in the Orange County Southern Subregion HCP have repeatedly expressed their belief that lands covered by the plan should be excluded from critical habitat (RMV 2012, pp. 1, 8). Where an existing HCP provides protection for a species and its essential habitat within the plan area, such as is the case with the Orange County Southern Subregion HCP, the benefits of preserving existing partnerships by excluding the covered lands from critical habitat are most significant. Under these circumstances, excluding lands owned by or under the jurisdiction of the permittees of an HCP promotes positive working relationships and eliminates impacts to existing and future partnerships while encouraging development of additional HCPs for other species.

Large-scale HCPs, such as the Orange County Southern Subregion HCP, take many years to develop, and foster an ecosystem-based approach to habitat conservation planning by comprehensively addressing conservation issues. If local jurisdictions were to require landowners to individually obtain ITPs under section 10 of the Act, the conservation likely to result would be uncoordinated, patchy, and less likely to achieve listed species recovery, as conservation measures would be determined on a project-by-project basis instead of on a comprehensive, landscape-level scale. To avoid that outcome, we are committed to fostering partnerships with local jurisdictions and large landowners to encourage the development and continued implementation of regional HCPs that afford proactive landscape-level conservation for multiple species. We conclude that the exclusion from critical habitat designation of lands that contain the physical and biological factors essential to the conservation of the species within the Orange County Southern Subregion HCP will result in significant partnership benefits that we believe will result in important protection for Riverside fairy shrimp and its habitat and other listed species and their habitats.

Benefits of Exclusion Outweigh the Benefits of Inclusion—Orange County Southern Subregion HCP

We reviewed and evaluated the exclusion of approximately 233 ac (94 ha) of land within the boundaries of the Orange County Southern Subregion HCP from our revised designation of critical habitat, and we determined the benefits of excluding these lands outweigh the benefits of including them. The benefits of including these lands in the designation are reduced because the regulatory, educational, and ancillary benefits that would result from critical habitat designation are almost entirely redundant with the regulatory, educational, and ancillary benefits already afforded through the Orange County Southern Subregion HCP and under State and Federal law. In contrast to the reduced benefits of inclusion, the benefits of excluding lands covered by the Orange County Southern Subregion HCP from critical habitat designation are significant. Exclusion of these lands will help preserve the partnerships we developed with local jurisdictions and project proponents through the development and ongoing implementation of the Orange County Southern Subregion HCP, and will aid in fostering future partnerships for the benefit of listed species. Our partnership with plan participants has already resulted in significant benefits to listed species and vernal pool habitat; based on this track record of success, we expect that this meaningful partnership will continue into the future.

The Orange County Southern Subregion HCP will provide significant conservation and management of the Riverside fairy shrimp and its habitat, and help achieve recovery of this species through habitat enhancement and restoration, functional connections to adjoining habitat, and species monitoring efforts. Additional HCPs or other species-habitat plans potentially fostered by this exclusion would also help to recover this and other federally listed species. Therefore, in consideration of the relevant impact to current and future partnerships, as summarized in the *Benefits of Exclusion—Orange County Southern Subregion HCP* section above, we determine the significant benefits of exclusion outweigh the minor benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—Orange County Southern Subregion HCP

We determined that the exclusion of 233 ac (94 ha) of land within the boundaries of the Orange County Southern Subregion HCP from the designation of critical habitat for the Riverside fairy shrimp will not result in extinction of the species. Proposed actions that affect waters of the United States as defined under the CWA, including in many cases vernal pools occupied by Riverside fairy shrimp, will continue to be subject consultation under section 7(a)(2) of the Act and to the duty to avoid jeopardy to the species. The protection provided by the Orange County Southern Subregion HCP also provides assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation. Therefore, the Secretary is exercising his discretion to exclude 233 ac (94 ha) of land within the boundaries of the Orange County Southern Subregion HCP from this final critical habitat designation.

Western Riverside County Multiple Species Habitat Conservation Program

The Western Riverside County MSHCP is a regional, multijurisdictional HCP that encompasses approximately 1.26 million ac (510,000 ha) of land in western Riverside County. The Western Riverside County MSHCP addresses 146 listed and unlisted ''covered species,'' including the Riverside fairy shrimp. The Western Riverside County MSHCP is a multispecies conservation program designed to minimize and mitigate the expected loss of habitat and associated incidental take of covered species resulting from covered development activities such as indirect effects from flood control, road maintenance, housing construction, and construction of public facilities in the plan area. On June 22, 2004, the Service issued a single incidental take permit under section 10(a)(1)(B) of the Act to 22 permittees under the Western Riverside County MSHCP to be in effect for a period of 75 years (Service 2004a).

The Western Riverside County MSHCP, when fully implemented, will establish approximately 153,000 ac (61,917 ha) of new conservation lands (additional reserve lands (ARL)) to complement the approximate 347,000 ac (140,426 ha) of preexisting natural and open space areas (public/quasi-public (PQP) lands) in the plan area. PQP lands include those under ownership of public agencies, primarily the U.S. Forest Service (USFS) and Bureau of Land Management (BLM), as well as permittee-owned or controlled open-space areas managed by the State of California and Riverside County. Collectively, the ARL and PQP lands form the overall Western Riverside County MSHCP Conservation Area. The configuration of the 153,000 ac (61,916 ha) of ARL is not mapped or precisely delineated (hard-lined) in the Western Riverside County MSHCP. Instead, the configuration and composition of the ARL are described in text within the bounds of the approximately 310,000-ac (125,453-ha) criteria area. Additional reserve lands are being acquired and conserved as part of the ongoing implementation of the Western Riverside County MSHCP.

Skunk Hollow and Field Pool (Barry Jones Wetland Mitigation Bank, Subunit 3f), Lake Elsinore Back Basin (Australia Pool; Subunit 3c), and Murrieta (Schleuniger Pool, Subunit 3e) are conserved or will be conserved in the Western Riverside County MSHCP Conservation Area. The plan protects Riverside fairy shrimp within the plan area by ensuring the species is conserved within 90 percent of an occupied area (County of Riverside 2003, Table 9–2). All vernal pool habitat within the Western Riverside County MSHCP Conservation Area will be conserved. For vernal pool habitat outside the Conservation Area, vernal pool habitat is assessed on a project by project basis and an avoidance alternative implemented, if feasible. If an avoidance alternative is not feasible, a practicable alternative that minimizes direct and indirect effects to riparian/riverine areas, vernal pools/fairy shrimp habitat, and associated functions will be selected and unavoidable impacts will be mitigated. To ensure adequate replacement of lost functions and values, the permittee is required to make a determination of biologically equivalent or superior preservation, as described in the Plan (pp. 6–24 and 6–25), that evaluates the effects to habitats and effects on species (Dudek and Associates 2003, pp. 6–20, 6–21, 6–23). This analysis must demonstrate that a proposed action, including design features to minimize impacts and compensation measures (for example, restoration, enhancement), will provide equal or better conservation than avoidance of the riparian, riverine, vernal pools, or fairy shrimp habitats (Dudek and Associates 2003, pp. 6–23–6–25). All projects impacting vernal pool habitat must be reviewed by project permittees and the Service (Dudek and Associates 2003, p. 6–84).

Subunit 3g (Johnson Ranch Created Pool) is on existing conserved lands and is managed by CDFG (Service 2001, p. 2). Portions of Subunits 3e (Schleuniger Pool) and 3h (Santa Rosa Plateau—Mesa de Colorado) have been conserved. Subunits 3c (Australia Pool), 3d (Scott Road Pool), 3f (Skunk Hollow and Field Pool (Barry Jones Wetland Mitigation Bank)), and the remaining portions of Subunits 3e and 3h are on PQP lands.

Species-specific conservation objectives are included in the Western Riverside County MSHCP for the Riverside fairy shrimp. One objective is to conserve at least 11,942 ac (4,833 ha) of occupied or suitable habitat for the species. In addition, other areas within the criteria area identified as important for Riverside fairy shrimp will be conserved, including areas in Murrieta (Schleuniger Pool, Subunit 3e), Skunk Hollow (Subunit 3f), and Santa Rosa Plateau (Subunit 3h). This objective is intended to be met through implementation of the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools policy under the plan, which states that 90 percent of the area of occupied properties that provide long-term conservation value for Riverside fairy shrimp shall be conserved.

We anticipate that this species will persist in the remaining 90 percent of occupied habitat with long-term conservation value for the species, including all of the modeled habitat within both the existing public/quasi-public lands and the additional reserve lands. All critical habitat units within the boundaries of the Western Riverside MSHCP are conserved or on PQP lands. The MSHCP will further offset the proposed impacts to this species through management and monitoring actions within the reserve, including the enhancement of historic or vestigial vernal pools within Conservation Areas. This enhancement will help offset the impacts of activities covered by the plan by increasing the quality of the habitat that is conserved for this species and by allowing the expansion of populations within the reserve through the enhancement of historic or vestigial vernal pools that do not currently provide habitat for the species (Service 2004a, pp. 239–245).

The 1993 final listing rule for the Riverside fairy shrimp attributed the primary threat to this species to present or threatened destruction, modification, or curtailment of its habitat or to urban and agricultural development, OHV use, cattle trampling, human trampling, road development, and water management activities (58 FR 41387, August 3, 1993). The 1993 final listing rule also identified other natural and manmade factors, including introduction of nonnative plant species, competition with invading species, trash dumping, fire, and fire suppression activities (58 FR 41389, August 3, 1993) as primary threats to the Riverside fairy shrimp. The Western Riverside County MSHCP helps to address these threats through a regional planning effort, and contains species-specific objectives and criteria to provide for the conservation of the Riverside fairy shrimp and its habitat as the plan is implemented.

Benefits of Inclusion—Western Riverside County MSHCP

The designation of critical habitat can result in regulatory, educational, and ancillary benefits. As discussed under *Application of the ''Adverse Modification'' Standard,* the regulatory benefit of including an area in a critical habitat designation is the added conservation that may result from the separate duty imposed on Federal agencies under section 7(a)(2) of the Act to ensure that actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat.

However, for reasons stated in the *Regulatory Benefits of Inclusion for Habitat Conservation Plans* section above, we conclude any additional regulatory benefits of critical habitat designation would be minimal because the regulatory benefits from designation are difficult to distinguish at this point in time from the benefits of listing because all areas are considered occupied. In addition, because essential Riverside fairy shrimp habitat within the Western Riverside County MSHCP is required to be protected under the plan, the likelihood of a future section 7 consultation on these lands for other than conservation-related actions is remote. Thus, because we do not anticipate that the outcome of future section 7 consultations on Riverside fairy shrimp would change if critical habitat was designated and because the likelihood of future section 7 consultations is remote, we conclude that the regulatory benefits of

designating habitat that contains the physical or biological features essential to the conservation of the species and within the Western Riverside County MSHCP (all acreages within Unit 3) would be, at most, minor.

As discussed under *Benefits of Inclusion—Orange County Central-Coastal NCCP/HCP,* another possible benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. In the case of Riverside fairy shrimp, however, there have already been multiple occasions when the public has been educated about the species. The Western Riverside County MSHCP was developed over a 5-year period, and has been in place for almost a decade. Implementation of the plan is formally reviewed yearly through publicly available annual reports, again providing extensive opportunity to educate the public and landowners about the location of, and efforts to conserve, areas identified as critical habitat for the Riverside fairy shrimp. The permit holders of the Western Riverside County MSHCP are aware of the value of these lands to the conservation of the Riverside fairy shrimp, and conservation measures are already in place to protect the Riverside fairy shrimp and its habitat within the Conservation Area. Areas identified as critical habitat for the Riverside fairy shrimp that are covered by the Western Riverside County MSHCP were also included in the proposed designation published in the **Federal Register** on June 1, 2011 (76 FR 31686), as well as the previous proposed revised critical habitat published on April 27, 2004 (69 FR 23024), and the previous final revised rule published on April 12, 2005 (70 FR 19154). These publications were announced in a press release and information was posted on the Service's Web site.

We consider the educational benefits of critical habitat designation for Riverside fairy shrimp (such as providing information to the County of Riverside, other stakeholders, and the public regarding areas important to the long-term conservation of this species) have already been realized through the development and ongoing implementation of the Western Riverside County MSHCP, by proposing these areas as critical habitat, and through the Service's public outreach efforts. For these reasons, we conclude that the educational benefits of designating critical habitat within the Western Riverside County MSHCP would be negligible.

Finally, critical habitat designation can result in ancillary conservation benefits to Riverside fairy shrimp by triggering additional review and conservation through other Federal and State laws. The primary State law that might be affected by critical habitat designation is CEQA. However, lands identified as critical habitat within Western Riverside County have been identified in the Western Riverside County MSHCP and are either already protected or targeted for protection under the plan. Thus, review of any future development proposals affecting lands identified as critical habitat within the plan area under CEQA already take into account the importance of this habitat to the species and the protections required for the species and its habitat under the plan. The Federal law most likely to afford protection to designated Riverside fairy shrimp habitat is the CWA. Projects requiring a permit under the CWA, such as a fill permit under section 404 of the CWA, located within critical habitat or likely to affect critical habitat, would trigger section 7 consultation under the Act. However, as discussed above, we conclude the potential regulatory benefits resulting from designation of critical habitat would be negligible because, with regard to the Riverside fairy shrimp, the outcome of an adverse modification analysis under section 7(a)(2) of the Act would not differ materially from the outcome of a jeopardy analysis. Therefore, we conclude the ancillary benefits of designating lands identified as critical habitat for the Riverside fairy shrimp within the Western Riverside County MSHCP as critical habitat would be negligible.

For the reasons stated above, we consider section 7 consultations for critical habitat designation conducted under the standards required by the 9th Circuit Court in the *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service* decision would provide little conservation benefit and would be largely redundant with those benefits attributable to listing as well as those already provided by the Western Riverside County MSHCP. Therefore, the benefits of inclusion are reduced because the regulatory benefits of designating those acres as Riverside fairy shrimp critical habitat, such as protection afforded through the section 7(a)(2) consultation process, are minimal. Additionally, the benefits of inclusion are reduced because the educational and ancillary benefits of designating lands identified as critical habitat for the Riverside fairy shrimp covered by the Western Riverside County MSHCP would be negligible because the location of lands identified as critical habitat for Riverside fairy shrimp for this species within Western Riverside County and the importance of conserving such habitat are well known and are already addressed through CEQA and through implementation of Western Riverside County MSHCP.

Benefits of Exclusion—Western Riverside County MSHCP

The benefits of excluding from designated critical habitat the approximately 865 ac (350 ha) of land within the Western Riverside County MSHCP are significant. The benefits of excluding lands identified as critical habitat covered by these plans include: (1) Continuance and strengthening of our effective working relationships with all MSHCP jurisdictions and stakeholders to promote the conservation of the Riverside fairy shrimp and its habitat; (2) allowance for continued meaningful collaboration and cooperation in working toward recovering this species, including conservation benefits that might not otherwise occur; (3) encouragement of other jurisdictions with completed HCP/NCCP plans to amend their plans to cover and benefit the Riverside fairy shrimp and vernal pool habitat; and (4) encouragement of additional HCP and other conservation plan development in the future on other private lands that include Riverside fairy shrimp and other federally listed species.

We have developed close partnerships with the County of Riverside and several other stakeholders through the development of the Western Riverside County MSHCP. The protection and management provided for the Riverside fairy shrimp and its habitat, including the physical or biological features essential to the conservation of the species, are consistent with statutory mandates under section 7 of the Act to avoid destruction or adverse modification of critical habitat. Furthermore, this plan goes beyond the statutory mandate by actively protecting habitat areas that contain the physical or biological features essential to the conservation of the species. By excluding the approximately 865 ac (350 ha) of land within the boundaries of the Western Riverside County MSHCP from critical habitat designation, we are eliminating a redundant layer of regulatory review for projects covered by the Western Riverside County MSHCP, maintaining our partnership with Riverside County and other participating jurisdictions,

and encouraging new voluntary partnerships with other landowners and jurisdictions to protect the Riverside fairy shrimp and other listed species. As discussed above, the prospect of potentially avoiding a future designation of critical habitat provides a meaningful incentive to plan proponents to extend protections to endangered and threatened species and their habitats under a habitat conservation plan. Achieving comprehensive landscape-level protection for listed species, particularly rare vernal pool species such as the Riverside fairy shrimp through their inclusion in regional conservation plans, provides a key conservation benefit for such species. Our ongoing partnerships with the County of Riverside and the regional Western Riverside County MSHCP participants, and the landscape-level multiple species conservation planning efforts they promote, are essential to achieve long-term conservation of the Riverside fairy shrimp.

As noted earlier, some HCP permittees have expressed the view that critical habitat designation of lands covered by an HCP devalues the conservation efforts of plan proponents and the partnerships fostered through the development and implementation of the plans, and would discourage development of additional HCPs and other conservation plans in the future. Permittees of the Western Riverside County MSHCP have repeatedly stated that exclusion of lands covered by the plan would prove beneficial to our partnership (WRCRCA 2012, p. 5). In a comment letter on the proposed critical habitat, a representative from the Western Riverside Regional Conservation Authority stated that lands covered by the Western Riverside County MSHCP should be excluded from critical habitat. We consider that where an existing HCP provides protection for a species and its habitat within the plan area, the benefits of preserving existing partnerships by excluding the covered lands from critical habitat are most significant. Under these circumstances, excluding lands owned by or under the jurisdiction of the permittees of an HCP promotes positive working relationships and eliminates impacts to existing and future partnerships while encouraging development of additional HCPs for other species.

Large-scale HCPs, such as the Western Riverside County MSHCP, take many years to develop, and foster a strategic ecosystem-based approach to habitat conservation planning by addressing conservation issues through a coordinated approach. If, instead, local jurisdictions were to require landowners to individually obtain ITPs under section 10 of the Act, the conservation likely to result would be uncoordinated, patchy, and less likely to achieve listed species recovery as conservation measures would be determined on a project-by-project basis instead of on a comprehensive, landscape-level scale. To avoid that outcome, we are committed to fostering partnerships with local jurisdictions to encourage the development of regional HCPs that afford proactive landscape-level conservation for multiple species. We conclude that the exclusion from critical habitat designation of lands meeting the definition of critical habitat within the Western Riverside County MSHCP will result in significant partnership benefits that we believe will result in important protection for and conservation of the Riverside fairy shrimp and other listed species and their habitats.

Benefits of Exclusion Outweigh the Benefits of Inclusion—Western Riverside County MSHCP

We reviewed and evaluated the exclusion of approximately 865 ac (350 ha) of land within the boundaries of the Western Riverside County MSHCP from our revised designation of critical habitat, and we determined the benefits of excluding these lands outweigh the benefits of including them. The benefits of including these lands in the designation are reduced because the regulatory, educational, and ancillary benefits that would result from critical habitat designation are almost entirely redundant with the regulatory, educational, and ancillary benefits already afforded through the Western Riverside County MSHCP and under State and Federal law. In contrast to the reduced benefits of inclusion, the benefits of excluding lands covered by the Western Riverside County MSHCP from critical habitat designation are significant. Exclusion of these lands will help preserve the partnerships we developed with local jurisdictions and project proponents through the development and ongoing implementation of the Western Riverside County MSHCP, and aid in fostering future partnerships for the benefit of listed species. Our partnership with plan participants has already resulted in significant benefits to listed species and vernal pool habitat; based on this track record of success, we expect that this meaningful partnership will continue into the future.

The Western Riverside County MSHCP will provide significant conservation and management of the Riverside fairy shrimp and its habitat and help achieve recovery of this species through habitat enhancement and restoration, functional connections to adjoining habitat, and species monitoring efforts. Additional HCPs or other species-habitat plans potentially fostered by this exclusion would also help to recover this and other federally listed species. Therefore, in consideration of the relevant impact to current and future partnerships, as summarized in the *Benefits of Exclusion—Western Riverside County MSHCP* section above, we determine the significant benefits of exclusion outweigh the minor benefits of inclusion.

Exclusion Will Not Result in Extinction of the Species—Western Riverside County MSHCP

We determine that the exclusion of 865 ac (350 ha) of land within the boundaries of the Western Riverside County MSHCP from the designation of critical habitat for the Riverside fairy shrimp will not result in extinction of the species. Proposed actions that affect waters of the United States as defined under the CWA, which in many cases include vernal pools occupied by Riverside fairy shrimp, will continue to be subject to consultation under section 7(a)(2) of the Act and to the duty to avoid jeopardy to the species. The protection provided by the Western Riverside County MSHCP also provides assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

Therefore, the Secretary is exercising his discretion to exclude 865 ac (350 ha) of land (all of Unit 3) within the boundaries of the Western Riverside County MSHCP from this final critical habitat designation.

Carlsbad HMP Under the San Diego MHCP

The San Diego Multiple Habitat Conservation Program (MHCP) is a comprehensive, multijurisdictional planning program designed to create, manage, and monitor an ecosystem preserve in northwestern San Diego County while providing for economic and urban development by streamlining the permitting process. The MHCP is also a subregional plan under the State of California's NCCP program, which was developed in cooperation with CDFG. The MHCP preserve system (focused planning area (FPA)) is intended to protect viable populations of native plant and animal species and their habitats in perpetuity, while accommodating continued economic

development and quality of life for residents of northern San Diego County.

The MHCP includes an approximately 112,000-ac (45,324-ha) study area within the cities of Carlsbad, Encinitas, Escondido, San Marcos, Oceanside, Vista, and Solana Beach (MHCP 2003, entire). These cities will implement their respective portions of the MHCP through subarea plans. Only the City of Carlsbad has an approved subarea plan at this time, which is called the Carlsbad Habitat Management Plan (Carlsbad HMP). The section 10(a)(1)(B) incidental take permit and IA for the Carlsbad HMP were issued on November 12, 2004 (Service 2004b). Conservation requirements within the Carlsbad HMP for Riverside fairy shrimp include conserving 100 percent of the known Riverside fairy shrimp habitat and implementing the MHCP's narrow endemic and no net loss of wetlands (including vernal pools) policies for any additional vernal pools discovered in the MHCP planning area. These policies require all vernal pools and their watersheds within the MHCP study area to be 100 percent conserved, regardless of occupancy by Riverside fairy shrimp and regardless of location inside or outside of the FPA, unless doing so would remove all economic uses of a property. In the event that no feasible project alternative avoids all impacts on a particular property, the impacts must be minimized and mitigated to achieve no net loss of biological functions and values (Service 2004c, p. 330). Unit 4c covers the Poinsettia Lane Commuter Train Station vernal pool complex within the Carlsbad HMP, and consists of 9 ac (4 ha): 3 ac (1 ha) of private property and 6 ac (3 ha) local land owned by the North County Transit District.

The Poinsettia Lane Commuter Train Station vernal pool complex supports the only known occurrence of the Riverside fairy shrimp within the boundaries of the Carlsbad HMP. Coverage of the Riverside fairy shrimp under the Carlsbad HMP is conditioned on permanent protection, management, and monitoring of the Poinsettia Lane Commuter Train Station vernal pool complex as outlined in the biological opinion for the Carlsbad HMP (Service 2004c, pp. 327–33). We continue to work with the City of Carlsbad to conserve this area.

Benefits of Inclusion—Carlsbad HMP Under the San Diego MHCP

The designation of critical habitat can result in regulatory, educational, and ancillary benefits. As discussed under *Application of the ''Adverse Modification'' Standard,* the regulatory benefit of including an area in a critical habitat designation is the added conservation that may result from the separate duty imposed on Federal agencies under section 7(a)(2) of the Act to ensure that actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat.

However, as discussed above and for reasons stated in the *Regulatory Benefits of Inclusion for Habitat Conservation Plans* section above, we conclude any additional regulatory benefits of critical habitat designation would be minimal because the regulatory benefits from designation are difficult to distinguish at this point in time from the benefits of listing. In addition, because lands identified as critical habitat for the Riverside fairy shrimp habitat within the Carlsbad HMP are required to be protected under the plan, the likelihood of a future section 7 consultation on these lands for other than conservation related actions is remote. Thus, because we do not anticipate that the outcome of future section 7 consultations on Riverside fairy shrimp would change if critical habitat were designated and because the likelihood of future section 7 consultations is remote, we conclude that the regulatory benefits of designating lands identified as critical habitat for Riverside fairy shrimp within the Carlsbad HMP (Subunit 4c) would be, at most, minor.

Another possible benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about the Riverside fairy shrimp and its habitat that reaches a wide audience, including parties engaged in conservation activities, is valuable. In the case of Riverside fairy shrimp, however, there have already been multiple occasions when the public has been educated about the species. The framework of the regional San Diego MHCP was developed over a 6-year period and both the San Diego MHCP and the Carlsbad HMP have been in place for almost a decade. Implementation of the subarea plan is formally reviewed yearly through publicly available annual reports and a public meeting, again providing extensive opportunity to educate the public and landowners about the location of, and efforts to conserve, lands identified as critical habitat for the Riverside fairy shrimp. As discussed above, the permit holders of the Carlsbad HMP are aware of the value of these lands to the conservation of Riverside fairy shrimp. Lands identified as critical habitat for Riverside fairy shrimp that are covered by the Carlsbad HMP were included in the proposed designation published in the **Federal Register** on June 1, 2011 (76 FR 31686), as well as the previous proposed revised critical habitat published on April 27, 2004 (69 FR 23024), and the previous final revised rule published on April 12, 2005 (70 FR 19154). These publications were announced in press releases and information was posted on the Service's Web site.

We consider the educational benefits of critical habitat designation (such as providing information to the City of Carlsbad and other stakeholders and to the public regarding areas important to the long-term conservation of this species) have already been realized through development and ongoing implementation of the Carlsbad HMP, by proposing these areas as critical habitat, and through the Service's public outreach efforts. For these reasons, we conclude that the educational benefits of designating critical habitat within the Carlsbad HMP would be negligible.

Finally, critical habitat designation can also result in ancillary conservation benefits to Riverside fairy shrimp by triggering additional review and conservation through other Federal and State laws. The primary State law that might be affected by critical habitat designation is CEQA. However, lands identified as critical habitat within the City of Carlsbad have been identified in the HMP and are either already protected or targeted for protection under the plan. Thus, review of development proposals affecting habitat that contains the physical or biological features essential to the conservation of the species under CEQA by the City of Carlsbad already takes into account the importance of this habitat to the species and the protections required for the species and its habitat under the plan. The Federal law most likely to afford protection to designated Riverside fairy shrimp habitat is the CWA. Projects requiring a permit under the CWA, such as a fill permit under section 404 of the CWA, located within critical habitat or likely to affect critical habitat, would trigger section 7 consultation under the Act. However, as discussed above, we conclude the potential regulatory benefits resulting from designation of critical habitat would be negligible because, with regard to Riverside fairy shrimp, the outcome of an adverse modification analysis under section 7(a)(2) of the Act would not differ materially from the outcome of a

jeopardy analysis. Therefore, we conclude that the ancillary benefits of designating lands identified as critical habitat for Riverside fairy shrimp within the Carlsbad HMP as critical habitat would be negligible.

For the reasons stated above, we consider section 7 consultations for critical habitat designation conducted under the standards required by the 9th Circuit Court in the *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service* decision would provide little conservation benefit and would be largely redundant with those benefits attributable to listing as well as those already provided by the Carlsbad HMP. Therefore, the benefits of inclusion are reduced because the regulatory benefits of designating those acres as Riverside fairy shrimp critical habitat, such as protection afforded through the section 7(a)(2) consultation process, are minimal. Additionally, the benefits of inclusion are reduced because the educational and ancillary benefits of designating lands identified as critical habitat for Riverside fairy shrimp covered by the Carlsbad HMP would be negligible because the location of such habitat for this species within the City of Carlsbad and the importance of conserving such habitat are well known and are already addressed through CEQA and through implementation of the Carlsbad HMP.

Benefits of Exclusion—Carlsbad HMP Under the San Diego MHCP

The benefits of excluding from designated critical habitat the approximately 9 ac (4 ha) of land within the Carlsbad HMP are significant. The benefits of excluding lands identified as critical habitat covered by this plan include: (1) Continuance and strengthening of our effective working relationships with the City of Carlsbad and other plan stakeholders to promote the conservation of the Riverside fairy shrimp and its habitat; (2) allowance for continued meaningful collaboration and cooperation in working toward recovering this species, including conservation benefits that might not otherwise occur; (3) encouragement of other jurisdictions to complete subarea plans under the MHCP (including the cities of Oceanside, San Marcos, and Escondido) that cover or are adjacent to Riverside fairy shrimp or other vernal pool habitat; and (4) encouragement of additional NCCP/HCP and other conservation plan development in the future on private lands within the region that includes Riverside fairy shrimp and other federally listed species.

We have developed close partnerships with the City of Carlsbad and several other stakeholders through the development of the Carlsbad HMP. The protections and management provided for Riverside fairy shrimp and its habitat under the plan are consistent with statutory mandates under section 7 of the Act to avoid destruction or adverse modification of critical habitat. By excluding the approximately 9 ac (4 ha) of land within the boundaries of the Carlsbad HMP from critical habitat designation, we are eliminating a redundant layer of regulatory review for projects covered by the Carlsbad HMP, maintaining our partnership with the City of Carlsbad, and encouraging new voluntary partnerships with other landowners and jurisdictions to protect the Riverside fairy shrimp and other listed species. As discussed above, the prospect of potentially avoiding a future designation of critical habitat provides a meaningful incentive to plan proponents to extend protections to endangered and threatened species and their habitats under a habitat conservation plan. Achieving comprehensive landscape-level protection for listed species, particularly rare vernal pool species such as the Riverside fairy shrimp through their inclusion in regional conservation plans, provides a key conservation benefit for such species. Our ongoing partnerships with the City of Carlsbad and other regional MHCP participants, and the landscape-level multiple species conservation planning efforts they promote, are essential to achieve long-term conservation of Riverside fairy shrimp.

As noted in the *Benefits of Exclusion—Orange County Southern Subregion HCP* and *Benefits of Exclusion—Western Riverside County MSHCP* sections above, some HCP permittees have expressed the view that critical habitat designation of lands covered by an HCP devalues the conservation efforts of plan proponents and the partnerships fostered through the development and implementation of the plans, and would discourage development of additional HCPs and other conservation plans in the future. Where an existing HCP provides protection for a species and its essential habitat within the plan area, the benefits of preserving existing partnerships by excluding the covered lands from critical habitat are most significant. Under these circumstances, excluding lands owned by or under the jurisdiction of the permittees of an HCP promotes positive working relationships and eliminates impacts to existing and future partnerships while encouraging development of additional HCPs for other species.

Large-scale HCPs, such as the regional MHCP and subarea plans in development under its framework, take many years to develop and foster an ecosystem-based approach to habitat conservation planning by addressing conservation issues through a coordinated approach. If, instead, local jurisdictions were to require landowners to individually obtain ITPs under section 10 of the Act, the conservation likely to result would be uncoordinated, patchy, and less likely to achieve listed species recovery as conservation measures would be determined on a project-by-project basis instead of on a comprehensive, landscape-level scale. To avoid that outcome, we are committed to fostering partnerships with local jurisdictions to encourage the development of regional HCPs that afford proactive landscape-level conservation for multiple species. We find that the exclusion from critical habitat designation of lands identified as critical habitat for the Riverside fairy shrimp within the Carlsbad HMP will result in significant partnership benefits that we believe will result in greater protection for the Riverside fairy shrimp and its habitat and other listed species and their habitats.

Benefits of Exclusion Outweigh the Benefits of Inclusion—Carlsbad HMP Under the San Diego MHCP

We reviewed and evaluated the exclusion of approximately 9 ac (4 ha) of land within the boundaries of the Carlsbad HMP from our revised designation of critical habitat, and we determined the benefits of excluding these lands outweigh the benefits of including them. The benefits of including these lands in the designation are reduced because the regulatory, educational, and ancillary benefits that would result from critical habitat designation are almost entirely redundant with the regulatory, educational, and ancillary benefits already afforded through the Carlsbad HMP and under State and Federal law. In contrast to the reduced benefits of inclusion, the benefits of excluding lands covered by the Carlsbad HMP from critical habitat designation are significant. Exclusion of these lands will help preserve the partnerships we developed with local jurisdictions and project proponents through the development and ongoing implementation of the Carlsbad HMP, and aid in fostering future partnerships for the benefit of listed species. Our partnership with the City of Carlsbad

has already resulted in significant benefits to listed species and vernal pool habitat; based on this track record of success, we expect that this meaningful partnership will continue into the future.

The Carlsbad HMP will provide significant conservation and management of the Riverside fairy shrimp and its habitat and help achieve recovery of this species through habitat enhancement and restoration, functional connections to adjoining habitat, and species monitoring efforts. Additional HCPs or other species-habitat plans potentially fostered by this exclusion would also help to recover this and other federally listed species. Therefore, in consideration of the relevant impact to current and future partnerships, as summarized in the *Benefits of Exclusion—Carlsbad HMP under the San Diego MHCP* section above, we determine the significant benefits of exclusion outweigh the minor benefits of inclusion.

Exclusion Will Not Result in Extinction of the Species—Carlsbad HMP Under the San Diego MHCP

We determine that the exclusion of 9 ac (4 ha) of land within the boundaries of the Carlsbad HMP from the designation of critical habitat for Riverside fairy shrimp will not result in extinction of the species. Proposed actions that affect waters of the United States as defined under the CWA, which in many cases include vernal pools occupied by Riverside fairy shrimp, will continue to be subject consultation under section 7(a)(2) of the Act and to the duty to avoid jeopardy to the species. The protection provided by the Carlsbad HMP also provides assurances that this species will not go extinct as a result of excluding lands from critical habitat within the plan area.

Therefore, the Secretary is exercising his discretion to exclude 9 ac (4 ha) of land (Subunit 4c) within the boundaries of the Carlsbad HMP from this final critical habitat designation.

County of San Diego Subarea Plan Under the San Diego MSCP

The Riverside fairy shrimp is covered under the County of San Diego Subarea Plan. The Multiple Species Conservation Program (MSCP) is a comprehensive habitat conservation planning program that encompasses 582,243 ac (235,626 ha) within 12 jurisdictions in southwestern San Diego County. The MSCP is a subregional plan that identifies the conservation needs of 85 federally listed and sensitive species, including the Riverside fairy shrimp, and serves as the basis for development of subarea plans by each jurisdiction in support of section 10(a)(1)(B) permits. The subregional MSCP identifies where mitigation activities should be focused, such that upon full implementation of the subarea plans, approximately 171,920 ac (69,574 ha) of the 582,243-ac (235,626-ha) MSCP plan area will be preserved and managed for covered species. The MSCP also provides for a regional biological monitoring program, with the Riverside fairy shrimp identified as a first-priority species for field monitoring.

Consistent with the MSCP, the conservation of Riverside fairy shrimp is addressed in the County of San Diego Subarea Plan. The County of San Diego Subarea Plan identifies areas that are hard-lined for conservation and areas where mitigation activities should be focused to assemble its preserve (pre-approved mitigation area). Implementation of the County of San Diego Subarea Plan will result in a minimum 98,379-ac (39,813-ha) preserve area.

A portion of Subunit 5d (23 ac (9 ha)) is within the County of San Diego Subarea Plan. Within the covered area, 6 ac (2 ha) are within a hard-lined preserve area. These hard-lined preserve lands were designated in conjunction with the Otay Ranch Specific Plan, and are to be conveyed to a land manager (for example, County or Federal government) in phases such that 1.18 ac (0.48 ha) are conserved for every 1 ac (0.40 ha) developed. A natural resource management plan has been developed that addresses the preservation, enhancement, and management of sensitive natural resources on the 22,899-ac (9,267-ha) Otay Ranch hard-lined preserve area (County of San Diego 1997, pp. 3–15). The remaining 17 ac (7 ha) are outside the hard-lined preserve. This portion of the unit receives protections set out in the County of San Diego Subarea Plan, including the requirement that any impacts to the Riverside fairy shrimp and vernal pools be avoided to the maximum extent practicable; where complete avoidance is infeasible, projects would be designed to avoid any significant reduction to species viability (Service 1998b, pp. 33, 43, 66). Any unavoidable impacts will be minimized and mitigated to achieve no net loss of function or value (Service 1998b, p. 66).

The Secretary is exercising his discretion to exclude the portion of Subunit 5d (23 ac (9 ha)) of land within the boundaries of the County of San Diego Subarea Plan from this final critical habitat designation.

Benefits of Inclusion—County of San Diego Subarea Plan Under the San Diego MSCP

The designation of critical habitat can result in regulatory, educational, and ancillary benefits. As discussed under *Application of the ''Adverse Modification'' Standard,* the regulatory benefit of including an area in a critical habitat designation is the added conservation that may result from the separate duty imposed on Federal agencies under section 7(a)(2) of the Act to ensure that actions they fund, authorize, or carry out are not likely to result in the destruction or adverse modification of any designated critical habitat.

However, for reasons stated in the *Regulatory Benefits of Inclusion for Habitat Conservation Plans* section above, we conclude any additional regulatory benefits of critical habitat designation would be minimal because the regulatory benefits from designation are difficult to distinguish at this point in time from the benefits of listing. Thus, because we do not anticipate that the outcome of future section 7 consultations on the Riverside fairy shrimp would change if critical habitat were designated, we conclude that the regulatory benefits of designating lands identified as critical habitat for the Riverside fairy shrimp within the portion of Subunit 5d within the County of San Diego Subarea Plan would be, at most, minor.

Another possible benefit of including lands in a critical habitat designation is that the designation can serve to educate landowners and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about the Riverside fairy shrimp and its habitat that reaches a wide audience, including parties engaged in conservation activities, is valuable. In the case of the Riverside fairy shrimp, however, there have already been multiple occasions when the public has been educated about the species. The framework of the regional San Diego MSCP was developed over a 7-year period, while the County of San Diego Subarea Plan has been in place for over a decade. Implementation of the subarea plans is formally reviewed yearly through publicly available annual reports and a public meeting, again providing extensive opportunity to educate the public and landowners about the location of, and efforts to conserve, essential Riverside fairy shrimp habitat. As discussed above, the permit holders of the County of San

Diego Subarea Plan are aware of the value of these lands to the conservation of the Riverside fairy shrimp, and measures are already in place to protect Riverside fairy shrimp and its habitat.

Lands identified as critical habitat for the Riverside fairy shrimp that are covered by the County of San Diego Subarea Plan were also included in the proposed designation published in the **Federal Register** on June 1, 2011 (76 FR 31686), as well as the previous proposed revised critical habitat published on April 27, 2004 (69 FR 23024), and the previous final revised rule published on April 12, 2005 (70 FR 19154). These publications were announced in press releases and information was posted on the Service's web site. We consider the educational benefits of critical habitat designation (such as providing information to the County and other stakeholders and to the public regarding areas important to the long-term conservation of this species) have already been realized through the development and ongoing implementation of the County of San Diego Subarea Plan, by proposing these areas as critical habitat, and through the Service's public outreach efforts. The educational benefits of designating critical habitat within the County of San Diego Subarea Plan would be negligible.

Finally, critical habitat designation can also result in ancillary conservation benefits to the Riverside fairy shrimp by triggering additional review and conservation through other Federal and State laws. The primary State law that might be affected by critical habitat designation is CEQA. However, lands identified as critical habitat within the County of San Diego in Subunit 5d are required to be protected under the Subarea Plan. Thus, review of development proposals affecting lands identified as critical habitat for the Riverside fairy shrimp in Subunit 5d under CEQA by the County of San Diego already takes into account the importance of this habitat to the species and the protections required for the species and its habitat under the Subarea plan. The Federal law most likely to afford protection to designated Riverside fairy shrimp habitat is the CWA. Projects requiring a permit under the CWA, such as a fill permit under section 404 of the CWA, located within critical habitat or likely to affect critical habitat, would trigger section 7 consultation under the Act. However, as discussed above, we conclude the potential regulatory benefits resulting from designation of critical habitat would be negligible because, with regard to the Riverside fairy shrimp, the outcome of an adverse modification analysis under section 7(a)(2) of the Act would not differ materially from the outcome of a jeopardy analysis. Therefore, we conclude the ancillary benefits of designating habitat containing the physical or biological features essential to the conservation of the Riverside fairy shrimp within that portion of Subunit 5d covered by the County of San Diego Subarea Plan as critical habitat would be negligible.

For the reasons stated above, we consider section 7 consultations for critical habitat designation conducted under the standards required by the 9th Circuit Court in the *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service* decision would provide little conservation benefit and would be largely redundant with those benefits attributable to listing as well as those already provided by the County of San Diego Subarea Plan. Therefore, the benefits of inclusion are reduced because the regulatory benefits of designating those acres as Riverside fairy shrimp critical habitat, such as protection afforded through the section 7(a)(2) consultation process, are minimal. Additionally, the benefits of inclusion are reduced because the educational and ancillary benefits of designating lands identified as critical habitat for Riverside fairy shrimp covered by the County of San Diego Subarea Plan would be negligible because the location of lands identified as critical habitat for Riverside fairy shrimp for this species within the County of San Diego and the importance of conserving such habitat are well known and are already addressed through CEQA and through implementation of the County of San Diego Subarea Plan.

Benefits of Exclusion—County of San Diego Subarea Plan Under the San Diego MSCP

The benefits of excluding from designated critical habitat the approximately 23 ac (9 ha) of land within the County of San Diego Subarea Plan are significant. The benefits of excluding critical habitat covered by these plans include: (1) Continuance and strengthening of our effective working relationships with the County of San Diego and all MSCP jurisdictions and stakeholders to promote the conservation of the Riverside fairy shrimp and its habitat; (2) allowance for continued meaningful collaboration and cooperation in working toward recovering the Riverside fairy shrimp, including conservation benefits that might not otherwise occur; (3) encouragement of other jurisdictions with completed subarea plans under the MSCP to amend their plans to cover and benefit Riverside fairy shrimp and vernal pool habitat (such as the City of Poway Subarea Plan under the MSCP); (4) encouragement of other jurisdictions to complete subarea plans under the MSCP (including the City of Santee) to cover and benefit Riverside fairy shrimp and vernal pool habitat; (5) encouragement for the City of San Diego to complete its draft vernal pool management plan; and (6) encouragement of additional HCP and other conservation plan development in the future on other private lands that include Riverside fairy shrimp and other federally listed species.

We have developed close partnerships with the County of San Diego, and several other stakeholders, and the protections and management provided for the Riverside fairy shrimp and its habitat are consistent with statutory mandates under section 7 of the Act to avoid destruction or adverse modification of critical habitat. Furthermore, this plan goes beyond the statutory mandate by requiring active management of the portion of Subunit 5d covered by the County of San Diego Subarea Plan and within the hardline reserves (6 ac (2 ha)). By excluding the approximately 23 ac (9 ha) of land covered by the County of San Diego Subarea Plan from critical habitat designation, we are eliminating a redundant layer of regulatory review for the approved Otay Ranch Specific Plan under the County of San Diego Subarea Plan and encouraging new voluntary partnerships with other landowners and jurisdictions to protect the Riverside fairy shrimp and other listed species. As discussed above, the prospect of potentially avoiding a future designation of critical habitat provides a meaningful incentive to plan proponents to extend protections to endangered and threatened species and their habitats under a habitat conservation plan. Achieving comprehensive landscape-level protection for listed species, particularly rare vernal pool species such as Riverside fairy shrimp through their inclusion in regional conservation plans, provides a key conservation benefit for such species. Our ongoing partnerships with the county of San Diego and the regional MSCP participants, and the landscape-level multiple species conservation planning efforts they promote, are essential to achieve long-term conservation of Riverside fairy shrimp.

As noted in the *Benefits of Exclusion—Orange County Southern Subregion HCP* and *Benefits of Exclusion—Western Riverside County*

MSHCP sections above, some HCP permittees have expressed the view that critical habitat designation of lands covered by an HCP devalues the conservation efforts of plan proponents and the partnerships fostered through the development and implementation of the plans, and would discourage development of additional HCPs and other conservation plans in the future. Where an existing HCP provides protection for a species and its essential habitat within the plan area, the benefits of preserving existing partnerships by excluding the covered lands from critical habitat are most significant. Under these circumstances, excluding lands owned by or under the jurisdiction of the permittees of an HCP promotes positive working relationships and eliminates impacts to existing and future partnerships while encouraging development of additional HCPs for other species.

Large-scale HCPs, such as the regional MSCP and County of San Diego Subarea Plan issued under its framework, take many years to develop, and foster a strategic, ecosystem-based approach to habitat conservation planning by addressing conservation issues through a coordinated approach. If, instead, local jurisdictions were to require landowners to individually obtain ITPs under section 10 of the Act, the conservation likely to result would be uncoordinated, patchy, and less likely to achieve listed species recovery as conservation measures would be determined on a project-by-project basis instead of on a comprehensive, landscape-level scale. To avoid that outcome, we are committed to fostering partnerships with local jurisdictions to encourage the development of regional HCPs that afford proactive landscape-level conservation for multiple species. We conclude that the exclusion from critical habitat designation of lands identified as critical habitat for the Riverside fairy shrimp in Subunit 5d within the County of San Diego Subarea Plan will result in significant partnership benefits that we conclude will result in greater protection for the Riverside fairy shrimp and its habitat and also other listed species and their habitats.

Benefits of Exclusion Outweigh the Benefits of Inclusion—County of San Diego Subarea Plan Under the San Diego MSCP

We reviewed and evaluated the exclusion of approximately 23 ac (9 ha) of land within the boundaries of the County of San Diego Subarea Plan from our revised designation of critical habitat, and we determined the benefits of excluding these lands outweigh the benefits of including them. The benefits of including these lands in the designation are reduced because the regulatory, educational, and ancillary benefits that would result from critical habitat designation are almost entirely redundant with the regulatory, educational, and ancillary benefits already afforded through the County of San Diego Subarea Plan and under State and Federal law. In contrast to the reduced benefits of inclusion, the benefits of excluding lands covered by the County of San Diego Subarea Plan from critical habitat designation are significant. Exclusion of these lands will help preserve the partnerships we developed with local jurisdictions and project proponents through the development and ongoing implementation of the MSCP and the County of San Diego Subarea Plan, and aid in fostering future partnerships for the benefit of listed species. Our partnership with the County of San Diego has already resulted in significant benefits to listed species and vernal pool habitat; based on this track record of success, we expect that this meaningful partnership will continue into the future.

Designation of lands covered by the County of San Diego Subarea Plan may discourage other partners from seeking, amending, or completing subarea plans under the MSCP framework or from pursuing other HCPs that cover the Riverside fairy shrimp and other listed vernal pool species. Designation of critical habitat does not require that management or recovery actions take place on the lands included in the designation. The County of San Diego Subarea Plan will provide significant protection of the Riverside fairy shrimp and its habitat, and help achieve recovery of this species through habitat enhancement and restoration, functional connections to adjoining habitat, and species monitoring efforts. Additional HCPs or other species-habitat plans potentially fostered by this exclusion would also help to recover this and other federally listed species. Therefore, in consideration of the relevant impact to current and future partnerships, as summarized in the *Benefits of Exclusion—County of San Diego Subarea Plan under the San Diego MSCP* section above, we determine the significant benefits of exclusion outweigh the minor benefits of critical habitat designation.

Exclusion Will Not Result in Extinction of the Species—County of San Diego Subarea Plan Under the San Diego MSCP

We determine that the exclusion of 23 ac (9 ha) of land in Subunit 5d within the boundaries of the County of San Diego Subarea Plan from the designation of critical habitat for the Riverside fairy shrimp will not result in extinction of the species. Proposed actions that affect waters of the United States as defined under the CWA, which in many cases include vernal pools occupied by Riverside fairy shrimp, will continue to be subject consultation under section 7(a)(2) of the Act and to the duty to avoid jeopardy to the species. The protection provided by the County of San Diego Subarea Plan also provides assurances that this species will not go extinct as a result of excluding these lands from the critical habitat designation.

Therefore, the Secretary is exercising his discretion to exclude 23 ac (9 ha) of land within the boundaries of the County of San Diego Subarea Plan from this final critical habitat designation.

Summary of Comments and Recommendations

We requested written comments from the public on the proposed designation of revised critical habitat for Riverside fairy shrimp during two comment periods. The first comment period associated with the publication of the proposed rule (76 FR 31686) opened on June 1, 2011, and closed on August 1, 2011. We also requested comments on the proposed critical habitat designation and associated DEA during a comment period that opened March 1, 2012, and closed on April 2, 2012 (77 FR 12543). We published a notice of the proposed rulemaking in local newspapers on June 6, 2011. We did not receive any requests for a public hearing. We also contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties and invited them to comment on the proposed rule and DEA during these comment periods.

During the first comment period, we received five comment letters directly addressing the proposed critical habitat designation. During the second comment period, we received one comment letter addressing the proposed critical habitat designation or the DEA. All substantive information provided during the comment periods has either been incorporated directly into this final determination or is addressed below. Comments we received were grouped into two general issues specifically relating to the proposed critical habitat

designation for Riverside fairy shrimp, and are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Review

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from four species experts in invertebrate biology, freshwater crustaceans and fairy shrimp. These reviewers are also experts in vernal pool habitat in southern California, and conservation biology principles. We received responses from all four of the peer reviewers.

We reviewed all peer reviewer comments for substantive issues and new information regarding critical habitat for Riverside fairy shrimp. In general, the peer reviewers welcomed the expanded critical habitat and the conservation of more pools, but disagreed with the exclusion of lands within HCPs and the exemption of military lands. The peer reviewers provided additional information on Riverside fairy shrimp ecology and vernal pool ecology, including information on climate change. The reviewers also provided clarification and suggestions to improve the final critical habitat rule. Peer reviewer comments are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Reviewer Comments

Comments on Riverside Fairy Shrimp Biology

(1) *Comment:* One peer reviewer agreed that maintaining natural levels of connectivity, which provide for gene flow, is important for the persistence of Riverside fairy shrimp, but noted that both unnaturally low and unnaturally high levels of connectivity are undesirable. The reviewer noted that unnaturally high levels of connectivity could result from recreational activities, such as bikers or OHVs, thus transferring Riverside fairy shrimp between distant pools and disrupting locally adapted populations.

Our Response: We agree with the peer reviewer that both too little and too much connectivity, and thus gene flow, are undesirable. We acknowledge that humans can impact Riverside fairy shrimp genetic diversity through undesirable increases in gene flow, and that these artificial increases in gene flow can impact locally adapted genetic conditions and decrease the fitness of vernal pool populations.

(2) *Comment:* Two peer reviewers appreciated the inclusion of a discussion about the importance of functional hydrology to the Riverside fairy shrimp and its habitat within the critical habitat unit descriptions and the PCEs. One reviewer noted that due to this complexity, management that addresses individual pools is not as likely to be as successful as management at the watershed level.

Our Response: We appreciate the peer reviewers' critical review and agree that management at the watershed level is the most likely to be successful in the conservation and recovery of the Riverside fairy shrimp. We have considered functional hydrology in previous documents addressing Riverside fairy shrimp conservation. The 1998 Recovery Plan addressing vernal pool species, including Riverside fairy shrimp, takes into account the importance of functional hydrology to Riverside fairy shrimp and designates entire pool complexes rather than individual vernal pools (Service 1998a, pp. 38–39). This final revised critical habitat rule includes functional hydrology in PCE 2, which requires ''intermixed wetland and upland habitats that function as the local watershed, including topographic features characterized by mounds, swales, and low-lying depressions within a matrix of upland habitat that result in intermittently flowing surface and subsurface water in swales, drainages, and pools described in PCE 1.''

(3) *Comment:* One peer reviewer noted that, though our description of critical habitat states that units include vernal pool networks and watersheds, the maps within the proposed rule do not show those features. The peer reviewer recommended including those features in the maps so that their inclusion could be verified.

Our Response: The printing standards of the **Federal Register** are not compatible with topographical maps or other detailed features that would show vernal pool networks and watersheds. However, the GIS files we used to delineate critical habitat are available by request from the Carlsbad Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). The shapefiles can be laid over other layers (aerial photography, roads) for users to view the vernal pool networks and watersheds.

(4) Three peer reviewers had comments on genetic aspects of Riverside fairy shrimp ecology. The reviewers noted that genetic variation in Riverside fairy shrimp is lower than for other *Streptocephalus* species, and that untested pools may host unique genetic diversity. The reviewers concluded that maintaining genetic variation is important for the viability of the species, and that no genetic diversity is expendable.

Our Response: We appreciate the peer reviewers' critical review, and agree that genetic diversity is crucial to the continued viability of the Riverside fairy shrimp. As described in our *Criteria Used To Identify Critical Habitat* section, genetic diversity was one of the main criteria used in creating critical habitat units. Our final critical habitat designation provides for the preservation of existing Riverside fairy shrimp genetic diversity across the range of the species and makes use of the best scientific and commercial data available.

(5) *Comment:* One peer reviewer stated that the proposed rule overstated the longevity and durability of Riverside fairy shrimp cysts. The reviewer noted that cysts, particularly those that are salvaged from vernal pools and placed in storage, can be crushed or destroyed by disease.

Our Response: We appreciate the peer reviewer's critical review. We did not intend for our text to imply that cysts were indestructible, and we agree with the peer reviewer that cysts can be vulnerable to factors such as crushing, disease, or aging.

(6) *Comment:* One peer reviewer stated that the definition of haplotype given in the proposed rule is confusing, and that haplotype is better defined as ''a unique copy or form of a sequenced gene region.''

Our Response: We appreciate the peer reviewer's critical review. We agree that this is a clearer definition, and have made use of it in this final rule.

(7) *Comment:* Two commenters stated that many of the pools currently occupied were also occupied at the time of listing, and that the increase of known occupied pools was due to the increase of survey efforts rather than newly colonized pools.

Our Response: We agree with the peer reviewers' assessment, and in the proposed revised rule published on June 1, 2011 (76 FR 31686), we proposed all but one subunit under section 3(5)(A)(i) of the Act. All of these subunits are within the known geographical area occupied by the species at the time of listing. However, because we lack definitive evidence of their occupancy at the time of listing, which under *Otay Mesa* could disqualify the areas from designation under section 3(5)(A)(i) of the Act, we alternatively identify these areas as meeting the definition of critical habitat under section 3(5)(A)(ii) of the Act. We identify them as such to make clear that we consider these

specific areas to be essential for the conservation of Riverside fairy shrimp, notwithstanding the absence of surveys confirming the presence of Riverside fairy shrimp at the time of listing. As described in the *Criteria Used to Identify Critical Habitat* section above, a designation limited to areas known to be occupied at the time of listing would be inadequate to conserve the species. See the *Criteria Used To Identify Critical Habitat* section above for more information on our designation of critical habitat units, and see Table 3 for details of the units designated as final critical habitat or excluded under section 4(b)(2) of the Act.

(8) *Comment:* One peer reviewer offered detailed feedback on scientific aspects of our *Species Description, Habitat, Life History,* and *New Information Specific to Riverside Fairy Shrimp* sections of the proposed rule. The suggested changes included aspects of vernal pool characteristics that support Riverside fairy shrimp, cyst bank dynamics, and vernal pool ecology specific to southern California.

Our Response: We appreciate the peer reviewer's thorough review of our proposed revised critical habitat rule, and agree with all the suggested changes. However, as this final revised critical habitat rule does not include these sections, the suggested changes are not specifically reflected in this final revised critical habitat rule. We will, however, make use of the updated information in future actions related to the Riverside fairy shrimp.

(9) *Comment:* One peer reviewer stated that our description of red-color cercopods as useful to distinguish between other fairy shrimp in the genus *Streptocephalus* was misleading. The peer reviewer noted that, ''While a red tail is a character not seen in other genera in the area, it is not a useful character in distinguishing among species within the genus *Streptocephalus.*''

Our Response: The reference by Eng *et al.* that we quoted in the proposed rule (77 FR 31686) specifically states, ''both living male and female *S. woottoni* have the red color of the cercopods covering the ninth and 30–40 percent of the eighth abdominal segments. No red extends onto the abdominal segments in living *S. seali* of either sex'' (Eng *et al.* 1990, pp. 358–359). We had intended for our statement in the proposed rule to specifically refer to genera in the area, in which, as the peer reviewer notes, this is a useful distinguishing characteristic. However, we agree with the peer reviewer that the characteristic is not useful with other non-local *Streptocephalus* species, and we will be more specific when using this reference in the future.

(10) *Comment:* One reviewer suggested that the Service should conduct a long-term viability analysis of the Riverside fairy shrimp that incorporates GIS modeling, field studies, and species requirements.

Our Response: We thank the peer reviewer for the suggestion and will consider it in our next 5-year review and future recovery planning efforts for the Riverside fairy shrimp.

(11) *Comment:* One peer reviewer requested that we consider the ecosystem supporting Riverside fairy shrimp in our future actions regarding the species. The reviewer noted that the Riverside fairy shrimp is part of a complex food web, not all of which is considered in actions that address Riverside fairy shrimp conservation.

Our Response: We concur with the peer reviewer that it is crucial to consider the entire vernal pool ecosystem in conserving Riverside fairy shrimp. However, we did not explicitly focus on an ecosystem approach in this final revised critical habitat rule. A critical habitat designation is a regulatory action that identifies specific areas within the geographical area occupied by the species at the time of listing on which are found those physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection, and areas outside the geographical area occupied at the time of listing that are determined to be essential for the conservation of the species. In the 1998 Vernal Pool Recovery Plan, we took an ecosystem-centered approach to the conservation of Riverside fairy shrimp. A recovery plan (and the associated recovery goals and objectives) is a guidance document developed in cooperation with partners, which provides a roadmap with detailed site-specific management actions to help conserve listed species and their ecosystems. We will continue to consider the entire vernal pool ecosystem in developing future recovery actions for the Riverside fairy shrimp and recommendations in future 5-year reviews.

(12) *Comment:* One peer reviewer noted that we had incorrectly cited a reference by Parsick (2002). The reviewer noted that Parsick analyzed the gut contents of San Diego fairy shrimp, not Riverside fairy shrimp.

Our Response: We appreciate the peer reviewer's critical review. We have reworded the sentence containing that reference to make clear that Parsick did not analyze the gut contents of Riverside fairy shrimp.

Comments on Critical Habitat, Exclusions, and Exemptions

(13) *Comment:* All four reviewers stressed the importance of maximizing critical habitat. The commenters reasoned that all suitable and potentially suitable habitat would be needed as critical habitat to fully recover the species. The commenters also reasoned that classifying all suitable areas as critical habitat would counter threats based on: (1) Limited habitat requirements; (2) low genetic variability; (3) previous population declines; and (4) stochastic or chance catastrophic events.

Our Response: We appreciate the peer reviewers' concern for the recovery of the Riverside fairy shrimp. Based on the best available scientific information, we have identified all habitat areas that we are able to determine meet the definition of critical habitat at this time. We have excluded certain areas covered by the Orange County Central-Coastal NCCP/HCP, the Orange County Southern Subregion HCP, the Western Riverside County MSHCP, City of Carlsbad HMP under the San Diego MHCP, County of San Diego Subarea Plan under the MSCP, and lands owned by DHS, where we have determined that the benefits of exclusion outweighs the benefits of inclusion within the critical habitat designation (see the Exclusions section above). In the case of each of the HCP exclusions, we concluded that the plan provides protection for the Riverside fairy shrimp and its habitat that contains the physical or biological features essential to the conservation of the species. In the case of the DHS exclusion, we excluded lands based on national security concerns. As required by section 4(a)(3)(B)(i) of the Act, we have also exempted certain military lands from critical habitat that are covered by approved INRMPs that provide a benefit to Riverside fairy shrimp (see the *Application of Section 4(a)(3) of the Act* section above). Nevertheless, our final critical habitat designation still includes a wide variety of vernal pool habitat. With the inclusion of diverse vernal pool habitat types across the range of the species, our critical habitat designation addresses the threats outlined by the reviewers. The designation addresses these threats through inclusion of a variety of vernal pool habitat types, which assists the species in buffering against catastrophic events, and through inclusion of lesser known occupied areas to target preservation for declining populations

and areas with unique genetic variability.

We recognize that the designation of critical habitat may not include all of the habitat that may eventually be determined to be necessary for the recovery of the Riverside fairy shrimp. Critical habitat designations do not signal that habitat outside the designation is unimportant or may not contribute to recovery. Areas outside the critical habitat designation will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act and regulatory protections afforded by the section 7(a)(2) jeopardy standard and the prohibitions of section 9 of the Act, if actions occurring in these areas may affect the Riverside fairy shrimp. These protections and conservation tools will continue to contribute to recovery of this species.

(14) *Comment:* Two peer reviewers recommended designating both a wide variety of types of vernal pool habitats and upland habitat surrounding vernal pools. The reviewers suggested that preserving a diverse range of habitats could help to buffer the Riverside fairy shrimp against the possible unknown future changes due to climate change. One reviewer added that maintaining vernal pools with connectivity in natural watersheds could help Riverside fairy shrimp survive better than if they were in isolated pools. One reviewer also noted that preserving upland habitat as critical habitat could alter the water chemistry and ponding depth in pools that currently possess the features that support the Riverside fairy shrimp.

Our Response: We fully agree with the peer reviewers that it is essential to preserve a diverse array of vernal pool habitat. As we stated in our *Criteria Used To Identify Critical Habitat* section above, by protecting a variety of habitats throughout the species' current and historical range, we increase the probability that the species can adjust in the future to various limiting factors that may affect the population. Preserving this wide array of habitat types will also help to buffer against the uncertain and complex future effects of climate change. We also concur that preserving upland habitat is necessary to preserve the functional hydrology that supports Riverside fairy shrimp. This idea is reflected in PCE 2 for Riverside fairy shrimp critical habitat, which requires a mixture of ephemeral and wetland habitats as necessary to support the Riverside fairy shrimp. We conclude that PCE 2 and our criteria used to identify critical habitat have resulted in the designation of a diverse array of vernal pool habitat (see unit descriptions in the Final Critical Habitat Designation section above for further description of the types of vernal pool habitat that are designated as critical habitat).

We also agree that it is important to preserve upland habitat and watersheds associated with vernal pool complexes, and that the loss of those features could detrimentally alter water chemistry and ponding depth. In PCE 2, we require ''intermixed wetland and upland habitats that function as the local watershed, including topographic features characterized by mounds, swales, and low-lying depressions within a matrix of upland habitat that result in intermittently flowing surface and subsurface water in swales, drainages, and pools described in PCE 1.'' We conclude that, with the PCEs, we have preserved upland habitat and watersheds associated with vernal pools that support the physical or biological features necessary for the conservation of the Riverside fairy shrimp.

(15) *Comment:* Three peer reviewers expressed strong concern about exemption of military lands from the final critical habitat designation. One of the three peer reviewers listed several specific concerns with base activities affecting Riverside fairy shrimp: (1) OHVs frequently impact vernal pools, pulverize cysts, and allow invasion of nonnative species; (2) large numbers of pools are slated to be developed for reasons not having to do with national security; (3) military staff are not taking the requirement for management seriously; and (4) there are too many populations on military property to warrant exemption from critical habitat. The peer reviewer concluded that, with the amount of area excluded, continued military activities could potentially jeopardize the continued existence of the Riverside fairy shrimp.

Our Response: We appreciate the peer reviewers' concerns about the ongoing conservation of the Riverside fairy shrimp. In our analysis of the INRMPs provided by MCB Camp Pendleton and MCAS Miramar, we found that these plans provide considerable conservation benefits to the Riverside fairy shrimp and its habitat. These conservation measures are typically not addressed through a critical habitat designation, which is a statutory prohibition on destruction or adverse modification of critical habitat.

Section 4(a)(3)(B)(i) of the Act describes exemptions from critical habitat that apply to DOD land. The Secretary has determined that the INRMPs for MCB Camp Pendleton and MCAS Miramar provide a benefit to the Riverside fairy shrimp, and that the lands they cover are therefore exempt from critical habitat designation. More detail on our rationale is presented in the *Application of Section 4(a)(3) of the Act* section above.

We respectfully disagree with the peer reviewer that staff at MCB Camp Pendleton do not take their requirement for management seriously. MCB Camp Pendleton consults with the Service for all impacts to vernal pool habitat, including unplanned impacts sustained during training activities. In the case of any unplanned impacts, MCB Camp Pendleton consults with us retroactively on those impacts and works to minimize future impacts to vernal pool habitat. In regard to the commenter's assertion that pools are planned for development for reasons other than national security, the Service continues to review all project proposals through the section 7 process, and will ensure that all development carried out does not jeopardize the continued existence of the Riverside fairy shrimp.

We also disagree that exempting these areas from critical habitat will jeopardize the continued existence of the Riverside fairy shrimp. Sections 4(a)(3)(B)(ii) and (iii) of the Act note that agencies granted an exemption must still consult under section 7(a)(2) of the Act, and that the DOD must comply with section 9, ''including the prohibition preventing extinction and taking of endangered species and threatened species.'' Thus, although military bases can be exempt from critical habitat, the Act has mechanisms in place to prevent extinction. Therefore, we find that exempting military lands at MCB Camp Pendleton and MCAS Miramar under section 4(a)(3)(B)(i) of the Act is justified.

(16) *Comment:* Two peer reviewers expressed the belief that lands covered by HCPs should not be excluded from critical habitat because HCPs do not offer the same levels of protection as critical habitat.

Our Response: Critical habitat designation and HCPs offer distinct benefits to species. The primary benefit of a critical habitat designation derives from the requirement under section 7(a)(2) of the Act that Federal agencies consult with the Service to insure that any action authorized, funded, or carried out by such agencies does not destroy or adversely modify critical habitat. Thus, critical habitat designation precludes Federal action if it will destroy or adversely modify critical habitat, but designation does not require any affirmative action on a Federal agency's part to protect, enhance, or manage critical habitat. On the other hand, HCPs typically offer

landscape-level conservation, monitoring, and management of covered species' habitat. The Orange County Central-Coastal NCCP/HCP, Orange County Southern Subregion HCP, Western Riverside County MSHCP, Carlsbad HMP under the San Diego MHCP, and County of San Diego Subarea Plan under the MSCP all provide ongoing protection for the Riverside fairy shrimp and its habitat that will benefit the long-term conservation of the species, as well as providing strong partnerships to promote future conservation of the Riverside fairy shrimp and vernal pool habitat.

Based on the benefits to the Riverside fairy shrimp and its habitat that are provided by these habitat conservation plans, we chose to conduct exclusion analyses to compare the benefits of excluding areas covered by these existing conservation plans with the benefits of including those areas within this final revised critical habitat designation. We note that a decision to exclude an area is not based on the difference between the protection provided by critical habitat designation and an HCP, but takes into account the redundancy of protections provided by an HCP with those provided by critical habitat designation. Conservation benefits provided by an existing HCP are not considered a benefit of exclusion because they would remain in place regardless of critical habitat designation; however, the conservation provided under an HCP does minimize the benefits of inclusion to the extent that the protection that would result from critical habitat designation is redundant with the protection already provided under an HCP. In the case of the identified HCPs, we concluded that the protection for habitat containing physical or biological features essential to the conservation of the Riverside fairy shrimp that is likely to result from designation of lands covered by the HCPs is almost entirely redundant with the protection for such habitat provided by the HCPs, thus minimizing the conservation benefit of designation.

In the case of the HCPs discussed above, we also weighed other benefits of designation against the potential negative effects of designating areas covered by the HCPs on future partnerships and the development of new HCPs. We concluded that designating critical habitat within these HCPs could have a detrimental effect on our conservation partnerships (see the *Benefits of Exclusion* sections above). Weighing the significant conservation benefits of excluding lands identified as critical habitat for the Riverside fairy shrimp that are covered by the Orange County Central-Coastal NCCP/HCP, Orange County Southern Subregion HCP, Western Riverside County MSHCP, Carlsbad HMP under the San Diego MHCP, and County of San Diego Subarea Plan under the MSCP against the minimal and largely redundant benefits of designating such habitat, we determined that the benefits of exclusion outweigh the benefits of inclusion. The Secretary is therefore exercising his discretion to exclude lands identified as critical habitat for the Riverside fairy shrimp that are covered by these HCPs (see Table 5).

(17) *Comment:* One peer reviewer disagreed with the exclusions we were considering as described in the proposed revised critical habitat rule. The reviewer stated that all conservation plans (HCPs) should be critically analyzed before deciding to exclude lands within their boundaries. The commenter cited as an example the new vernal pool plan being developed by the City of San Diego due to the original plan being struck down by the courts.

Our Response: Our decision to exclude areas from critical habitat does not take place in the proposed rule, but in the final rule. Section 4(b)(2) of the Act authorizes the Secretary to designate critical habitat after taking into consideration the economic impacts, national security impacts, and any other relevant impacts of specifying any particular area as critical habitat. An area may be excluded from critical habitat if it is determined that the benefits of exclusion outweigh the benefits of designating a particular area as critical habitat, unless the failure to designate will result in the extinction of the species. Before we made the decision to exclude any area from critical habitat, we carefully weighed the benefits of exclusion of an area from critical habitat versus the benefits of inclusion of an area in critical habitat. As described in comment (16), we concluded that the benefits of exclusion outweigh the benefits of inclusion for the Orange County Central-Coastal NCCP/HCP, Orange County Southern Subregion HCP, Western Riverside County MSHCP, Carlsbad HMP under the San Diego MHCP, and County of San Diego Subarea Plan under the MSCP. We conclude that the exclusions made in this final rule are legally supported under section 4(b)(2) of the Act and scientifically justified. Our detailed rationale for our decision is provided in the *Land and Resource Management Plans, Conservation Plans, or Agreements Based on Conservation Partnerships* section above.

Comments From Federal Agencies

(18) *Comment:* A representative from the U.S. Marine Corps noted that we had incorrectly identified the pool on MCAS Miramar that supports the Riverside fairy shrimp as the ''AA 1–7, 9–13 East Miramar (Pool 10) (AA1 East),'' and that the pool is more appropriately identified as ''East Miramar (AA1 South+ Group)(Pool 4786; previously Pool 12).''

Our Response: We appreciate the commenter's feedback, and we have made the appropriate changes throughout this rule.

(19) *Comment:* A commenter emphasized that the basin supporting the Riverside fairy shrimp on MCAS Miramar is not a naturally occurring vernal pool, but one ''created by construction of an earthen dam across a small ephemeral streambed, and associated excavations, many decades in the past,'' and that naturally occurring vernal pools on MCAS Miramar do not hold water long enough to support the Riverside fairy shrimp.

Our Response: We acknowledge that the vernal pool on MCAS Miramar that supports the Riverside fairy shrimp was created by construction activities many decades ago. However, we still believe that the pool contains the physical or biological features essential to the conservation of Riverside fairy shrimp. While we believe that this area contains the physical or biological features essential to the conservation of the species, we have also determined that it is exempt from critical habitat under section 4(a)(3)(B)(i) of the Act because the INRMP at MCAS Miramar provides conservation benefits to the species.

(20) *Comment:* The commenter agreed with the Service's exemptions of lands under the management of MCAS Miramar and MCB Camp Pendleton, and reiterated that the INRMPs at both stations provide for conservation and management of Riverside fairy shrimp habitat.

Our Response: We concur that the INRMPs at MCB Camp Pendleton and MCAS Miramar continue to provide conservation benefits to the species and its habitat. Details of our rationale to exempt MCB Camp Pendleton and MCAS Miramar from critical habitat are given in the Exemptions section above. We look forward to working with the Marine Corps to further conservation and management of the Riverside fairy shrimp and other listed and sensitive species.

(21) *Comment:* The commenter concurred with the Service's assessment that the San Mateo and Wire Mountain areas on MCB Camp Pendleton no

longer meet the definition of critical habitat. The commenter asserted that staff at the Base will continue to work with the Service on Riverside fairy shrimp conservation.

Our Response: We appreciate the Marine Corps' continued efforts to conserve the Riverside fairy shrimp and its habitat.

(22) *Comment:* The DHS has requested exclusion for national security reasons of lands owned by DHS on which activities related to the operation and maintenance of the Border Infrastructure System are carried out. These lands are composed of all of Subunit 5(b) ((29 ac) (12 ha)) and a portion of Subunit 5h ((11 ac) (4 ha)). The Department states that the lands should be excluded because: (1) The same areas were excluded in the previous 2005 critical habitat rule; (2) though the situation at the border has changed since the 2005 rule, there are still ongoing activities that relate to national security interests; and (3) all areas are either already disturbed, do not contain the PCEs, or have been set aside for conservation.

Our Response: We appreciate the commenter's information regarding ongoing national security issues. As described in our response to comment (17), section 4(b)(2) of the Act authorizes the Secretary to designate critical habitat after taking into consideration the economic impacts, national security impacts, and any other relevant impacts of specifying any particular area as critical habitat. Before we make the decision to exclude any area from critical habitat, we carefully weigh the benefits of exclusion of an area from critical habitat versus the benefits of inclusion of the area in critical habitat. As described in our ''Exclusions Based on National Security Impacts'' section above, we have determined that the benefits of excluding the DHS owned lands outweigh the benefits of inclusion, and that such exclusion will not result in extinction of the species. Based on that discussion, the Secretary is exercising his discretion to exclude all lands owned by DHS. We believe that this exclusion is consistent with the analysis in our 2005 final revised critical habitat rule (70 FR 19154; April 12, 2005).

We respectfully disagree with the commenter that the DHS lands identified as essential do not contain the PCEs. In an earlier proposed revised critical habitat rule published on April 27, 2004 (69 FR 23024), we did identify some lands as critical habitat that we subsequently removed in the final revised rule (70 FR 19154; April 12, 2005) due to lack of PCEs from construction of the BIS. The removed areas were not included in our 2011 proposed critical habitat designation, because they do not contain the PCEs. As described under *Criteria Used to Identify Critical Habitat* section above, we carefully assessed all areas occupied by Riverside fairy shrimp, and only proposed those areas as critical habitat that contain the PCEs. We do acknowledge that all lands in Subunit 5b (29 ac (12 ha)) have been set aside for conservation, and took that factor into consideration in our exclusion analysis.

(23) *Comment:* The commenter requested that we more clearly define the role of DHS. The commenter suggested adding the language, ''U.S. Customs and Border Protection is tasked with maintaining National Security interests along the nation's international borders. As such, CBP activities may qualify for exclusions under section 4(b)(2) of the act.''

Our Response: We acknowledge the important role of U.S. Customs and Border Protection in protecting our nation's international borders, including operation and maintenance of the BIS in the *Exclusions Based on National Security Impact* section above.

(24) *Comment:* The commenter requested an explanation of how road maintenance could impact the Riverside fairy shrimp. The commenter stated that we had not provided further information on how road maintenance could impact Riverside fairy shrimp critical habitat, and stated that if there was no such information, we should replace the term ''maintenance'' with ''widening or construction of roadways.''

Our Response: Ongoing road maintenance may impact Riverside fairy shrimp habitat. These activities could potentially adversely affect the habitat and physical or biological features essential to the Riverside fairy shrimp by damaging, disturbing, and altering soil composition through direct impacts, increased erosion, and increased nutrient content (PCEs 1d, 3). Additionally, road maintenance may lead to runoff that could alter the water quality and natural hydrology of vernal pools through changes in pool characteristics (Rodgers 2000, pp. 247–248), including interfering with ponding depths and duration necessary to support the Riverside fairy shrimp. Therefore, we consider road maintenance as an activity that may adversely affect or modify critical habitat. In order to make our definition of road maintenance more clear, we have added clarification of road maintenance activities that could adversely affect critical habitat to include road construction, widening, and grading in the *Application of the ''Adverse Modification'' Standard* section above.

(25) *Comment:* The commenter requested that we provide a clearer definition for OHV, and asked if it was synonymous with off-road vehicle. The commenter also stated that the use of the term ''roads'' seemed to apply to paved highways in some cases and unpaved roads in others. The commenter requested we clarify these terms, particularly as off-road impacts could have a significant effect on DHS border patrol operations, and requested that the term ''roads'' should include all roads, and not just paved roads.

Our Response: We intended the term ''off-highway vehicle'' to refer to any and all vehicles capable of travelling on dirt roads or across the countryside; this may include trucks or non-motorized vehicles not able to use highways. We have changed all instances off ''off-road vehicle'' to OHV in order to avoid confusion.

In reference to the commenter's question about roads, the term ''roads'' refers to all roads, including both paved roads and unpaved dirt roads.

Comments from Local Agencies

(26) *Comment:* One commenter stated that lands covered by the Orange County Southern Subregion HCP should be excluded from critical habitat because: (1) The plan is complete and provides a conservation benefit to the species; (2) the plan provides assurances that the conservation strategies and actions will be implemented and effective; (3) the Service has stated its intention to exclude habitat within this plan area from any revision to an existing critical habitat designation as long as the Conservation Strategy is being properly implemented; and (4) designation of critical habitat within Subarea 1 will not provide educational benefits or improve CEQA review of local projects.

Our Response: The Secretary may exercise his discretion to exclude an area from critical habitat designation under section 4(b)(2) of the Act if he concludes that the benefits of excluding the area outweigh the benefits of its designation. Areas are not excluded based solely on the existence of management plans or other conservation measures; however, we acknowledge that the existence of a plan may reduce the benefits of inclusion of an area from critical habitat designation to the extent that the protections provided under the plan are redundant with conservation benefits of the critical habitat

designation. Thus, in some cases, the benefits of exclusion in the form of sustaining and encouraging partnerships that result in on-the-ground conservation of listed species may outweigh the incremental benefits of inclusion. We have weighed the benefits of exclusion against the benefits of inclusion for lands covered by the Orange County Southern Subregion HCP, and the Secretary is exercising his discretion to exclude all lands within the boundaries of the Orange County Southern Subregion HCP from this final critical habitat designation.

In regard to the commenter's point about educational benefits and impacts of critical habitat on CEQA analysis, we agree that negligible educational benefits would be realized by the designation of critical habitat. We also agree that review of development proposals affecting lands identified as critical habitat for the Riverside fairy shrimp under CEQA by Orange County already takes into account the importance of this habitat to the species and the protections required for the species and its habitat under the Subarea plan. Details of our rationale are given in our discussion of the Orange County Southern Subregion HCP under *Land and Resource Management Plans, Conservation Plans, or Agreements Based on Conservation Partnerships* above.

(27) *Comment:* One commenter believed that all lands covered by the Western Riverside County MSHCP should be excluded from critical habitat. The commenter stated that: (1) The Service has previously found the Western Riverside County MSHCP sufficient for the conservation and recovery of the Riverside fairy shrimp; (2) the Western Riverside County MSHCP contains a plan to conserve and manage the Riverside fairy shrimp that is currently being implemented; and (3) excluding lands covered by the Western Riverside County MSHCP from critical habitat fosters important conservation partnerships with local agencies.

Our Response: As we stated in comment 26 above, the Secretary can exercise his discretion to exclude an area from critical habitat under section 4(b)(2) of the Act if we conclude that the benefits of exclusion of the area outweigh the benefits of its inclusion. In this case, the Secretary's decision to exclude is consistent with previous critical habitat rules; however, the decision to exclude is not based on previous rulemakings, but on the exclusion analysis within this final revised critical habitat rule.

In regard to the commenter's point about the existing conservation and management plan, we reiterate that areas are not excluded based solely on the existence of management plans or other conservation measures; however, we acknowledge that the existence of a plan may reduce the benefits of inclusion of an area from critical habitat to the extent that the protections provided under the plan are redundant with conservation benefits of the critical habitat designation. Thus, in some cases the benefits of exclusion in the form of sustaining and encouraging partnerships that result in on-the-ground conservation of listed species may outweigh the incremental benefits of inclusion. In this case, we agree with the commenter that excluding areas covered by the Western Riverside County MSHCP will foster our partnership. We have weighed the benefits of exclusion against the benefits of inclusions for lands covered by the Western Riverside County MSHCP, and based on the discussion of the Western Riverside County MSHCP under *Land and Resource Management Plans, Conservation Plans, or Agreements Based on Conservation Partnerships,* the Secretary is exercising his discretion to exclude all lands within the boundaries of the Western Riverside County MSHCP from this final critical habitat designation.

(28) *Comment:* One commenter believed that lands from the Western Riverside County MSHCP should be excluded because the exclusion would be consistent with the Service's previous exclusions of land within the Western Riverside County MSHCP, including in the 2005 final revised critical habitat designation for Riverside fairy shrimp. The commenter stated that a different determination in this rule would violate the Act and regulations at 50 CFR 424.12(g) because conditions have not changed since the 2005 revised designation. Furthermore, the commenter stated that a designation of critical habitat is required only to the ''maximum extent prudent and determinable'' (based on regulations at 50 CFR 424.12(a)(1)), but would not be prudent when such designation is not beneficial to the species.

Our Response: Section 4(b)(2) of the Act requires us to make critical habitat determinations on the basis of the best available scientific data at the time the designation is made. Therefore, critical habitat determinations are made based on individual species biology and an individual weighing analysis, not on decisions made in previous critical habitat rules. Additionally, we do not agree that designating critical habitat would violate regulations at 50 CFR 424.12(g). The regulations state that ''Existing critical habitat may be revised according to procedures in this section as new data become available to the Secretary.'' As described in our *Criteria Used to Identify Critical Habitat* section above, in determining which areas meet the definition of critical habitat, we considered information including new survey reports; CDFG's CNDDB records; published peer-reviewed articles; unpublished papers and reports; and GIS data (such as species occurrences, soil data, land use, topography, and ownership maps), some of which has been published since the 2005 revised critical habitat designation. We also disagree with the commenter's assertion that designation of critical habitat for the Riverside fairy shrimp would not be beneficial.

However, as described in our discussion of the Western Riverside MSHCP under *Land and Resource Management Plans, Conservation Plans, or Agreements Based on Conservation Partnerships* and in the response to comment 27 above, we have determined that the benefits of excluding lands covered by the Western Riverside County MSHCP outweigh the benefits of including such lands. Therefore, we are excluding all lands within the boundaries of the Western Riverside County MSHCP from this final critical habitat designation.

Public Comments

(29) *Comment:* One commenter stated that Subunit 5c should not be designated as critical habitat because the Service lacks surveys proving occupancy of the subunit at the time of listing. The commenter concluded that the Service had not used the best available scientific information in making this decision.

Our Response: As required by section 4(b)(1)(A) of the Act, we used the best scientific and commercial data available to define areas that contain the physical or biological features necessary for the conservation of the Riverside fairy shrimp. As with many species, listing often results in greater efforts to conduct surveys, which may reveal a greater number of occurrences than were initially known. We determine that many additional occurrences, including Subunit 5c, were occupied at the time of listing but had not been identified due to lack of survey effort. We find occurrences documented since the 1993 listing do not represent an expansion of the species' distribution and range into previously unoccupied areas, but rather a better understanding of the historical distribution and range of the species (Service 2008, p. 9).

Because occurrences documented since listing are within relative proximity to existing, occupied, vernal pool habitat or within similar landscape types (for example, coastal terraces and mesas, inland valleys, inland mesas, and cismontane depressions) supporting ephemeral wetlands with occurrences that were known at the time of listing, it is reasonable to conclude, based on several life-history traits, that the Riverside fairy shrimp was present at the time of listing in these unsurveyed habitats. This subunit is known to be currently occupied; dry season surveys in 2011 by Busby Biological Services documented the presence of Riverside fairy shrimp cysts (Busby Biological Services 2011, Attachment 3). This subunit was first documented as occupied in 2000 (GIS ID 4). Subunit 5c contained the physical or biological features essential to the conservation of the species and the features known to support life-history characteristics of the Riverside fairy shrimp at the time of listing. Therefore, for the aforementioned reasons, although not ''documented'' to have been occupied at listing, we conclude this subunit was occupied at the time of listing, and that this rationale makes use of the best scientific and commercial information available.

Regardless, as stated in our March 1, 2012, publication (77 FR 12543), and in this final revised critical habitat rule, we are alternatively designating Subunit 5c under section 3(5)(A)(ii) of the Act because we consider this unit essential for the conservation of the Riverside fairy shrimp regardless of its occupancy status at listing, and conclude that a designation limited to areas known to be occupied at the time of listing would be inadequate to ensure the conservation of the species. We conclude that this approach also makes use of the best scientific and commercial information available.

(30) *Comment:* The commenter further stated that Subunit 5c does not contain the physical or biological features essential to the conservation of the Riverside fairy shrimp, and that it therefore does not meet the definition of critical habitat. The commenter stated that the pool is heavily disturbed by OHVs and cattle grazing, and that only a few surveys since the time of listing have detected the presence of Riverside fairy shrimp. The commenter added that in most years, the vernal pool does not hold water long enough to allow Riverside fairy shrimp to mature. The commenter stated that the infrequent presence of Riverside fairy shrimp may be due to transfer by human and animal traffic.

Our Response: As discussed in comment 29, the lack of surveys confirming Riverside fairy shrimp in a given year does not mean that a pool is not occupied. Cysts of Riverside fairy shrimp can persist—and be present—in the soil bank for many years before hatching. When mature, cysts can survive environmental conditions such as temperature extremes, the digestive tracts of animals, and years of desiccation, and still hatch under the appropriate environmental conditions (Pennak 1989, pp. 352–353; Fryer 1996, pp. 1–14; Eriksen and Belk 1999, p. 22). Indeed, as only small percentages of Riverside fairy shrimp cysts hatch in any given year, if the pool dries before the species is able to mature and reproduce, there are still many more cysts left in the soil that may hatch the next time the pool fills (Simovich and Hathaway 1997, p. 42). Even if the pool does not fill every year, the pool will still support Riverside fairy shrimp, and such infrequent fillings are a natural feature of the species' habitat (see PCE 1c) (Eriksen and Belk 1999, p. 105; Ripley *et al.* 2004, pp. 221–223). Cysts of other vernal pool fairy shrimp have been known to persist for up to 8 years in vernal pool soils, although anecdotal evidence states that cysts can persist even longer (Belk 1998, Table 1). Therefore, the presence of cysts in scattered years is typical of the life-history characteristics of the Riverside fairy shrimp.

We agree with the commenter that Riverside fairy shrimp are sometimes transferred by frequent vehicle use (Navy 2001, 2002, entire). However, Subunit 5c contains the physical or biological features essential to the conservation of the species including ephemeral wetland habitat (PCE 1), intermixed wetland and upland habitats that act as the local watershed (PCE 2), and topography and soils that support ponding during winter and spring months (PCE 3). As discussed in the *Criteria Used to Identify Critical Habitat* section above, the presence of these features, which currently support Riverside fairy shrimp in Subunit 5c, in combination with the life-history characteristics of Riverside fairy shrimp, render it likely that this subunit was occupied at the time of listing. Dry season surveys in 2011 confirmed the presence of Riverside fairy shrimp cysts in Subunit 5c (Busby Biological Surveys 2011). Subunit 5c is occupied irrespective of whether the cysts naturally occur in this area or if they arrived through OHV activity. Notwithstanding our conclusion that Subunit 5c meets the definition of critical habitat under section 3(5)(A)(i), we are alternatively designating this subunit under section 3(5)(A)(ii) because the area is essential for the conservation of the Riverside fairy shrimp regardless of its occupancy status at listing. See discussion in *Unit 5: San Diego Southern Coastal Mesas* and, specifically, the discussion in ''Subunit 5c: East Otay Mesa'' under Final Designation of Critical Habitat. We conclude that a designation limited to areas documented to be occupied at the time of listing would be inadequate to ensure the conservation of the species.

(31) *Comment:* One commenter questioned the amount of habitat designated for the Riverside fairy shrimp in Subunit 5c. The commenter stated that the pond is the only basin that could support the Riverside fairy shrimp in Subunit 5c, and it is not connected to any other vernal pool complexes in the area. The commenter also questioned how an artificial pond could be considered essential habitat and stated that it does not meet the definition of critical habitat.

Our Response: In drawing critical habitat units, we relied on the best available scientific information to define areas that contain the physical or biological features essential to the conservation of the Riverside fairy shrimp. We relied on survey reports, information from the CNDDB, and GIS mapping data, including topographical maps and aerial photographs.

We agree that not all portions of Subunit 5c are made up of vernal pool basins. Vernal pool basins are not the only PCE identified for the Riverside fairy shrimp. As described in our *Criteria Used to Identify Critical Habitat* section above, and in our response to Comments 2 and 14 above, Riverside fairy shrimp require intermixed wetland and upland habitats that function as the local watershed, including topographic features characterized by mounds, swales, and low-lying depressions. In the case of Subunit 5c, the subunit boundary captures a small stream as well as the downward slope and mima mound topography that make up the watershed associated with the occupied vernal pool (PCE 2). Subunit 5c contains the physical or biological features essential to conserve the Riverside fairy shrimp (see ''Subunit 5c: East Otay Mesa'' for more information), and this subunit is itself essential to the conservation of the species.

In regard to the commenter's assertion that a created pond could not provide the physical or biological features essential to the conservation of the species, as discussed in the Primary Constituent Elements for Riverside Fairy

Shrimp section above, multiple scientists have documented that both natural and created ponds can function as habitat for the Riverside fairy shrimp when they contain the appropriate physical or biological features (including soil characteristics and ponding duration) (Moran 1977, p. 155; Hathaway and Simovich 1996, p. 670; Service 1998a, p. 22). Subunit 5c contains characteristics, including the presence of mima mound topography and soils that support long-term ponding during winter and spring months and intermixed wetland and upland habitats that act as the local watershed, that are representative of Riverside fairy shrimp vernal pool habitat. The presence of these characteristics, which are shown on topographic maps created prior to the time of listing, further suggest that these elements which support the Riverside fairy shrimp have long been in place, even as the occurrence is now affected by human disturbance and OHV use. Additionally, the subunit is currently occupied by Riverside fairy shrimp. Habitat loss continues to be the greatest direct threat to Riverside fairy shrimp, coupled with the estimated loss of 90 to 97 percent of vernal pool habitat in southern California (Mattoni and Longcore 1997, pp. 71–73, 86–88; Bauder and McMillan 1998, p. 66; Keeler-Wolf *et al.* 1998, p. 10; Service 1998a, p. 45). As we indicated in the 1998 Recovery Plan, a key conservation goal for the Riverside fairy shrimp is protection of most of the remaining Riverside fairy shrimp occurrences (Service 1998a, p. 62). Given the historic and continued loss of habitat, and based on the best available scientific information available to us at this time, we have determined this subunit to be essential for the long-term conservation and recovery of the species (see ''Subunit 5c: East Otay Mesa'' section for more information).

(32) *Comment:* The commenter stated that the proposed development of a recycling center and landfill on Subunit 5c would provide benefits to the public in the form of jobs and San Diego County's need for increased landfill space. The commenter concluded that the subunit should be excluded for economic reasons, especially as the commenter believes that the Riverside fairy shrimp will not become extinct if the subunit is excluded.

Our Response: Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factors to use and how much weight to give to any factor.

The commenter suggested that Subunit 5c should be excluded for economic reasons. Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. We prepared a draft economic analysis (DEA) of the proposed critical habitat designation and related factors (Industrial Economics Inc. 2011, entire). The draft analysis, dated November 3, 2011, was made available for public review and comment for 30 days (77 FR 12543, March 1, 2012). Following the close of the comment period, a final analysis (dated August 30, 2012) of the potential economic effects of the designation was developed, taking into consideration the public comments we received and any new information (Industrial Economics Inc. 2012). Our economic analysis did not identify any disproportionate costs likely to result from the designation. Because this area is currently known to be occupied by Riverside fairy shrimp (see ''Subunit 5c: East Otay Mesa'' above and response to comment 29), consultation under section 7 of the Act would be required if the proposed landfill would affect waters of the United States under the CWA. Alternatively, if the project had no Federal nexus and would result in take of Riverside fairy shrimp, an incidental take permit under section 10 of the Act would be required. In either case, the costs associated with avoiding adverse modification of critical habitat are likely to mirror those necessary to avoid jeopardy to the species. Therefore, critical habitat designation is not likely to result in incremental costs other than minor administrative costs associated with consideration of critical habitat in the section 7 consultation. Additionally, the lands that make up Subunit 5c area are already identified as critical habitat for the Quino checkerspot butterfly; therefore, an adverse modification analysis would be required for the project, assuming the existence of a Federal nexus, regardless of this final revised critical habitat designation. Our economic analysis did not identify any disproportionate costs likely to result from the designation. Specifically, because we conclude that the designation of critical habitat would not meaningfully influence whether a landfill can be constructed in Subunit 5c as there are existing constraints on development of these lands due to the presence of Riverside fairy shrimp and the designation of Subunit 5c lands as Quino checkerspot critical habitat, we also conclude that the public benefits asserted by the commenter—the need for a new landfill and the jobs that would result from a landfill project—are not traceable to and would not be avoided by an exclusion of Subunit 5c from the designation. Therefore, the Secretary has declined to exercise his discretion to exclude any areas, including Subunit 5c, from this designation of critical habitat for Riverside fairy shrimp based on economic impacts or public benefits (for more information see ''Exclusions Based on Economic Impacts'' section above). See also Response to Comment 37.

Comments on Legal and Policy Issues Relating to Critical Habitat

(33) *Comment:* One commenter stated that the Service had failed to comply with the Regulatory Flexibility Act, as amended (RFA), because it did not draft an initial regulatory flexibility analysis (IRFA) at the time the proposed revised critical habitat rule was published. The commenter believes that the Service had no justifiable reason to delay the IRFA, and that postponing the analysis could harm small businesses that may be affected by the proposed rule. The commenter also stated that 30 days was an insufficient amount of time for small businesses to review the DEA and provide comments, and that the dual rulemaking provided an unnecessary burden on small entities that might wish to comment on both the proposed rule and the DEA.

Our Response: The Service complied with the RFA when designating critical habitat. The RFA requires the head of an agency to certify, at the time of the proposal, that a rulemaking will not have a significant impact on a substantial number of small business entities. If the agency cannot certify, then the RFA recommends conducting an IRFA. It is the Service's general practice to issue a proposed critical habitat rule followed by a subsequent **Federal Register** Notice (FRN) that announces the availability of the DEA. The DEA provides the substantive economic information to evaluate compliance with the RFA and other statutes and Executive Orders. In our subsequent FRN announcing the availability of the DEA, the Service provides the necessary certification

statement or, if it is unable to make such a certification, conducts an IRFA. In both circumstances, the public is provided a second opportunity to review and comment on the proposed rule and to review and comment on the accompanying DEA or IRFA. We do not agree that a 30 day public comment period, which is the typical duration for public comment periods under the Administrative Procedure Act, is insufficient to afford members of the public with a meaningful opportunity to submit comments on the DEA or imposes an unreasonable burden on small businesses. Because the second FRN announcing the availability of the DEA is part of the proposed rulemaking, the Service's practice complies with the RFA. Further, in conversations with the Office of Management and Budget (OMB) and the Small Business Administration's (SBA) Office of Advocacy, and following their recommendations, the Service identifies in our initial proposal, to the maximum extent practicable, which small business sectors may be affected by the rulemaking. This assists SBA and small business sectors to understand whether the proposed rulemaking may impact a particular sector and allows for more focused public review and comment.

The Service's current understanding of recent case law is that Federal agencies are only required to evaluate the potential impacts of rulemaking on those entities directly affected by the rulemaking; therefore, they are not required to evaluate the potential impacts to those entities not directly regulated. The designation of critical habitat for an endangered or threatened species only has a regulatory effect where a Federal action agency is involved in a particular action that may affect the designated critical habitat. Under these circumstances, only the Federal action agency is directly regulated by the designation, and, therefore, consistent with the Service's current interpretation of RFA and recent case law, the Service may limit its evaluation of the potential impacts to those identified for Federal action agencies. Under this interpretation, there is no requirement under the RFA to evaluate the potential impacts to entities not directly regulated, such as small businesses. However, Executive Orders 12866 and 13563 direct Federal agencies to assess costs and benefits of all available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consequently, it is the current practice of the Service to assess to the extent practicable these potential impacts if sufficient data are available, whether or not this analysis is believed by the Service to be strictly required by the RFA. In other words, while the effects analysis required under the RFA is limited to entities directly regulated by the rulemaking, the effects analysis under the Act, consistent with the EO regulatory analysis requirements, can take into consideration impacts to both directly and indirectly impacted entities, where practicable and reasonable. Further details are provided in the *Regulatory Flexibility Act (5 U.S.C. 601 et seq.*) and *Regulatory Planning and Review—Executive Orders 12866 and 13563* sections below.

(34) *Comment:* One commenter believed that previous court decisions in the Tenth Circuit Court require the Service to conduct a National Environmental Policy Act (NEPA) analysis prior to critical habitat designation.

Our Response: As we stated in the proposed rule, it is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses as defined by NEPA in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the 9th Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)). This action is outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit.

Comments Relating to the Draft Economic Analysis (DEA)

(35) *Comment:* One commenter stated that the DEA employs a flawed methodology because it employs the so-called baseline methodology, which, as the Tenth Circuit Court has noted, grossly underestimates the cost of designation. The commenter stated that the Service has flip-flopped on its method of conducting a DEA, and that the change seems arbitrary.

Our Response: As explained in chapter 2 of the DEA, the estimation of incremental impacts is consistent with direction provided by OMB to Federal agencies for the estimation of the costs and benefits of Federal regulations (see OMB, Circular A–4, 2003). It is also consistent with several recent court decisions, including *Cape Hatteras Access Preservation Alliance* v. *U.S. Department of the Interior,* 344 F. Supp. 2d 108 (D.D.C.); *Center for Biological Diversity* v. *U.S. Bureau of Land Management,* 422 F. Supp. 2d 1115 (N.D. Cal. 2006); and *Home Builders Association of Northern California* v. *U.S. Fish and Wildlife Service,* 616 F.3d 983 (9th Cir. 2010). Those decisions found that estimation of incremental impacts stemming solely from the designation is proper.

We respectfully disagree with the commenter that our change in policy was arbitrary. As described in the DEA, we developed our current methodology in response to conflicting court decisions. In the DEA, we address the divergent court opinions by analyzing both the baseline protections accorded to the Riverside fairy shrimp absent critical habitat designation and by monetizing incremental impacts attributable to critical habitat designation. We determine that this methodology addresses the divergent opinion of the courts and provides a thorough review for policymakers that enables them to consider the true costs of critical habitat designation, by comparing the costs that would occur solely as a result of designation to those costs that would occur in the absence of designation.

(36) *Comment:* Another commenter stated that the DEA does not explain the source of its estimate of administrative costs, and expresses concern that not all entities affected by administrative costs are included in the analysis.

Our Response: The consultation cost model was originally based on data gathered from three Service field offices (including a review of consultation records and interviews with field office staff), telephone interviews with Federal action agency staff (for example, BLM, USFS, U.S. Army Corps of Engineers), and telephone interviews with private consultants who perform work in support of permittees. In the case of Service and Federal agency contacts, efforts focused on determining the typical level of effort required to complete several different types of consultations (hours or days of time), as well as the typical Government Service (GS) level of the staff member performing this work. In the case of private consultants, we interviewed representatives of firms in California and New England to determine the typical cost charged to clients for these efforts (for example, biological survey, preparation of materials to support a biological assessment). The model is periodically updated with new information, received in the course of data collection efforts, which support economic analyses and public comments on more recent critical habitat rules. In addition, the GS rates are updated annually.

(37) *Comment:* One commenter stated that Subunit 5c should be excluded

because of its critical function as San Diego County's future recycling center and landfill. The commenter believes that the benefits to society of development plans at that site outweigh the benefits of including Subunit 5c as critical habitat.

Our Response: The Secretary is required to take into consideration ''any other relevant impact'' in addition to economic or national security impacts, in designating critical habitat under section 4(b)(2) of the Act. The commenter suggests that a ''relevant impact'' of designating Subunit 5c that should be considered by the Secretary is the effect designation would have on the potential future development of the area as a recycling center and landfill. As described in the comment letter, the project was approved by a county-wide initiative. The County Department of Environmental Health put out a Notice of Preparation of a Draft Environmental Impact Report (EIR) in September of 2011 (County of San Diego DEH 2011, pp. 1–4); the draft EIR is still under preparation.

Under section 4(b)(2) of the Act and its implementing regulations at 50 CFR 424.19, the Secretary is required to identify significant activities that are likely to be affected by a critical habitat designation and consider the probable economic and other impacts of the designation on those activities. The significant activities subject to this consideration are those that are carried out, authorized, or funded by a Federal agency, because the consequences of critical habitat designation result from the obligation of Federal agencies to consult under section 7 of the Act and to ensure that their activities are not likely to jeopardize any listed species or destroy or adversely modify designated critical habitat. Thus, whether designation of critical habitat could affect the siting of a new recycling center and landfill in Subunit 5c depends, in the first instance, on whether Federal authorization is required to build such a landfill. For purposes of addressing this comment, we assume that a Federal nexus that would trigger section 7 consultation under the Act would exist. The most likely Federal nexuses triggering section 7 consultation would be the need for a Section 404 permit under the CWA if the project would affect jurisdictional waters of the United States or the need for an incidental take permit under section 10 of the Act because the proposed project would result in take of the Riverside fairy shrimp.

Assuming that a Federal nexus exists, we next must determine if the designation of critical habitat would result in impacts to the future recycling center and landfill. If the designation would not itself result in impacts to the project beyond those already likely to occur as a result of the listing of the Riverside fairy shrimp, then the project is not an ''other relevant impact'' of designation under section 4(b)(2) of the Act.

The pool in Subunit 5c is known to be occupied by Riverside fairy shrimp and, as a result, in the event of a future consultation on the project under section 7 of the Act, the Service would be required to evaluate the effects of the East Otay Mesa Recycling Collection Center and Landfill Project on Riverside fairy shrimp occupying the pool, regardless of the designation of critical habitat. As discussed under the *Physical or biological features* section above, intact vernal pool hydrology (including the seasonal filling and drying down of pools) is the essential feature that governs the life cycle of the Riverside fairy shrimp, and intact vernal pool hydrology made up of the vernal pool basin and its upslope watershed (adjacent vegetation and upland habitat) must be available and functional (Hanes and Stromberg 1998, p. 38). Adjacent upland habitat supplies essential hydrological inputs to sustain vernal pool ecosystems. Protection of the upland habitat between vernal pools within the watershed is essential to maintain the space needs of the Riverside fairy shrimp and to buffer the vernal pools from edge effects. Conserving surrounding uplands ensures maintenance of proper hydrology to create pools of adequate depth also supports the temporal needs of the Riverside fairy shrimp, as deep pools provide for inundation periods of adequate length to support the entire life-history function and reproductive cycles necessary for the Riverside fairy shrimp.

We consider it likely that any measures identified as necessary to avoid adverse modification of Riverside fairy shrimp critical habitat in Subunit 5c would also be required to avoid jeopardy to the species. We also note that the project area contains designated critical habitat for the Quino checkerspot butterfly. Assuming the existence of a Federal nexus for the project, an adverse modification analysis for Quino checkerspot butterfly critical habitat also would be required (regardless of whether or not Subunit 5c is designated as Riverside fairy shrimp critical habitat). For these reasons, we conclude that designation of critical habitat in Subunit 5c is not likely to affect whether a recycling center and landfill can be developed or to impose restrictions on such development beyond those that would result from listing of the species. This conclusion is consistent with the results of our FEA, which did not identify any incremental economic impacts of designation beyond the minor added administrative costs of including an evaluation of critical habitat in future section 7 consultations involving Subunit 5c (Industrial Economics Inc. 2012, p. 4–17).

We have taken into account the potential economic impacts (see response to comment 32) and any other relevant impact of designating Subunit 5c as critical habitat. We conclude that designation of critical habitat will not result in significant economic impacts or other relevant impacts under section 4(b)(2) of the Act. Subunit 5c contains the physical or biological features necessary for the conservation of the Riverside fairy shrimp and is essential for the conservation of the Riverside fairy shrimp, and the Secretary has declined to consider this area for exclusion under 4(b)(2) of the Act.

(38) *Comment:* One commenter stated that the DEA uses a flawed Monte Carlo analysis. Explanation is needed: (1) For the use of 100,000 iterations; (2) for the use of a bell curve in the histogram in Exhibit 4–7 of forecast present value incremental impacts to development (where bell curves are generally used for natural phenomena); (3) regarding how specific probabilities for the four scenarios were chosen; (4) for why the Distribution of Impacts to Development Activities in the technical appendix has a narrower range than the collection of distributions for the sum of each unit and the sum for each subunit does not match the total value for each unit; and (5) regarding which scenarios are used for each subunit so grounds for exclusion are clearer.

Our Response: The number of iterations selected ensured a representative set of potential outcomes while being computationally manageable. This clarification has been added as a footnote in the development chapter.

In regard to the commenter's second point, Monte Carlo analyses generate a range of outcomes by randomly sampling from statistical distributions of uncertain input parameters, and then running the model using those chosen inputs. The process is repeated (in this case 100,000 times) until a representative set of outputs has been generated. The bell-shaped statistical distribution of the outputs in this analysis was therefore generated from repeatedly sampling the input distributions and running the model; it

was not pre-specified. This clarification has been added as a footnote in the development chapter of the FEA.

With regard to the commenter's question about how scenarios were chosen, as described on page 4–14 of the DEA, absent information on the likelihood of any particular outcome in developable areas not covered by HCPs, the analysis assumes that an equal probability exists that a property will be located in one of the four geographic situations described in the development chapter: (a) Entirely in upland areas, (b) proximate to a nonjurisdictional pool, (c) proximate to a jurisdictional pool that is occupied, or (d) proximate to a jurisdictional pool that is unoccupied.

The commenter is correct that the sum of development cost ranges for each subunit does not match the range from the distribution of all costs. As described on page 4–18 and in Exhibit 4–8 of the DEA, this occurs because the distribution of total costs across the proposed revised critical habitat area has a narrower range than the aggregation of the distributions for each subunit. In other words, it is not realistic to assume that every property will experience the most costly option for each variable included in the model (the sum of the upper bounds of the distributions). Likewise, it is unlikely that none of the affected properties will experience any impacts (the sum of the lower bounds of the distributions).

Finally, the DEA delineates proposed critical habitat areas into three categories in the development chapter: (a) Not developable, (b) developable but in HCP areas that the Service is considering for exclusion, and (c) other developable areas. As described above, the four geographic situations are applied with equal probability to lands in the third category (other developable areas). The areas of each subunit in this category are identified in Exhibits 4–9 through 4–23.

(39) *Comment:* One commenter stated that the DEA makes unexplained (and incorrect) assumptions in its development analysis: (1) The analysis assumes that all undeveloped parcels that are privately owned will be developed (Exhibit 4–24), which means future impacts on development will be disparately felt by those private landowners who do have plans to develop their land, such as Subunit 5c; (2) the analysis assumes a mean development project size of 13.5 housing units identified in the consultation history; and (3) the DEA does not explain why 60 percent was used as the only alternative to 41 percent of the 2,984 acres already subject to conservation plans.

Our Response: As described on page 4–4 of the DEA, the analysis does not assume that all undeveloped parcels that are privately owned will be developed, but instead relies on Regional Growth Forecast datasets from the Southern California Association of Governments (SCAG) and the San Diego Association of Governments (SANDAG) for information on future development in proposed revised critical habitat. These forecasts provide the total number of projected housing units at the Census tract level, which were applied at the proposed critical habitat unit level using the relationship between developable acres in the units and census tracts.

With regard to the commenter's assertion about mean development project size, as noted by the commenter and described on page 4–5, the estimated number of housing units per project is based on the consultation history. As described in Exhibit 4–24, it is uncertain whether this estimate is too high or too low, and how the number will vary across projects in the future. The commenter does not provide additional information to refine this estimate.

In section 2.4.4, the DEA describes why 60 percent and 41 percent are used as the two alternative areas subject to conservation plans. If the City of San Diego Subarea Plan was approved and implemented, an additional 19 percent of proposed critical habitat would be subject to an HCP and considered for exclusion. This additional 19 percent over the 41 percent subject to existing HCPs would lead to 60 percent of proposed critical habitat potentially subject to HCPs in the future.

(40) *Comment:* One commenter stated that the DEA should delete the willingness-to-pay study because the benefits cannot be directly compared to the costs and because it asks how much people would spend in order to protect the species from going extinct, not how much they did pay.

Our Response: For completeness, the benefits chapter of the DEA describes the results of any relevant studies that have evaluated the benefits of Riverside fairy shrimp preservation, and then describes whether or not the results of those studies can be compared to the costs estimated in the DEA. The willingness-to-pay study described by the commenter elicits the importance of preserving the Riverside fairy shrimp to local populations within the region of the proposed critical habitat using a well-accepted valuation technique. Because of its relevance, this study is summarized in the DEA. As suggested by the commenter and mentioned in chapter 6 of the DEA, the benefits presented in this study cannot be directly compared to the incremental costs quantified in chapters 4 and 5 and, as a result, the DEA does not make this comparison.

(41) *Comment:* One commenter believed that designating critical habitat in Subunit 5c would cause undue burden on the owners, who wish to develop the subunit as a landfill. The commenter stated that any delay to this multimillion dollar project could result in substantial costs and delay, and undue burden on the landowners.

Our Response: We respectfully disagree with the commenter that the designation of critical habitat would result in significant time and financial burden. The Service expects that, for the Riverside fairy shrimp, the outcome of an adverse modification analysis on lands identified as critical habitat would be similar to that of a jeopardy analysis for lands currently occupied by the Riverside fairy shrimp, including Subunit 5c. Again, because the subunit is occupied by the Riverside fairy shrimp, a jeopardy analysis would likely occur regardless of critical habitat designation. Our rationale is presented in Appendix D of the DEA (Industrial Economics Inc. 2011, pp. D–1–D–6). See also our responses to Comments 32 and 37. In the DEA analysis we note that, with regard to vernal pool species such as Riverside fairy shrimp, the outcomes of jeopardy and adverse modification analyses (in terms of potential restrictions on development) may often be similar. In general, a properly functioning hydrological regime is critical to sustain listed vernal pool species and their immediate vernal pool habitat (local watershed). Avoidance or adequate minimization of impacts to the wetland area and its associated watershed, which collectively create the hydrological regime necessary to support the Riverside fairy shrimp, are essential not only to enable the critical habitat unit to carry out its conservation function such that adverse modification is avoided, but also to avoid a jeopardy determination with regard to the continued existence (survival) of the listed species. Because the Riverside fairy shrimp is completely dependent on a properly functioning vernal pool system for its survival, at this time we are not able to differentiate meaningfully between the conservation measures needed to avoid adverse modification of critical habitat and those needed to avoid jeopardy to the species. Impacts to both wetland features where Riverside fairy shrimp actually occurs and to the associated local watershed necessary to maintain

those wetland features should generally be avoided to prevent jeopardy to the Riverside fairy shrimp or to prevent adverse modification to Riverside fairy shrimp critical habitat. Service biologists regularly work with project proponents to avoid impacts to vernal pool and ephemeral wetland habitat whenever possible; this process includes conservation measures designed to avoid or minimize impacts to both the pools and the associated local watershed area. Therefore, we do not expect that an adverse modification analysis would result in significant additional delay or cost to the landowner.

Required Determinations

Regulatory Planning and Review—Executive Orders 12866 and 13563

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The OIRA has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of Executive Order 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. Executive Order 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C 801 *et seq.*), whenever an agency must 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 effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities. In this final rule, we are certifying that the critical habitat designation for Riverside fairy shrimp will not have a significant economic impact on a substantial number of small entities. The following discussion explains our rationale.

According to the SBA, small entities include small organizations, such as independent nonprofit organizations, small governmental jurisdictions including school boards and city and town governments that serve fewer than 50,000 residents, as well as small businesses. Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine if potential economic impacts on these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule, as well as the types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

To determine if the rule could significantly affect a substantial number of small entities, we consider the number of small entities affected within particular types of economic activities, such as: (1) Agricultural, commercial, and residential development; (2) transportation; and (3) livestock grazing and other human activities. We apply the ''substantial number'' test individually to each industry to determine if certification is appropriate. However, the SBREFA does not explicitly define ''substantial number'' or ''significant economic impact.'' Consequently, to assess whether a ''substantial number'' of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in an area. In some circumstances, especially with critical habitat designations of limited extent, we may aggregate across all industries and consider whether the total number of small entities affected is substantial. In estimating the number of small entities potentially affected, we also consider whether their activities have any Federal involvement.

Designation of critical habitat only affects activities authorized, funded, or carried out by Federal agencies. Some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation. In areas where the species is present, Federal agencies already are required to consult with us under section 7 of the Act on activities they authorize, fund, or carry out that may affect the Riverside fairy shrimp. Federal agencies also must consult with us if their activities may affect critical habitat. Designation of critical habitat, therefore, could result in an additional economic impact on small entities due to the requirement to reinitiate consultation for ongoing Federal activities (see *Application of the ''Adverse Modification'' Standard* section).

In our FEA of the critical habitat designation, we evaluated the potential economic effects on small business entities resulting from conservation actions related to the listing of the Riverside fairy shrimp and the designation of critical habitat. The analysis is based on the estimated impacts associated with the rulemaking as described in chapters 4, 5, and Appendix A of the FEA, and evaluates the potential for economic impacts related to activity categories, including development, transportation, and other human activities, such as habitat management, livestock grazing, and water management, as well as impacts to the energy industry (Industrial Economics Inc. 2012, pp. 4–1–6–6, A–1–A–7).

As described in chapters 4 and 5 of the FEA, estimated incremental impacts consist primarily of administrative costs and time delays associated with section 7 consultation and CEQA review. The Service and the Federal action agency are the only entities with direct compliance costs associated with this critical habitat designation, although small entities may participate in section 7 consultation as a third party. It is, therefore, possible that the small entities may spend additional time considering critical habitat during section 7 consultation for the Riverside fairy shrimp. The FEA indicates that the incremental impacts potentially incurred by small entities are limited to the development sector.

In order to understand the potential impacts on small entities attributable to development activities, the FEA

conservatively assumed that all of the private owners of developable lands affected by the revised critical habitat designation are developers. We estimated that a total of 34.2 development projects may be affected by the revised critical habitat designation, or 1.42 projects per year. Costs per project range from $5,000 where incremental costs are limited to the additional cost of considering adverse modification during a section 7 consultation to $1.07 million where additional effort to comply with CEQA may be required, and time delays occur in areas with the highest land values. Because in most cases we are unable to identify the specific entities affected, the impact relative to those entities' annual revenues or profits is unknown. Assuming that the entities are small land subdividers with annual revenues less than $7 million, the high-end impacts represent approximately 15.2 percent of annual revenues. Of the total number of entities engaged in land subdivision and residential, commercial, industrial, and institutional construction, 97 percent are small entities. Provided the assumptions that development activity occurs at a constant pace throughout the timeframe of the analysis and each project is undertaken by a separate entity, we estimated that approximately two to three developers may be affected by the proposed revised critical habitat designation each year. Conservatively assuming that costs are borne by current landowners, and all landowners are land subdividers or construction firms, less than 3 percent or 1 percent, respectively, of all small entities in these sectors would be affected when the final revised critical habitat rule becomes effective (Industrial Economics Inc. 2012, p. A–5).

The Service's current understanding of recent case law is that Federal agencies are only required to evaluate the potential impacts of rulemaking on those entities directly regulated by the rulemaking; therefore, they are not required to evaluate the potential impacts to those entities not directly regulated. The designation of critical habitat for an endangered or threatened species only has a regulatory effect where a Federal action agency is involved in a particular action that may affect the designated critical habitat. Under these circumstances, only the Federal action agency is directly regulated by the designation, and, therefore, consistent with the Service's current interpretation of RFA and recent case law, the Service may limit its evaluation of the potential impacts to those identified for Federal action agencies. Under this interpretation, there is no requirement under the RFA to evaluate the potential impacts to entities not directly regulated, such as small businesses. However, Executive Orders 12866 and 13563 direct Federal agencies to assess costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consequently, it is the current practice of the Service to assess to the extent practicable these potential impacts if sufficient data are available, whether or not this analysis is believed by the Service to be strictly required by the RFA. In other words, while the effects analysis required under the RFA is limited to entities directly regulated by the rulemaking, the effects analysis under the Act, consistent with the EO regulatory analysis requirements, can take into consideration impacts to both directly and indirectly impacted entities, where practicable and reasonable.

In doing so, we focus on the specific areas being designated as critical habitat and compare the number of small business entities potentially affected in that area with other small business entities in the region, instead of comparing the entities in the area of designation with entities nationally, which is more commonly done. This analysis results in an estimation of a higher number of small businesses potentially affected. In this rulemaking, we calculate that less than 3 percent or 1 percent (assuming that all landowners are land subdividers or construction firms), respectively, of all small entities in the area would be affected when this final rule becomes effective. If we were to calculate that value based on the proportion nationally, then our estimate would be significantly lower than 1 percent. Following our evaluation of potential effects to small business entities from this rulemaking, we conclude that the number of potentially affected small businesses is not substantial.

The FEA also concludes that none of the government entities with which the Service might consult on the Riverside fairy shrimp for transportation or habitat management activities meets the definitions of small as defined by the SBA (Industrial Economics Inc. 2012, p. A–6); therefore, impacts to small government entities due to transportation and habitat management activities are not anticipated. A review of the consultation history for the Riverside fairy shrimp suggests future section 7 consultations on livestock grazing (for example, ranching operations) and water management are unlikely, and as a result are not anticipated to be affected by this rule (Industrial Economics Inc. 2012, pp. A–6–A–7).

In summary, we have considered whether this revised designation will result in a significant economic impact on a substantial number of small entities and the energy industry. Information for this analysis was gathered from the SBA, stakeholders, and from Service files. We determined that less than 3 percent of land subdividers or 1 percent of construction firms engaged in development activity within the area proposed for designation would be affected when the final rule becomes effective (Industrial Economics Inc. 2012, p. A–5). Given that this final rule excludes 1,259 ac (510 ha), the costs of the critical habitat designation will likely be even lower. Therefore, we are certifying that the designation of critical habitat for Riverside fairy shrimp will not have a significant economic impact on a substantial number of small entities, and an RFA is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. OMB has provided guidance for implementing this Executive Order that outlines nine outcomes that may constitute ''a significant adverse effect'' when compared to not taking the regulatory action under consideration.

The economic analysis finds that none of these criteria is relevant to this analysis. Thus, based on information in the economic analysis, energy-related impacts associated with Riverside fairy shrimp conservation activities within critical habitat are not expected. As such, the designation of critical habitat is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both ''Federal intergovernmental mandates'' and

''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal government's responsibility to provide funding,'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not expect this rule to significantly or uniquely affect small governments. Small governments would be affected only to the extent that any programs having Federal funds, permits, or other authorized activities must ensure that their actions would not adversely affect critical habitat. Therefore, a Small Government Agency Plan is not required.

Takings—Executive Order 12630

In accordance with Executive Order 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the Riverside fairy shrimp in a takings implications assessment. As discussed above, the designation of critical habitat affects only Federal actions. Although private parties that receive Federal funding, assistance, or require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. The takings implications assessment concludes that this designation of revised critical habitat for Riverside fairy shrimp does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with Executive Order 13132 (Federalism), this rule does not have significant Federalism effects. A federalism impact summary statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this critical habitat designation with appropriate State resource agencies in California. We received no comments from State agencies. The designation of critical habitat in areas currently occupied by the Riverside fairy shrimp imposes no additional restrictions to those currently in place and, therefore, has little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments in that the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the applicable standards set forth in sections 3(a) and 3(b)(2) of the Order. To assist the public in understanding the habitat needs of the species, the rule identifies the elements of physical or biological features essential to the conservation of the species. The designated areas of critical habitat are presented on maps, and the rule provides several options for the interested parties to obtain more detailed location information, if desired.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to NEPA (42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the 9th Circuit (*Douglas County* v. *Babbitt*, 48 F.3d

1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We determined that there are no tribal lands occupied by the Riverside fairy shrimp at the time of listing that contain the features essential to conservation of the species, and no tribal lands unoccupied by the Riverside fairy shrimp that are essential for the conservation of the species. Therefore, we are not designating critical habitat for Riverside fairy shrimp on tribal lands.

References Cited

A complete list of all references cited is available on the Internet at *http://www.regulations.gov* and upon request from the Carlsbad Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this rulemaking are the staff members of the Carlsbad Fish and Wildlife Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

■ 2. In § 17.95, amend paragraph (h) by revising the entry for ''Riverside Fairy Shrimp (*Streptocephalus woottoni*)'' to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(h) *Crustaceans.*

* * * * *

Riverside Fairy Shrimp (*Streptocephalus woottoni*)

(1) Unit descriptions are depicted for Ventura, Orange, and San Diego Counties, California, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the Riverside fairy shrimp consist of three components:

(i) Ephemeral wetland habitat consisting of vernal pools and ephemeral habitat that have wet and dry periods appropriate for the incubation, maturation, and reproduction of the Riverside fairy shrimp in all but the driest of years, such that the pools:

(A) Are inundated (pond) approximately 2 to 8 months during winter and spring, typically filled by rain, surface, and subsurface flow;

(B) Generally dry down in the late spring to summer months;

(C) May not pond every year; and

(D) Provide the suitable water chemistry characteristics to support the Riverside fairy shrimp. These characteristics include physiochemical factors such as alkalinity, pH, temperature, dissolved solutes, dissolved oxygen, which can vary depending on the amount of recent precipitation, evaporation, or oxygen saturation; time of day; season; and type and depth of soil and subsurface layers. Vernal pool habitat typically exhibits a range of conditions but remains within the physiological tolerance of the species. The general ranges of conditions include, but are not limited to:

(*1*) Dilute, freshwater pools with low levels of total dissolved solids (low ion levels (sodium ion concentrations generally below 70 millimoles per liter));

(*2*) Low alkalinity levels (lower than 80 to 1,000 milligrams per liter (mg/l)); and

(*3*) A range of pH levels from slightly acidic to neutral (typically in range of 6.4–7.1).

(ii) Intermixed wetland and upland habitats that function as the local watershed, including topographic features characterized by mounds, swales, and low-lying depressions within a matrix of upland habitat that result in intermittently flowing surface and subsurface water in swales, drainages, and pools described in paragraph (h)(2)(i) of this entry. Associated watersheds provide water to fill the vernal or ephemeral pools in the winter and spring months. Associated watersheds vary in size and therefore cannot be generalized, and they are affected by factors including surface and underground hydrology, the topography of the area surrounding the pool or pools, the vegetative coverage, and the soil substrates in the area. The size of associated watersheds likely varies from a few acres to greater than 100 ac (40 ha).

(iii) Soils that support ponding during winter and spring which are found in areas characterized in paragraphs (h)(2)(i) and (h)(2)(ii), respectively, of this entry, that have a clay component or other property that creates an impermeable surface or subsurface layer. Soil series with a clay component or an impermeable surface or subsurface layer typically slow percolation, increase water run-off (at least initially), and contribute to the filling and persistence of ponding of ephemeral wetland habitat where the Riverside fairy shrimp occurs. Soils and soil series known to support vernal pool habitat include, but are not limited to:

(A) The Azule, Calleguas, Cropley, and Linne soils series in Ventura County;

(B) The Alo, Balcom, Bosanko, Calleguas, Cieneba, and Myford soils series in Orange County;

(C) The Cajalco, Claypit, Murrieta, Porterville, Ramona, Traver, and Willows soils series in Riverside County; and

(D) The Diablo, Huerhuero, Linne, Placentia, Olivenhain, Redding, Salinas, and Stockpen soils series in San Diego County.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on January 3, 2013.

(4) *Critical habitat map units.* Data layers defining map units were created using a base of U.S. Geological Survey 7.5′ quadrangle maps. Unit descriptions were then mapped using Universal Transverse Mercator (UTM) zone 11, North American Datum (NAD) 1983 coordinates. The maps in this entry, as modified by any accompanying

regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public on *http://regulations.gov* at Docket No. FWS–R8–ES–2011–0013, on our Internet site (*http://www.fws.gov/carlsbad/*), and at the Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Suite 101, Carlsbad, CA 92011.

(5) **NOTE:** Index map follows:

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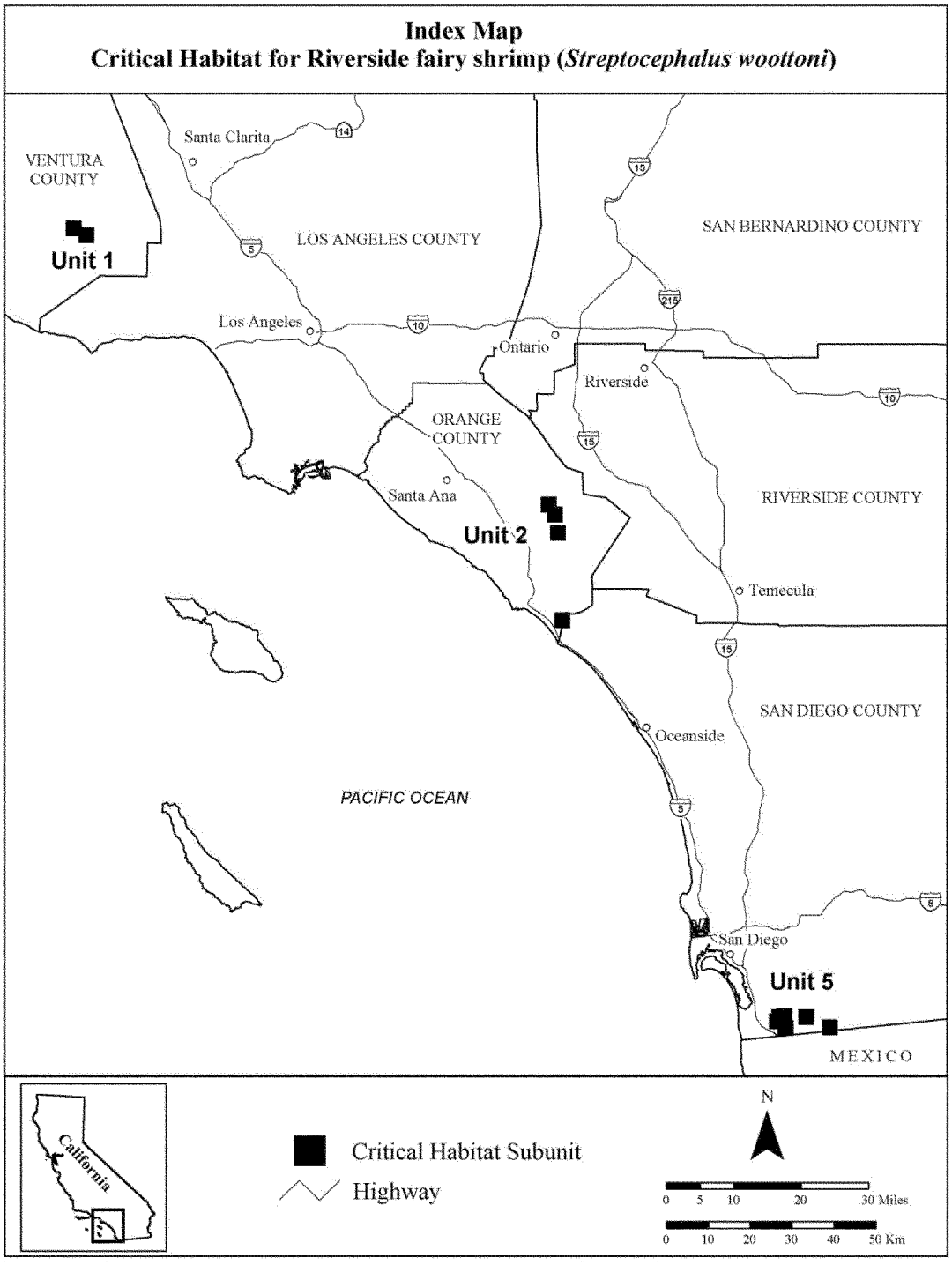
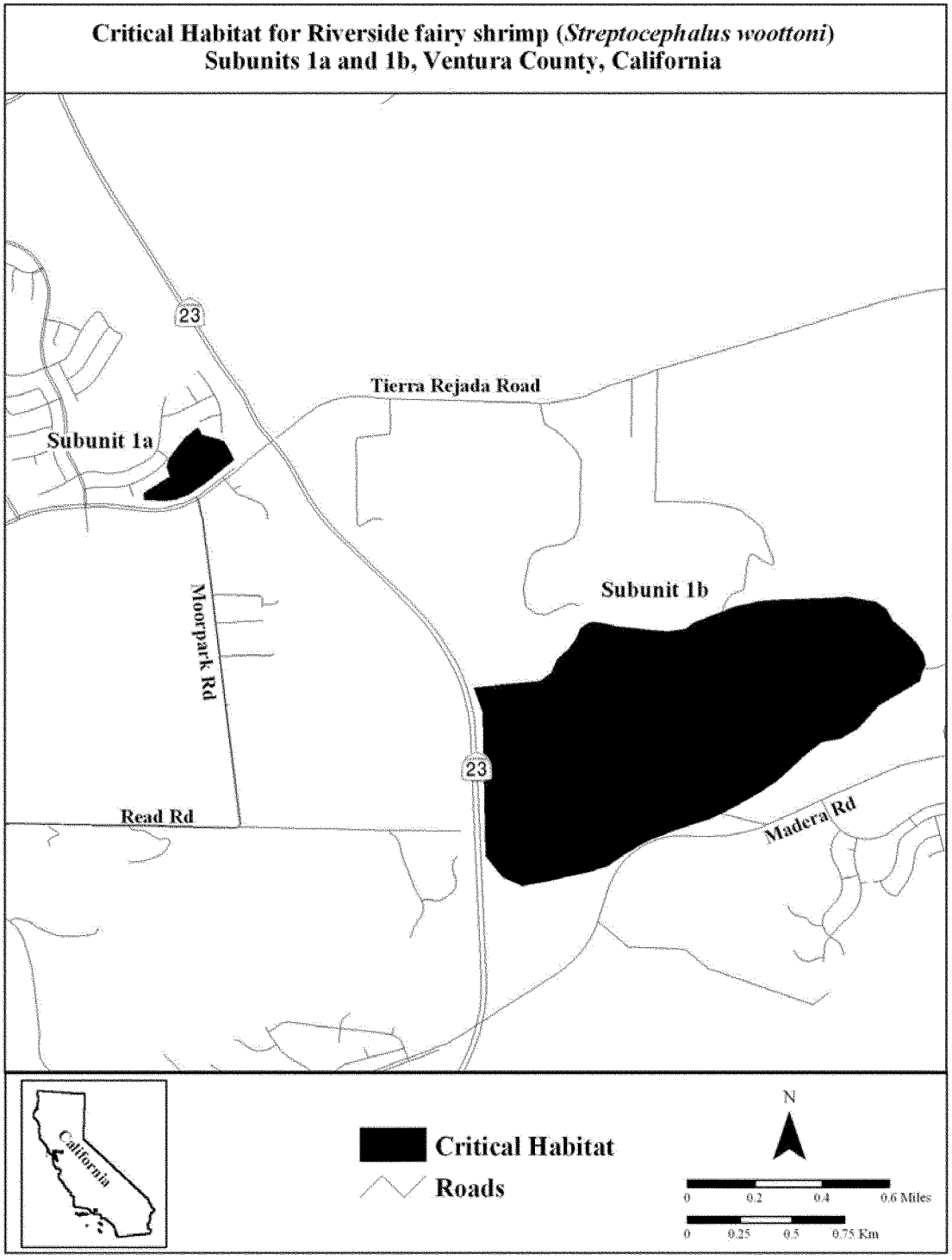
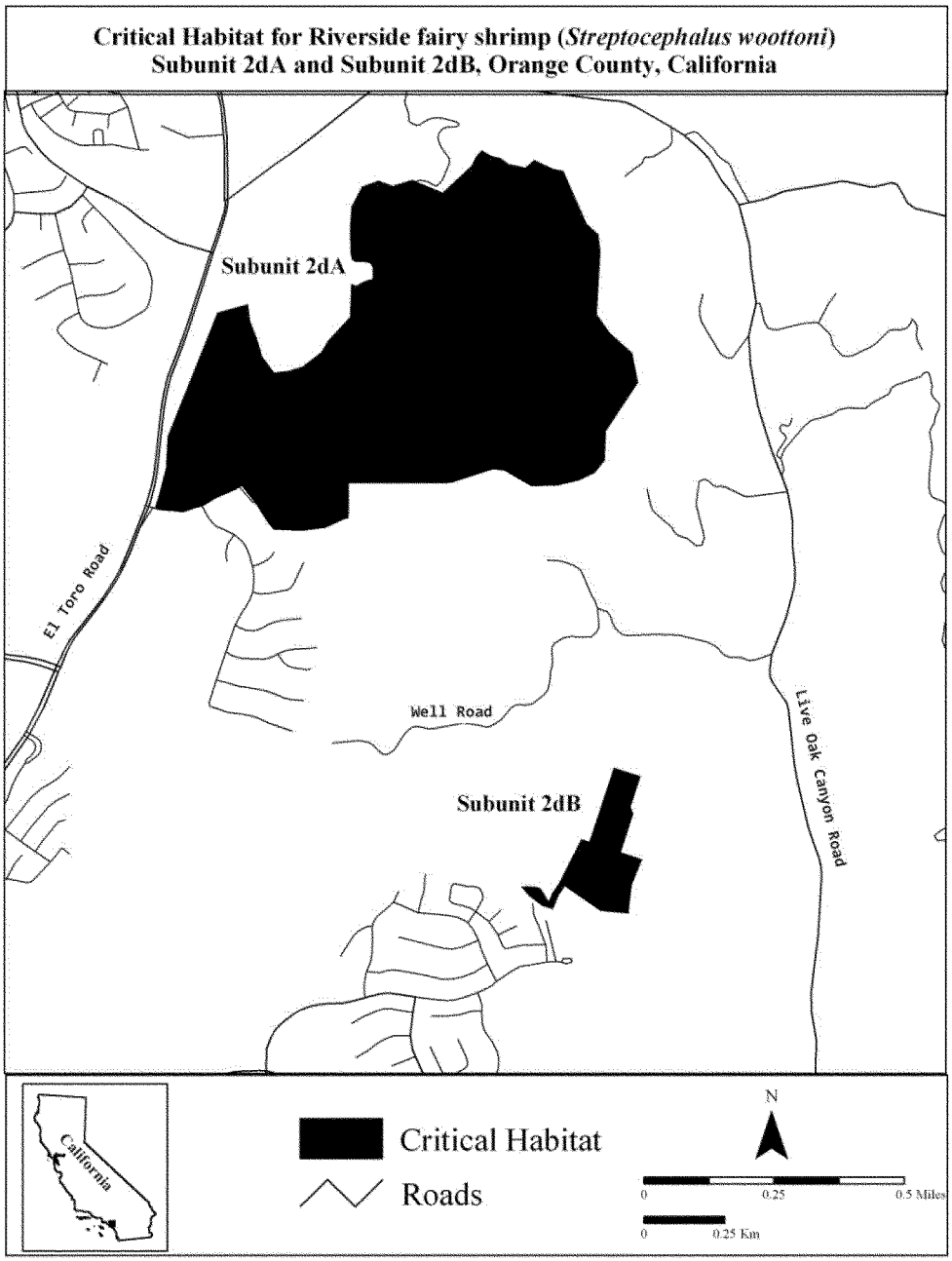


(6) Unit 1: Ventura County, California. Map of Subunit 1a, Tierra Rejada Preserve, and Subunit 1b, South of Tierra Rejada Valley, follows:

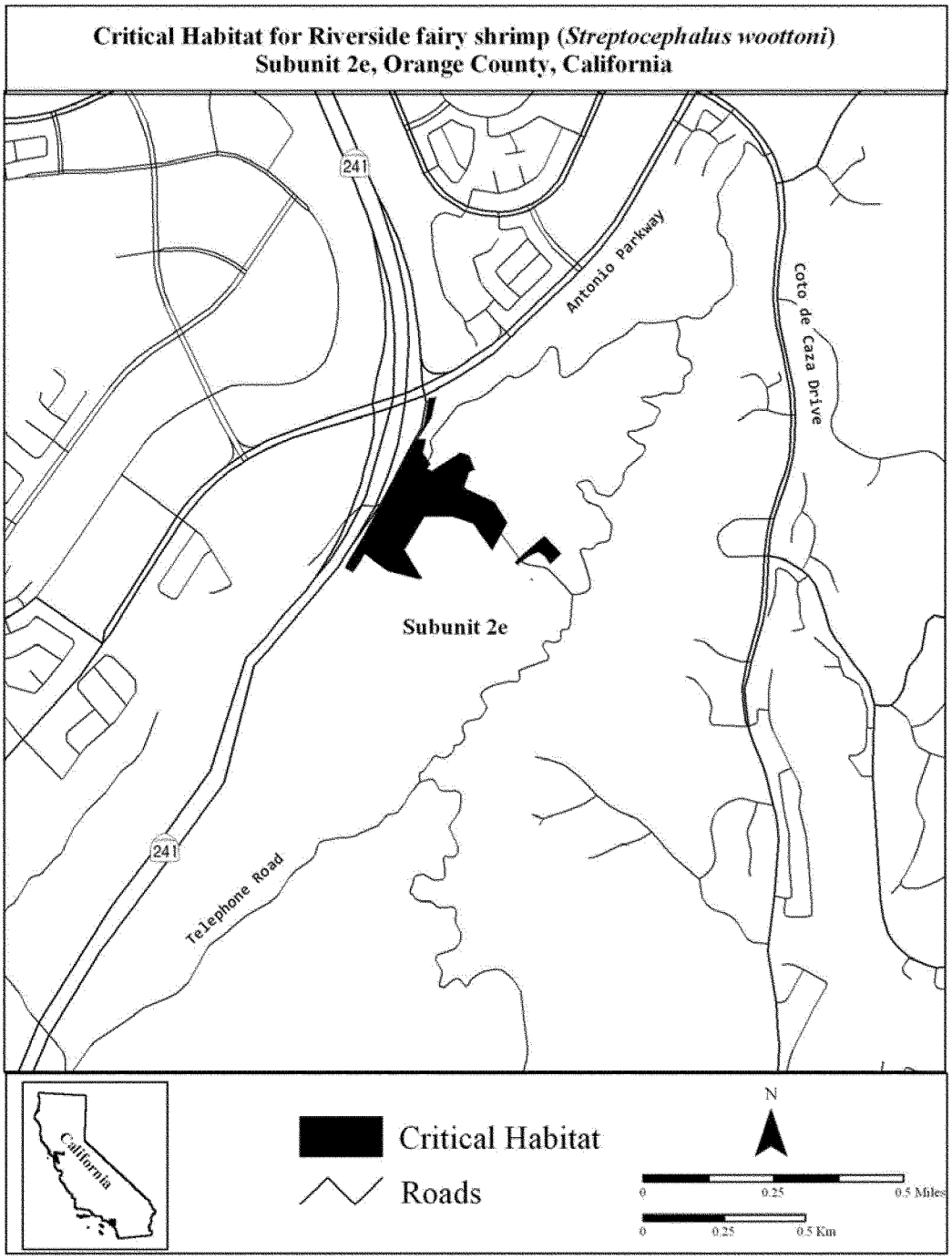


(7) Unit 2: Los Angeles Basin-Orange County Foothills, Orange County, California.

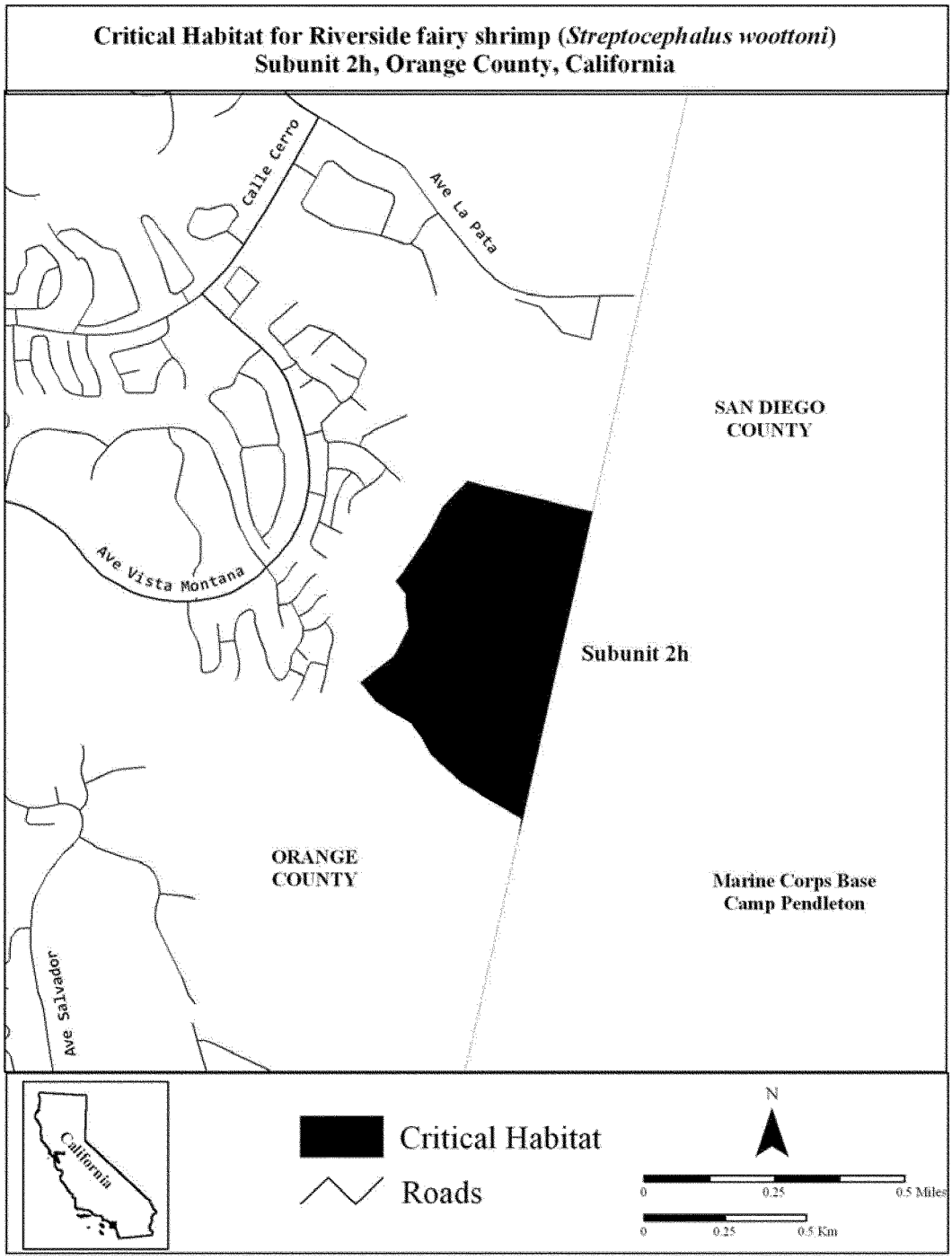
(i) Map of Subunit 2dA, Saddleback Meadows, and Subunit 2dB, O'Neill Regional Park (near Trabuco Canyon), follows:



(ii) Map of Subunit 2e, O'Neill Regional Park (near Cañada Gobernadora), follows:

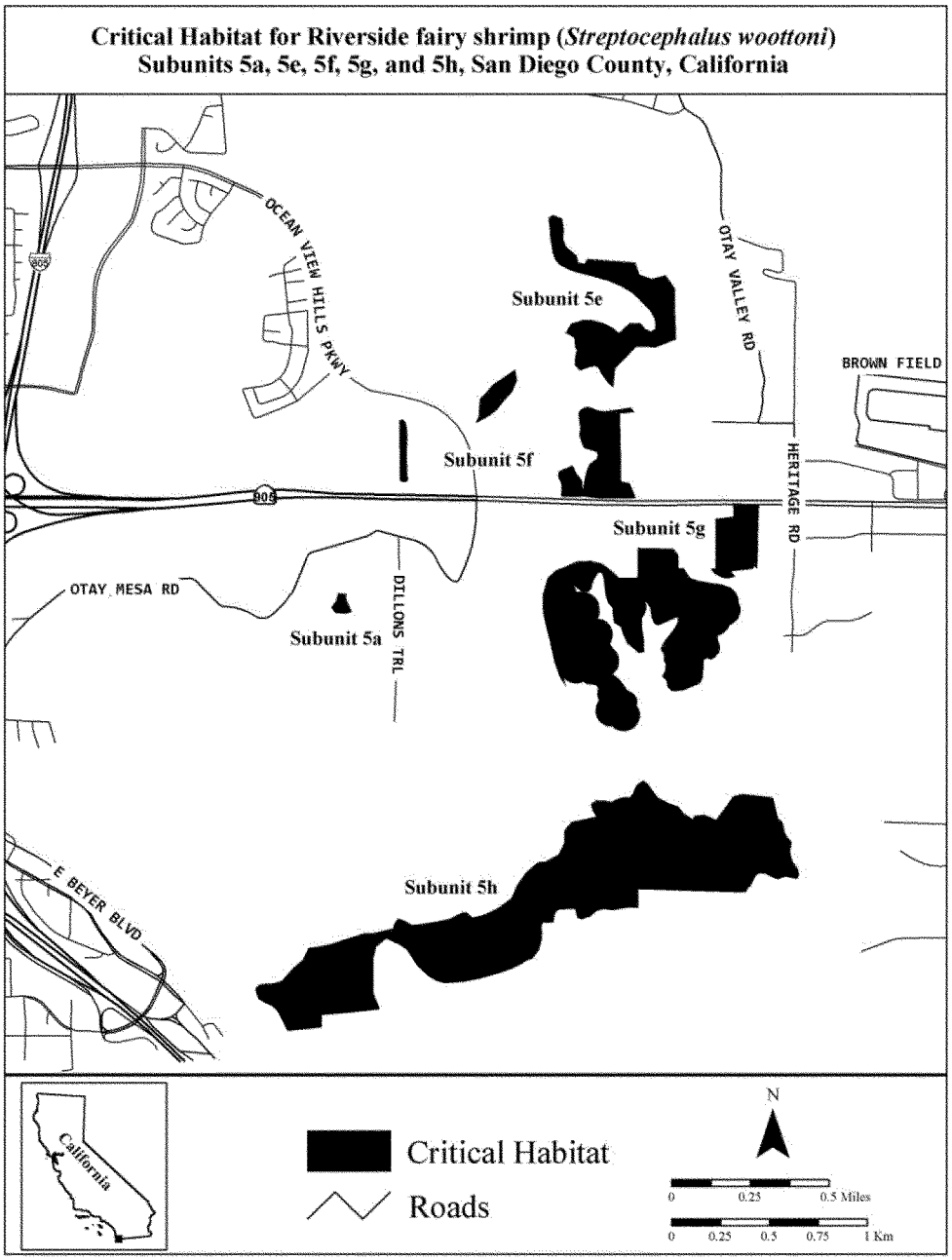


(iii) Map of Subunit 2h, San Onofre State Beach, State Park-leased land (near Christianitos Creek foothills) (near Camp Pendleton), follows:

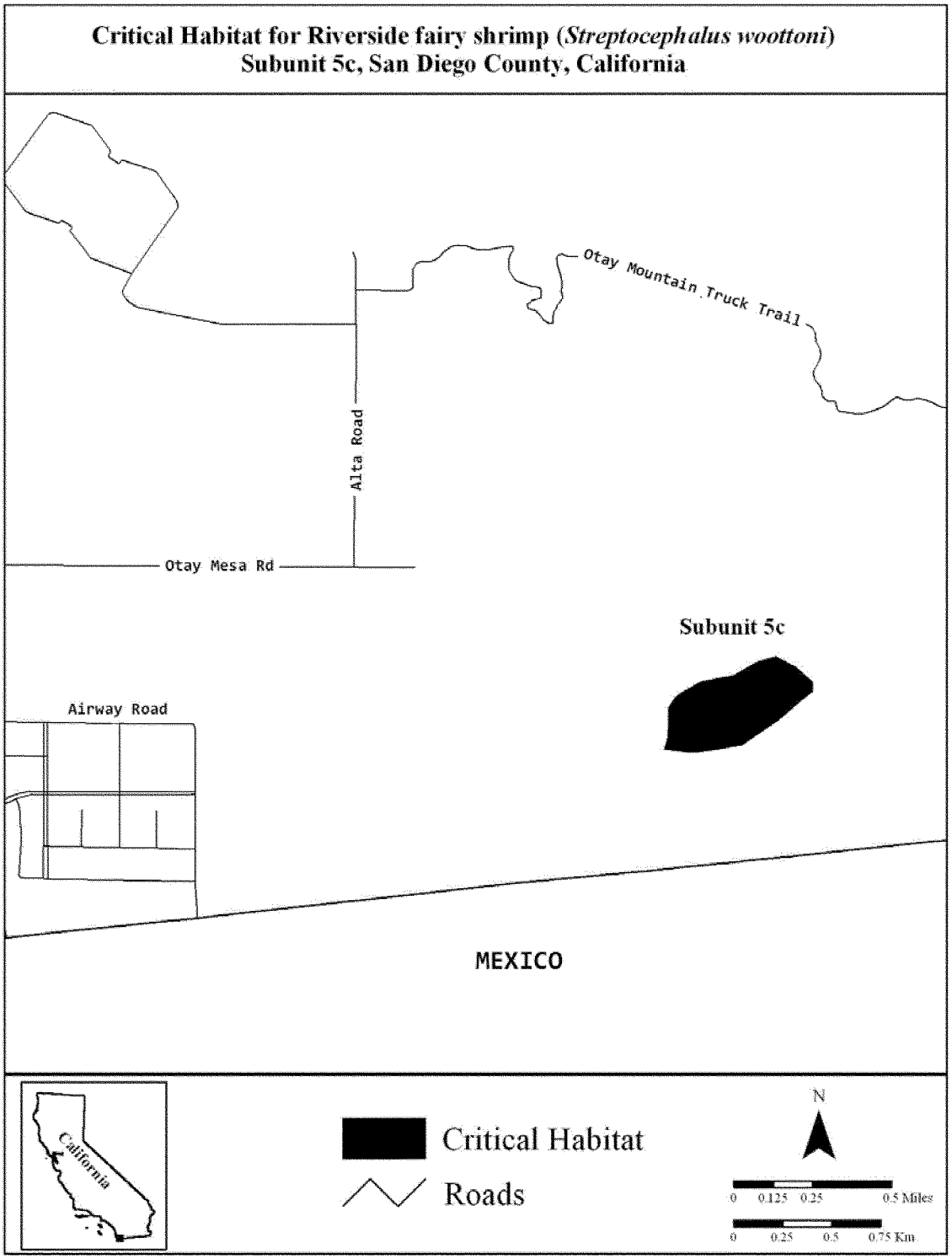


(8) Unit 5: San Diego Southern Coastal Mesas, San Diego County, California.

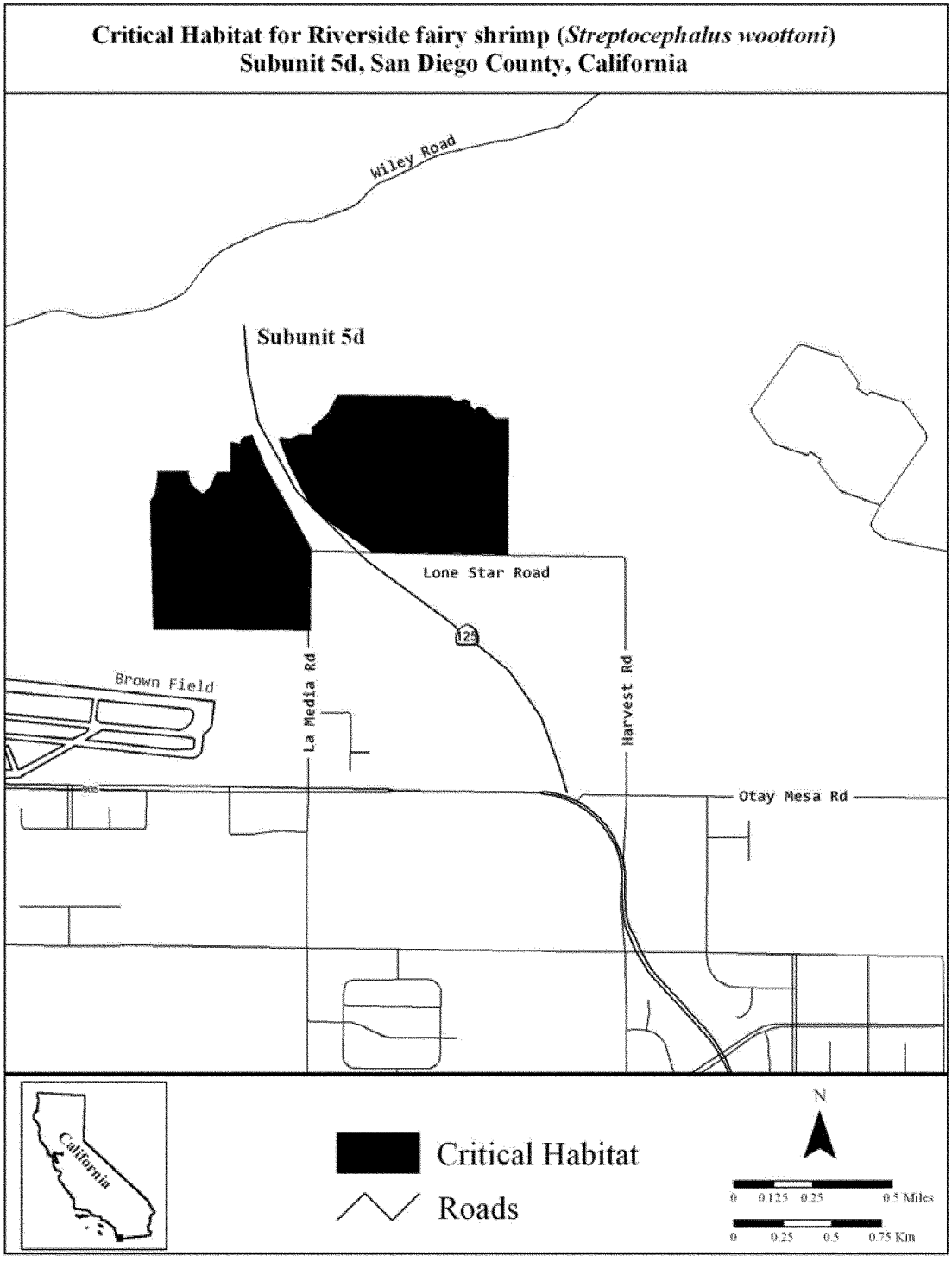
(i) Map of Subunit 5a, Sweetwater (J33); Subunit 5e, J2 N, J4, J5 (Robinhood Ridge); Subunit 5f, J2 W and J2 S (Hidden Trails, Cal Terraces, Otay Mesa Road); Subunit 5g, J14; and Subunit 5h, J11 E and J11 W, J12, J16–18 (Goat Mesa), follows:



(ii) Map of Subunit 5c, East Otay Mesa, follows:



(iii) Map of Subunit 5d, J29–31, follows:



* * * * *

Dated: November 14, 2012.

Rachel Jacobson,

Principal Deputy Secretary for Fish and Wildlife and Parks.

[FR Doc. 2012–28250 Filed 12–3–12; 8:45 am]

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