

DRAFT MEMORANDUM

To: Edward Maillet, *U.S. Fish & Wildlife Service*

From: Eric Nickell

Subject: Addendum to the Draft Economic Analysis for the San Diego Fairy Shrimp Critical Habitat Designation; EPS #14471

Date: July 6, 2005

This memorandum serves as the addendum to the April 7, 2004, Draft Economic Analysis (DEA) of Critical Habitat Designation for the San Diego Fairy Shrimp (SDFS). The purpose of the memorandum is to calculate SDFS cost impacts using a method consistent with the DEA for the Riverside Fairy Shrimp (RFS), which considers the cost of conservation-related measures that are likely to be associated with future economic activities that may adversely effect the habitat within the proposed boundaries. Actions undertaken to meet the requirements of other Federal, State, and local laws and policies may afford protection to the RFS and its habitat, and thus contribute to the efficacy of critical habitat-related conservation and recovery efforts. Thus, the impacts of these activities are relevant for understanding the full impact of the proposed designation. A full discussion of the scope of the analysis can be found in the March 25, 2005, RFS DEA on pages ES-1 and ES-2.

Section 4(b)(2) of the Endangered Species Act requires the U.S. Fish & Wildlife Service (Service) to designate critical habitat on the basis of the best scientific data available, after taking into consideration the economic impact and any other relevant impact of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas in critical habitat, provided the exclusion will not result in extinction of the species.

The analysis also translates cost impacts from the DEA that were estimated for each of five vernal pool management areas, which are large geographic zones defined by the Service's "Vernal Pools of Southern California Recovery Plan," into cost impacts

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estimated for each proposed habitat subunit as defined by the proposed rule published in the *Federal Register* on April 22, 2003. The habitat subunit level of geography is the smallest contiguous land area of habitat used in the proposed rule, and basic SDFS subunit information is summarized in **Table 1**.

ASSUMPTIONS

The cost impacts shown in this analysis begin with estimates provided in the 2004 DEA. As in the 2004 DEA, impacts for projects whose locations are still uncertain were weighted by the probability of each site being selected using current planning processes. Also, information that updates the status of economic activities planned on affected lands has modified the estimates in some cases, and real estate development impacts in this analysis are based on the assumption that all developable land in the proposed habitat units would, in the absence of all SDFS-related conservation activities, be developed in the next 20 years. A full discussion of the analytical approach taken to estimate real estate development impacts can be found in the March 25, 2005, RFS DEA on pages 36 through 48.

Future impacts are shown in **Tables 2** through **4** either undiscounted, discounted using a 7-percent rate, or discounted using a 3-percent rate. For the 20 years after final designation, a 4.25-percent real rate of appreciation of real estate is used, based on data for California housing markets from the Office of Federal Housing Enterprise Oversight.

SUMMARY FINDINGS

Tables 2 through **4** summarize the likely range of impacts expected over the next 20 years (from approximately 2006 through 2025) from SDFS-related conservation activities. The low end estimate is based on the assumption that, for any proposed critical habitat on the site of a development project, 5 percent of the project site will not be developed because of SDFS-related conservation activities. The high end estimate is based on the assumption that 30 percent of the site would not be developed for similar reasons. This range is consistent with biological opinion records for section 7 consultations for the SDFS.

In undiscounted terms, total impacts of SDFS-related conservation activities are expected to range between \$16.4 million and \$82.6 million over the next 20 years. Of this

total, \$13.7 million to \$79.9 million in impacts occur in the real estate development sector. The remaining impacts in the “Other” column include the following activities:¹

- Airport construction (habitat subunits 2B and 2C);
- Highway construction (habitat subunits 1E, 5B, and 5C); and
- Transit center construction (habitat subunit 2G).

In addition, the analysis includes in the “Other” category the higher costs for public and private entities to comply with the California Environmental Quality Act (CEQA) if a public or private project subject to CEQA is located in designated critical habitat. According to the analysis, CEQA costs impact all habitat subunits. A complete discussion of CEQA impacts, including methods and data, can be found in the March 25, 2005, RFS DEA on pages 74 through 76.

The areas with the largest impacts include three habitat subunits totaling 242 acres in Orange County (1E, 1D, and 1A, in descending order), and two subunits totaling 3,116 acres in San Diego County (3E and 5C, in descending order). Developable land is found in all of these subunits and provides the basis for the highest impacts estimated for areas affected by SDFS-related conservation activities because these activities will reduce land values on 5 percent to 30 percent of the developable acreage. Unimproved, entitled land in these subunits can range in value in the current market from \$270,000 to \$780,000 per gross developable acre based on recent residential price data from DataQuick.

¹ See the March 25, 2005, RFS DEA, pages 68 through 72, and the April 7, 2004, SDFS DEA, page 72, for brief descriptions of these airport, highway, and transit center projects. Water project impacts were excluded from this analysis because of their insignificant size. In the 2004 SDFS DEA only consultation costs (less than \$10,000 per project) were assumed to apply to affected lands where water projects may take place in the next 20 years.

Table 1
U.S. Fish & Wildlife Service
Addendum to the Draft Economic Analysis for SDFS Critical Habitat Designation
Land Area Proposed for Designation by Subunit

Habitat Subunit	Size	Location
	<i>acres</i>	
Orange County		
Unit 1		
1A	24.7	Land in the North Ranch Policy Plan Area
1B	74.1	Land at Costa Mesa Fairview Park
1C	46.9	Land at Newport Banning Ranch
1D	84.0	Rancho Mission Viejo, land on Chiquita Ridge
1E	133.4	Rancho Mission Viejo, land near Radio Tower Road
Subtotal, Unit 1	363.2	
San Diego County		
Unit 2		
2A	38.8	Land at San Onofre State Beach
2B	77.8	MCB Camp Pendleton, land on Cockleburr Mesa, north unit
2C	183.1	MCB Camp Pendleton, land on Cockleburr Mesa, south unit
2D	237.2	MCB Camp Pendleton, land near Wire Mountain Housing, northeast unit
2E	39.5	MCB Camp Pendleton, land near Wire Mountain Housing, northwest unit
2F	274.3	MCB Camp Pendleton, land near Wire Mountain Housing, south unit
2G	32.1	Carlsbad, land at Poinsettia Lane Commuter Station
Subtotal, Unit 2	882.9	
Unit 3		
3A	42.0	San Marcos, land north of San Marcos Blvd.
3B	9.9	San Marcos, land southwest of Hwy. 78
3C	98.8	San Marcos, land northeast of Hwy. 78
3D	9.9	San Marcos, land adjacent to Bent Ave.
3E	2,866.4	Land in and around the community of Ramona
Subtotal, Unit 3	3,027.1	
Unit 4		
4A	54.4	Land on Del Mar Mesa, east unit
4B	22.3	Land on Del Mar Mesa, west unit
4C	69.2	DOD land near Murphy Canyon Navy Housing
4D	34.6	DOD land near Chollas Heights Navy Housing
Subtotal, Unit 4	180.4	
Unit 5		
5A	370.7	Land on northeastern Otay Mesa, south of Lower Otay Lake
5B	182.9	Land on central Otay Mesa, north of Otay Mesa Road
5C	249.6	Land on eastern Otay Mesa, northeast of Otay Mesa Road
5D	586.0	Land on southeastern Otay Mesa, adjacent to U.S. - Mexico border
5E	9.9	Naval Base Coronado, land at Navy Outlying Landing Field, Imperial Beach
5F	245.3	Land on central Otay Mesa, north of Otay Mesa Road
Subtotal, Unit 5	1,644.3	
ALL UNITS	6,097.8	

"location"

Source: USFWS

Table 2
U.S. Fish & Wildlife Service
Addendum to the Draft Economic Analysis for SDFS Critical Habitat Designation
Summary of Impacts by Subunit

Undiscounted

Habitat Subunit [3]	Low Impacts 2006-2025 [1]			High Impacts 2006-2025 [2]		
	Real Estate Development [4]	Other [5]	TOTAL	Real Estate Development [4]	Other [5]	TOTAL
	2005\$	2005\$	2005\$	2005\$	2005\$	2005\$
Unit 1						
1A	\$896,000	\$28,000	\$924,000	\$5,187,000	\$28,000	\$5,215,000
1B	-	\$82,000	\$82,000	-	\$82,000	\$82,000
1C	\$115,000	\$52,000	\$167,000	\$648,000	\$52,000	\$700,000
1D	\$2,535,000	\$93,000	\$2,628,000	\$14,703,000	\$93,000	\$14,796,000
1E	\$4,024,000	\$433,000	\$4,457,000	\$23,345,000	\$433,000	\$23,778,000
Subtotal, Unit 1	\$7,570,000	\$688,000	\$8,258,000	\$43,883,000	\$688,000	\$44,571,000
Unit 2						
2A	-	\$1,000	\$1,000	-	\$1,000	\$1,000
2B	-	\$189,000	\$189,000	-	\$189,000	\$189,000
2C	-	\$446,000	\$446,000	-	\$446,000	\$446,000
2D	-	\$9,000	\$9,000	-	\$9,000	\$9,000
2E	-	\$1,000	\$1,000	-	\$1,000	\$1,000
2F	-	\$12,000	\$12,000	-	\$12,000	\$12,000
2G	-	\$51,000	\$51,000	-	\$51,000	\$51,000
Subtotal, Unit 2	-	\$709,000	\$709,000	-	\$709,000	\$709,000
Unit 3						
3A	-	\$1,000	\$1,000	-	\$1,000	\$1,000
3B	-	-	-	-	-	-
3C	-	\$4,000	\$4,000	-	\$4,000	\$4,000
3D	-	-	-	-	-	-
3E	\$4,917,000	\$118,000	\$5,035,000	\$28,740,000	\$118,000	\$28,858,000
Subtotal, Unit 3	\$4,917,000	\$123,000	\$5,040,000	\$28,740,000	\$123,000	\$28,863,000
Unit 4						
4A	-	\$3,000	\$3,000	-	\$3,000	\$3,000
4B	-	\$1,000	\$1,000	-	\$1,000	\$1,000
4C	-	\$3,000	\$3,000	-	\$3,000	\$3,000
4D	-	\$1,000	\$1,000	-	\$1,000	\$1,000
Subtotal, Unit 4	-	\$8,000	\$8,000	-	\$8,000	\$8,000
Unit 5						
5A	-	\$15,000	\$15,000	-	\$15,000	\$15,000
5B	-	\$38,000	\$38,000	-	\$38,000	\$38,000
5C	\$1,228,000	\$11,000	\$1,239,000	\$7,233,000	\$11,000	\$7,244,000
5D	-	\$1,093,000	\$1,093,000	-	\$1,093,000	\$1,093,000
5E	-	-	-	-	-	-
5F	-	\$11,000	\$11,000	-	\$11,000	\$11,000
Subtotal, Unit 5	\$1,228,000	\$1,168,000	\$2,396,000	\$7,233,000	\$1,168,000	\$8,401,000
ALL UNITS	\$13,715,000	\$2,696,000	\$16,411,000	\$79,856,000	\$2,696,000	\$82,552,000
Annual Cost [6]	\$700,000	\$100,000	\$800,000	\$4,000,000	\$100,000	\$4,100,000

^{"acreage"}

Sources: USFWS, Ellis Geospatial, San Diego Association of Governments, Southern California Association of Governments, CA Office of Planning & Research, CA Department of Finance, and DataQuick

[1] Low end estimate assumes that land development requires a 5% land set-aside because of SDFS-related conservation activities.
 [2] High end estimate assumes that land development requires a 30% land set-aside because of SDFS-related conservation activities.
 [3] Based on 68 FR 77, the proposed designation of critical habitat for the SDFS.
 [4] Includes loss of landowner value and costs because of delay in completion of section 7 consultations.
 [5] Includes impacts on road, airport, and transit center construction, as well as additional CEQA costs for miscellaneous public projects.
 [6] Straight line total divided by 20 years.

Table 3
U.S. Fish & Wildlife Service
Addendum to the Draft Economic Analysis for SDFS Critical Habitat Designation
Summary of Impacts by Subunit

Discount Rate: 7%

Habitat Subunit [3]	Low Impacts 2006-2025 [1]			High Impacts 2006-2025 [2]		
	Real Estate Development [4]	Other [5]	TOTAL	Real Estate Development [4]	Other [5]	TOTAL
	2005\$	2005\$	2005\$	2005\$	2005\$	2005\$
Unit 1						
1A	\$481,000	\$16,000	\$497,000	\$2,699,000	\$16,000	\$2,715,000
1B	-	\$46,000	\$46,000	-	\$46,000	\$46,000
1C	\$63,000	\$29,000	\$92,000	\$339,000	\$29,000	\$368,000
1D	\$1,359,000	\$53,000	\$1,412,000	\$7,647,000	\$53,000	\$7,700,000
1E	\$2,157,000	\$246,000	\$2,403,000	\$12,142,000	\$246,000	\$12,388,000
Subtotal, Unit 1	\$4,060,000	\$390,000	\$4,450,000	\$22,827,000	\$390,000	\$23,217,000
Unit 2						
2A	-	\$1,000	\$1,000	-	\$1,000	\$1,000
2B	-	\$98,000	\$98,000	-	\$98,000	\$98,000
2C	-	\$231,000	\$231,000	-	\$231,000	\$231,000
2D	-	\$5,000	\$5,000	-	\$5,000	\$5,000
2E	-	\$1,000	\$1,000	-	\$1,000	\$1,000
2F	-	\$7,000	\$7,000	-	\$7,000	\$7,000
2G	-	\$31,000	\$31,000	-	\$31,000	\$31,000
Subtotal, Unit 2	-	\$374,000	\$374,000	-	\$374,000	\$374,000
Unit 3						
3A	-	\$1,000	\$1,000	-	\$1,000	\$1,000
3B	-	-	-	-	-	-
3C	-	\$2,000	\$2,000	-	\$2,000	\$2,000
3D	-	-	-	-	-	-
3E	\$2,611,000	\$67,000	\$2,678,000	\$14,922,000	\$67,000	\$14,989,000
Subtotal, Unit 3	\$2,611,000	\$70,000	\$2,681,000	\$14,922,000	\$70,000	\$14,992,000
Unit 4						
4A	-	\$2,000	\$2,000	-	\$2,000	\$2,000
4B	-	\$1,000	\$1,000	-	\$1,000	\$1,000
4C	-	\$2,000	\$2,000	-	\$2,000	\$2,000
4D	-	\$1,000	\$1,000	-	\$1,000	\$1,000
Subtotal, Unit 4	-	\$6,000	\$6,000	-	\$6,000	\$6,000
Unit 5						
5A	-	\$9,000	\$9,000	-	\$9,000	\$9,000
5B	-	\$20,000	\$20,000	-	\$20,000	\$20,000
5C	\$648,000	\$6,000	\$654,000	\$3,751,000	\$6,000	\$3,757,000
5D	-	\$566,000	\$566,000	-	\$566,000	\$566,000
5E	-	-	-	-	-	-
5F	-	\$6,000	\$6,000	-	\$6,000	\$6,000
Subtotal, Unit 5	\$648,000	\$607,000	\$1,255,000	\$3,751,000	\$607,000	\$4,358,000
ALL UNITS	\$7,319,000	\$1,447,000	\$8,766,000	\$41,500,000	\$1,447,000	\$42,947,000
Annualized Cost [6]	\$700,000	\$100,000	\$800,000	\$3,900,000	\$100,000	\$4,100,000

^{"acreage"}

Sources: USFWS, Ellis Geospatial, San Diego Association of Governments, Southern California Association of Governments, CA Office of Planning & Research, CA Department of Finance, and DataQuick

[1] Low end estimate assumes that land development requires a 5% land set-aside because of SDFS-related conservation activities.
 [2] High end estimate assumes that land development requires a 30% land set-aside because of SDFS-related conservation activities.
 [3] Based on 68 FR 77, the proposed designation of critical habitat for the SDFS.
 [4] Includes loss of landowner value and costs because of delay in completion of section 7 consultations.
 [5] Includes impacts on road, airport, and transit center construction, as well as additional CEQA costs for miscellaneous public projects.
 [6] Expressed as an annuity payment at a 7% social discount rate.

Table 4
U.S. Fish & Wildlife Service
Addendum to the Draft Economic Analysis for SDFS Critical Habitat Designation
Summary of Impacts by Subunit

Discount Rate: 3%

Habitat Subunit [3]	Low Impacts 2006-2025 [1]			High Impacts 2006-2025 [2]		
	Real Estate Development [4]	Other [5]	TOTAL	Real Estate Development [4]	Other [5]	TOTAL
	2005\$	2005\$	2005\$	2005\$	2005\$	2005\$
Unit 1						
1A	\$669,000	\$21,000	\$690,000	\$3,826,000	\$21,000	\$3,847,000
1B	-	\$63,000	\$63,000	-	\$63,000	\$63,000
1C	\$87,000	\$40,000	\$127,000	\$479,000	\$40,000	\$519,000
1D	\$1,891,000	\$71,000	\$1,962,000	\$10,843,000	\$71,000	\$10,914,000
1E	\$3,003,000	\$331,000	\$3,334,000	\$17,216,000	\$331,000	\$17,547,000
Subtotal, Unit 1	\$5,650,000	\$526,000	\$6,176,000	\$32,364,000	\$526,000	\$32,890,000
Unit 2						
2A	-	\$1,000	\$1,000	-	\$1,000	\$1,000
2B	-	\$139,000	\$139,000	-	\$139,000	\$139,000
2C	-	\$327,000	\$327,000	-	\$327,000	\$327,000
2D	-	\$7,000	\$7,000	-	\$7,000	\$7,000
2E	-	\$1,000	\$1,000	-	\$1,000	\$1,000
2F	-	\$9,000	\$9,000	-	\$9,000	\$9,000
2G	-	\$40,000	\$40,000	-	\$40,000	\$40,000
Subtotal, Unit 2	-	\$524,000	\$524,000	-	\$524,000	\$524,000
Unit 3						
3A	-	\$1,000	\$1,000	-	\$1,000	\$1,000
3B	-	-	-	-	-	-
3C	-	\$3,000	\$3,000	-	\$3,000	\$3,000
3D	-	-	-	-	-	-
3E	\$3,656,000	\$90,000	\$3,746,000	\$21,181,000	\$90,000	\$21,271,000
Subtotal, Unit 3	\$3,656,000	\$94,000	\$3,750,000	\$21,181,000	\$94,000	\$21,275,000
Unit 4						
4A	-	\$2,000	\$2,000	-	\$2,000	\$2,000
4B	-	\$1,000	\$1,000	-	\$1,000	\$1,000
4C	-	\$2,000	\$2,000	-	\$2,000	\$2,000
4D	-	\$1,000	\$1,000	-	\$1,000	\$1,000
Subtotal, Unit 4	-	\$6,000	\$6,000	-	\$6,000	\$6,000
Unit 5						
5A	-	\$11,000	\$11,000	-	\$11,000	\$11,000
5B	-	\$28,000	\$28,000	-	\$28,000	\$28,000
5C	\$910,000	\$8,000	\$918,000	\$5,328,000	\$8,000	\$5,336,000
5D	-	\$803,000	\$803,000	-	\$803,000	\$803,000
5E	-	-	-	-	-	-
5F	-	\$8,000	\$8,000	-	\$8,000	\$8,000
Subtotal, Unit 5	\$910,000	\$858,000	\$1,768,000	\$5,328,000	\$858,000	\$6,186,000
ALL UNITS	\$10,216,000	\$2,008,000	\$12,224,000	\$58,873,000	\$2,008,000	\$60,881,000
Annualized Cost [6]	\$700,000	\$100,000	\$800,000	\$4,000,000	\$100,000	\$4,100,000

^aacreage"

Sources: USFWS, Ellis Geospatial, San Diego Association of Governments, Southern California Association of Governments, CA Office of Planning & Research, CA Department of Finance, and DataQuick

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 [3] Based on 68 FR 77, the proposed designation of critical habitat for the SDFS.
 [4] Includes loss of landowner value and costs because of delay in completion of section 7 consultations.
 [5] Includes impacts on road, airport, and transit center construction, as well as additional CEQA costs for miscellaneous public projects.
 [6] Expressed as an annuity payment at a 3% social discount rate.