significant economic effect upon a substantial number of small entities. In making the determination as to whether this rule would have a significant economic impact, the Department relied upon the data and assumptions for the counterpart Federal regulations.

Small Business Regulatory Enforcement Fairness Act

This rule is not a major rule under 5 U.S.C. 804(2), of the Small Business Regulatory Enforcement Fairness Act. This rule:

a. Does not have an annual effect on the economy of $100 million.

b. Will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions.

c. Does not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. This determination is based upon the fact that the State submittal which is the subject of this rule is based upon counterpart Federal regulations for which an analysis was prepared and a determination made that the Federal regulation was not considered a major rule.

Unfunded Mandates

This rule will not impose an unfunded mandate on State, local, or tribal governments or the private sector of $100 million or more in any given year. This determination is based upon the fact that the State submittal, which is the subject of this rule, is based upon counterpart Federal regulations for which an analysis was prepared and a determination made that the Federal regulation did not impose an unfunded mandate.

List of Subjects in 30 CFR Part 950

Intergovernmental relations, Surface mining, Underground mining.

Dated: March 24, 2006.

Allen D. Klein,

Regional Director, Western Region.

[FR Doc. E6–5973 Filed 4–20–06; 8:45 am]

BILLING CODE 4310–05–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to Delist the Pacific Coast Population of the Western Snowy Plover

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to remove the Pacific coast population of the western snowy plover (*Charadrius alexandrinus nivosus*) from the Federal List of Threatened and Endangered Wildlife pursuant to the Endangered Species Act of 1973, as amended. After reviewing the best scientific and commercial information available, we find that the petitioned action is not warranted. We ask the public to submit to us any new information that becomes available concerning the status of, or threats to, the species. This information will help us monitor and encourage the conservation of this species.

DATES: The finding announced in this document was made on April 21, 2006.

ADDRESSES: Data, information, comments, or questions concerning this finding may be sent to the Field Supervisor (Attn: WSP–DELIST), Arcata Fish and Wildlife Office, U.S. Fish and Wildlife Service, 1655 Heindon Road, Arcata, California 95521–5582 (fax: 707–822–8411). The petition and supporting information are available for public inspection, by appointment, during normal business hours, at the above address.

FOR FURTHER INFORMATION CONTACT: Jim Watkins, Fish and Wildlife Biologist, in Arcata (telephone: 707–822–7201).

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(A) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*) requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial information to indicate the petitioned action may be warranted. Section 4(b)(3)(B) of the Act requires that within 12 months after receiving a petition to revise the List of Threatened and Endangered Wildlife and Plants that contains substantial information indicating that the petitioned action may be warranted, the Secretary shall make one of the following findings: (a) The petitioned action is not warranted, (b) the petitioned action is warranted, or (c) the petitioned action is warranted but precluded by higher priority workload. Such 12-month findings are to be published promptly in the **Federal Register**.

Previous Federal Action

The Pacific coast population of the western snowy plover (*Charadrius alexandrinus nivosus*) (Pacific Coast WSP) was listed as threatened on March 5, 1993 (Service 1993 (58 FR 12864)), prior to publication of our 1996 distinct population segment (DPS) policy (Service and NMFS 1996a (61 FR 4722; February 7, 1996)). At the time of listing, the primary threat to the plover was the loss and degradation of habitat from human activities. Critical habitat for the Pacific Coast WSP was designated on September 9, 2005 (70 FR 56969).

On July 29, 2002, we received a petition from the Surf-Ocean Beach Commission of Lompoc, California, to delist the Pacific Coast WSP pursuant to the Act. We also received a similar petition dated May 30, 2003, from the City of Morro Bay, California. As explained in our 1996 Petition Management Guidance (Service and NMFS 1996b), subsequent petitions are treated separately only when they are greater in scope or broaden the area of review of the first petition. The City of Morro Bay petition repeats the same information provided in the Surf-Ocean Beach Commission petition and was therefore treated as a comment on the first petition received. On March 22, 2004 (69 FR 13326), we announced an initial (90-day) finding that the petition presented substantial information to indicate the petitioned action may be warranted, and we initiated a status review under sections 4(b)(3)(A) and 4(c)(2)(A) of the Act. We have now completed the status review on the species using the best available scientific and commercial information, and have reached a determination regarding the petitioned action. This status review also fulfills the requirements of 4(c)(2).

Species Information

Snowy plovers are small shorebirds, about 16 centimeters (6 inches) long, with pale brown upperparts, buff-colored bellies, and darker patches on their shoulders and heads. Their dark gray to black legs are a useful distinguishing feature when comparing to other plover species (Page *et al.* 1995a). Two subspecies of snowy plover

recognized by the American Ornithological Union (AOU 1957), nest in North America: The western snowy plover and the Cuban snowy plover (*Charadrius alexandrinus tenuirostis*).

Biology and Distribution

The breeding range of the western snowy plover includes sites in California, Oregon, Washington, Nevada, Utah, Arizona, Colorado, New Mexico, Kansas, Oklahoma, Texas, and Baja California, central and northeastern Mexico, as well as irregularly visited sites in Saskatchewan, Canada; and Wyoming and Montana (Page *et al.* 1995a) (see Figure 1). In 1993, we listed and defined the Pacific Coast WSP as those western snowy plovers ''that nest adjacent to or near tidal waters'' of the Pacific Ocean (Service 1993 (58 FR 12864)). In this finding, we refer generally to plovers nesting at locations other than on the Pacific coast as ''interior'' populations, even though this term includes populations nesting on the Gulf coast. We also refer to interior nesting populations according to whether they nest east or west of the Rocky Mountains, on the Gulf Coast, or in central Mexico.

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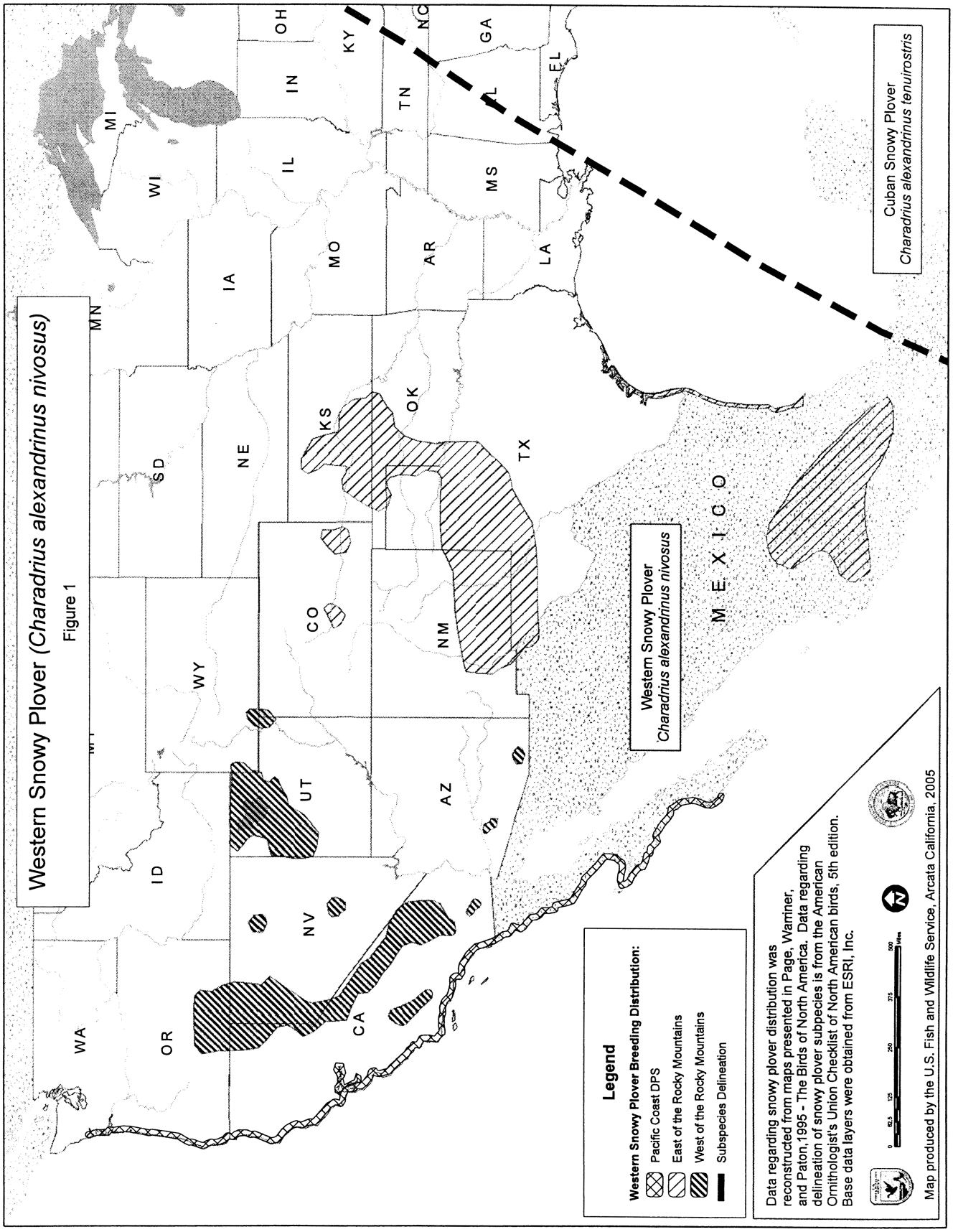

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The second North American subspecies, the Cuban snowy plover, nests along the Gulf coast from Louisiana to western Florida and south through the Caribbean (American Ornithological Union (AOU) 1957; Service 1993 (58 FR 12864); Page *et al.* 1995a). The subspecific status of populations breeding east of the Rocky Mountains, now considered to belong to the subspecies *C. a. nivosus*, has been questioned. Some consider these populations to belong more appropriately to the subspecies *C. a. tenuirostris* (Warriner *et al.* 1986). Others consider the subspecies *C. a. tenuirostris* to be a paler version of the western snowy plover rather than a separate subspecies (Page *et al.* 1995a). In this status review, we rely on the current American Ornithological Union taxonomic classification that considers *C. a. nivosus* to be a valid subspecies (AOU 1957).

Some plovers nesting on the Pacific coast migrate north or south to other Pacific coastal wintering sites, while others stay at their breeding sites year round. Birds nesting in the interior, west of the Rocky Mountains (the western interior population) winter in coastal California and Baja California, Mexico, and often commingle with the Pacific Coast WSP. However, some individuals from the southern California interior do not migrate (Page *et al.* 1995a). Plovers from the interior east of the Rockies are migratory, probably wintering on the Gulf Coast, except for small numbers of year-round residents in Texas, Arizona, and New Mexico. Plovers nesting on the Gulf coast may sometimes winter at other Gulf coast locations, while those nesting in central Mexico are likely year-round residents (Page *et al.* 1995a).

The timing of the nesting season varies with location, but in coastal California it tends to run from March through September (Page *et al.* 1995a). Breeding locations tend to be sandy areas close to water, including beaches, salt pans, alkaline playas, and gravel bars on the tidally influenced portion of coastal rivers. Clutches, which most commonly consist of three eggs, are laid in shallow scrapes or depressions in the sand. Snowy plovers generally form monogamous pair bonds and share incubation duties, but western snowy plover females typically desert the brood shortly after hatching, and may renest with a new male if time remains in the season to do so. Males typically care for the young until they fledge, which takes about a month, and may then renest with a new partner if sufficient time remains in the season (Stenzel *et al.* 1994). This results in a serially polygamous breeding system in which males may double clutch and females may triple clutch during a single season (Page *et al.* 1995a).

Population Status

The current known breeding range of the Pacific Coast WSP extends from Damon Point, Washington, to Bahia Magdelena, Baja California, Mexico. Observed estimates for the Pacific Coast WSP, rangewide, are approximately 3,700 individuals; within that total, the observed estimate of the U.S. population of the Pacific Coast WSP is approximately 1,800 adults (see Table 1) (L. Stenzel, *in litt.* 2004a; G. Page, *in litt.* 2005b; L. Kelly, *in litt.* 2006; M. Jensen, *in litt.* 2006). Current population estimates are developed by multiplying the number of adult plovers observed during breeding window surveys (Table 1 Observed Estimate) by a correction factor of 1.3, which adjusts the observed number to that of a known population (Table 1 Current Population Estimate). Multiplying the observed estimates by the correction factor, the current population estimate for the United States portion of the Pacific Coast WSP is approximately 2,300 (see Table 1), based on the 2005 breeding window survey (Stenzel, *in litt.* 2004b; Page, *in litt.* 2005b; Jensen, *in litt.* 2006; Kelly, *in litt.* 2006), and the current population estimate for the Pacific Coast WSP rangewide is approximately 4,800.

TABLE 1.—OBSERVED AND ESTIMATED NUMBERS OF ADULT WESTERN SNOWY PLOVERS IN THE UNITED STATES AND MEXICO

[Adapted and updated from Page *et al.* 1995a]

Location	Year	Observed number	Source	Observed estimate [1]	Current population estimate [2]
U.S. Pacific Coast	2005	.....	A	1,795	2,334.
Washington	2005	15	I		
Oregon	2005	100	H		
California	2005	1,680	A		
Mexico, West Coast of Baja California	1991–1992	1,344	B, C	At least 1,900	At least 2,470.
Pacific Coast WSP Estimated Total				3,695	4,804.
Interior U.S., west of Rocky Mtns.:					
All States except Utah	1988	.....	C	6,100	7,930.
Nevada	1988	691	C		
Oregon	1988	552	C		
California:					
Great Basin	1988	1,213	C		
San Joaquin Valley	1988	241	C		
S. California deserts	1988	291	C		
Utah	1992	1,501	D	4,189	5,445.
Great Plains:					
Colorado	1986–92	.....	C, G	Up to 150	Up to 195.
Kansas	1986–92	.....	C, G	Up to 356	Up to 463.
Oklahoma	1986–92	.....	C, G	2,007	2,609.
Texas	1986–92	.....	C, G	500	650.
New Mexico	1986–92	.....	C, G	Up to 500	Up to 650.
Gulf Coast:					
Texas	2004	.....	E	1,000	1,300.
NE Mexico	1992	.....	G	Up to 34	Up to 44.
Interior Mexico	1994	.....	F	At least 35	At least 46.

TABLE 1.—OBSERVED AND ESTIMATED NUMBERS OF ADULT WESTERN SNOWY PLOVERS IN THE UNITED STATES AND MEXICO—Continued

[Adapted and updated from Page *et al.* 1995a]

Location	Year	Observed number	Source	Observed estimate [1]	Current population estimate [2]
Presa Acecatecana	.....	12			
Salinas de Hidalgo	.....	16			
Jalisco (near Atoyac)	.....	6			
Lago Texcoco	.....	1			
Estimated Total for Interior and Gulf Coast Breeding WSP				14,871	19,332.
Estimated Grand Total for the Subspecies				18,566	24,136.

[1] The Observed Estimate (Obs. Est.) is approximated for the Mexico portion of the range based upon the research conducted by Page *et al.* (1995a).

[2] The 2005 Current Population Est. equals the Obs. Est. multiplied by a correction factor of 1.3. The Obs. Est. often under counts the actual number of birds. Research by the Point Reyes Bird Observatory shows a correction factor is needed to give a more accurate population count (Stenzel *in litt.* 2004a).

Sources: A = G. Page *in litt.* 2005; B = E. Palacios *et al.* 1994; C = G. Page *et al.* 1995a; D = P. Paton in litt. 2004; E = Zdravkovic 2004; F = Howell and Webb 1994; G = Gorman and Haig 2002; H = L. Kelly in litt. 2006; I = M. Jensen in litt. 2006.

Recent census data for the Baja California, Mexico population of the Pacific Coast WSP do not exist; however, we use the observed estimate of 1,900 adults as provided in Page *et al.* (1995a), as that is the best available information. The population is sparse in Washington, Oregon, and northern California. Historical records indicate that nesting plovers were once more widely distributed and abundant in coastal Washington, Oregon, and California than at present (Page *et al.* 1995a). At about the time the species was listed under the Act, approximately 2,000 western snowy plovers bred along the United States Pacific Coast (Page *et al.* 1995a) and approximately 1,900 bred on the west coast of Baja California, Mexico (Palacios *et al.* 1994). The largest number of breeding birds occurred from south San Francisco Bay to southern Baja California (Page and Stenzel 1981; Palacios *et al.* 1994).

Washington—Occupancy of Sites: In Washington, plovers formerly nested at five coastal sites (Washington Department of Fish and Wildlife 1995). Three of these remain currently active, indicating a 40 percent decline in the number of Washington breeding areas. Occupancy at sites in Washington has declined for several reasons, including site degradation due to beach erosion (*e.g.*, Westport Spit, Leadbetter Point, Gunpowder Sands Island). Subsequent to the 1993 listing, habitat conditions have improved or expanded at other sites (*e.g.*, Midway Beach).

Washington—Number of Pacific Coast WSP: The number of birds in Washington, however, appear to be stable to increasing since the early 1990s, based on consistent, intensive, repeatable counts of adults during the breeding season. Breeding season surveys indicate a general increase in the plover breeding population since 1995 (Washington Dept. of Fish and Wildlife, *in litt.* 2003). Population numbers range from a low of 19 adults in 1994, to 68 in 2003. In recent years, sand has built up at Midway Beach creating high quality habitat, and nesting was documented in 1998 (Richardson *et al.* 2000). Uniquely banded plovers from natal locations along the Oregon and California coasts have bred in Washington coastal sites, adding to the overall breeding population within the State. We attribute the increases to improved coastal habitat at some locations, and intensive management in Oregon and California.

Oregon—Occupancy of Sites: In Oregon, plovers historically nested at 29 coastal locations. Our 1993 listing decision was based, in part, on the loss of 23 of those locations (Service 1993 (58 FR 12864)). However, in 2004, the number of breeding sites had increased to 10 due to the reoccupation of 4 historic sites (D. Lauten, *in litt.* 2004). As a result, 65 percent (19 of 29) of the historic nesting locations have been lost; improved from 79 percent at the time of listing.

Oregon—Number of Pacific Coast WSP: Annual surveys of adult and juvenile plovers in coastal Oregon began in 1978, with intensive monitoring beginning in 1993. Survey data shows a general decline in breeding adults throughout coastal Oregon until 1994, at which time the trend reversed to an increase in breeding adults. Although the overall breeding population trend is still down from historical numbers, the period from 1994 to present has shown a slight increase (J. Baldwin, *in litt.* 2004). Plovers from California have been observed nesting in coastal Oregon, contributing to the State's breeding population, estimated at 110 birds in 2003 (Oregon Department of Parks and Recreation 2003). Eighty-three plovers were observed during breeding surveys in 2004, and 100 were counted during the 2005 breeding season (Lauten *et al.* 2006). We attribute the increase directly to protections and resultant management from the 1993 Federal listing. Management measures benefiting plovers include the use of exclosures to reduce nest predation, restoration of breeding habitat by removing European beachgrass (*Ammophila arenaria*), increased use of signs and symbolic fencing (temporary post and cable) around breeding sites, intensified public information, and enhanced law enforcement.

California—Occupancy of Sites: Eight geographic areas in California support over three-quarters of the Statewide coastal breeding population (Page *et al.* 1991). By the late 1970s, nesting plovers in California were absent from 33 of 53 of the breeding locations having breeding records prior to 1970 (Page and Stenzel 1981). Stenzel (*in litt.* 2004b) has subsequently identified an additional 11 locations that have lost nesting plovers. An estimated 1,566 adult plovers were seen during initial Statewide coastal surveys by Point Reyes Bird Observatory (PRBO) during the 1977 to 1980 breeding seasons (Page and Stenzel 1981). The surveys indicated that by 1980, plovers had been extirpated or severely reduced in breeding distribution throughout substantial portions of their coastal southern California breeding range, especially in San Diego, Orange, and Los Angeles Counties. With the exception of some beach segments along

Monterey Bay in Monterey County, breeding plovers were absent or severely reduced at other historic breeding sites along the southern and central California coast. A preliminary analysis of current breeding sites identifies 10 new, low-density breeding locations (L. Stenzel, *in litt.* 2004b). However, analysis also shows that at least 44 of the historic sites, many of which were known to be high-density sites, have not had any recent nesting activity (L. Stenzel, *in litt.* 2004a; 2004b).

California—Number of Pacific Coast WSP: In addition to losses of breeding locations, or lack of activity at breeding locations, Statewide beach surveys conducted by PRBO during 1989 and 1991 also indicated a decline in numbers of breeding plovers. Along the California coast, including the Channel Islands, plover numbers declined by almost 5 percent, and the estimated decline at San Francisco Bay was about 40 percent (A. Powell, pers. comm. 1998; Point Reyes Bird Observatory, unpublished data). More recent surveys during the breeding seasons of 2000, 2002, 2003, 2004, and 2005, were accomplished through a collaboration of researchers studying plovers in coastal California. Results are provided in Table 2, below.

TABLE 2.—TOTAL NUMBER OF ADULT SNOWY PLOVERS DURING BREEDING SEASON WINDOW SURVEYS OF THE CALIFORNIA COAST

Year	1977–1980 [1]	1989 [2]	1991 [3]	2000 [3]	2002 [3]	2003 [3]	2004 [3]	2005 [4]
Total	1,566	1,386	1,371	976	1,387	1,444	1,904	1,680

[1] Page and Stenzel 1981—Surveys were conducted in multiple years; [2] Page *et al.* 1991; [3] L. Stenzel, *in litt.* 2004a; [4] Page *in litt.* 2005.

In 2000, there were 976 breeding adult plovers observed in coastal California. Surveyors observed 1,387 and 1,444 adult plovers during similar breeding season surveys conducted in 2002 and 2003, respectively. Statewide breeding season window surveys for California demonstrate an increase in observed breeders from 2001 through 2005, although there is still an overall decline when compared to historic breeding population numbers (J. Baldwin, *in litt.* 2004; K. Lafferty, *in litt.* 2002).

The increase in the number of adult plovers observed during breeding season window surveys in the southern part of California is related, at least in part, to protections and associated management provided to the federally endangered California least tern (*Sterna antillarum browni*) (Persons and Applegate 1996). Predator management, habitat restoration, leash laws, controlled recreational vehicle use, symbolic fencing, and other measures have contributed to the Statewide increase in breeding Pacific Coast WSP and also provided benefits to interior plovers wintering on the coast.

Baja California, Mexico—Occupancy of Sites and Number of Pacific Coast WSP: Along the Pacific coast of Baja California, Mexico, most plover nesting areas are associated with the largest wetlands. A survey of breeding western snowy plovers along the Pacific coast of Baja California between 1991 and 1992 found 1,344 adults, mostly at four coastal wetland complexes: Bahia San Quintin, Lagunas Ojo de Liebre and Guerrero Negro, Laguna San Ignacio, and Bahia Magdalena (Palacios *et al.* 1994). Based on detection ratios established for surveys on the United States Pacific coast, this indicated a coastal Baja population of at least 1,900 adults (Palacios *et al.* 1994; Page *et al.* 1995a). We have no information of any more recent estimates (E. Palacios, *in litt.* 2004).

Discussion of the Petition

The petition asserts that the Pacific Coast WSP does not meet the Act's definition of a threatened species as its population is in flux rather than decline. The petition offers a table and a graph to support this assertion: The graph in section 5.1.2 of the petition provides breeding population counts for Vandenberg Air Force Base (VAFB) for 1978 through 2001, and the table in section 5.1 (included as part of Table 2 above) provides breeding population census counts for the California coast during 6 years from 1980 to 2000. The graph shows VAFB breeding population fluctuating in size from more than 100 to about 20 between 1978 and 2001.

The petition states that the VAFB data reflect dramatic fluctuations that can occur within the plover population. Vandenberg has two sections of beach that support plover breeding known as North Beach and South Beach. The graph presented within the petition (subsection 5.1.2) shows that Vandenberg's plover population has fluctuated dramatically, with an overall increase from 119 birds in 1978 to 121 birds in 2001 (Surf Ocean Beach Commission 2002). However, the petition does not provide the sources for the data in the graph. We believe the data in the petition's graph from 1993 to 2001 are from annual plover monitoring reports that VAFB started in 1993 (*e.g.*, Persons 1994; Hickey and Page 2001) because we know of no other source from which the information could have come.

It appears that the 1978 data in the petition's graph are from Page and Stenzel (1981), but it is not clear upon what the intermittent counts presented in the graph between 1978 and 1993 are based. This graph shows a population increase from 193 to 239 breeding adults over the years 1993 to 1997, a decrease to 132 and then 78 adults in 1998 and 1999 following severe storms and an oil spill in the winter of 1997 through 1998, and then a slow increase up to 122 adults in 2001. The VAFB monitoring reports also note generally increasing efforts to exclude human interference with nesting during these years. Based on these data alone, it appears that plover breeding numbers can be seriously affected by random natural events such as heavy storms, but this does not support the petition's conclusion that the plover population is in flux rather than decline. The 1978 data, which petitioners offer as evidence of an overall increase of 119 to 121 birds, was itself collected after heavy winter storms. These storms were so severe that only 7.1 mi (11.5 km) of beach were available for nesting (Page and Stenzel 1981; L. Stenzel, pers. comm. 2003); in contrast, in 2001, 12.5 linear miles (mi) [20.1 linear kilometers (km)] of beach were available for nesting (Hickey and Page 2001). The 1978 numbers would therefore likely have been depressed from historic levels, and would constitute poor support for the petition's conclusions regarding overall population trends. More importantly, we do not consider census data from VAFB alone to reasonably support conclusions concerning the entire Pacific coast population. Pacific Coast WSP do occasionally nest or renest at other coastal locations (Stenzel *et al.* 1994; Page *et al.* 1995a), so fluctuations in the VAFB breeding population could either be caused or moderated by

immigration to and emigration from other beaches.

The table in section 5.1 of the petition provides census data for the California coast and serves as a better indication of population trends for the Pacific Coast WSP, because ''the California coast population represents at least 90 percent of the listed Pacific coast population in the United States'' (D. Noda, *in litt.* 2001) (see table 1). Yet, the data presented in this petition table show a steady decrease in population from 1980 to 2000 except for a particularly high count in 1997 and a somewhat low count in 1995. The 1997 and 1995 surveys were both conducted differently than those for other years and are therefore not directly comparable to other years. The 1995 census did not include counts from several important breeding sites such as South San Francisco Bay (P. Nieto, SRS Technologies, *in litt.* 2002; L. Stenzel *in litt.* 2004a; G. Page, pers comm. 2003). The 1997 population estimate is based on intensive monitoring information for some areas combined with ''corrected'' window survey data from previous years for other areas (Nur *et al.* 1999; G. Page, pers. comm. 2003). All other population estimates in the petition's table in section 5.1 are totals of window survey counts from the known breeding sites.

We developed Table 2 (above) to show California coastal population estimates based on the observed number of adult plovers during breeding season window surveys. Table 2 consists of the population counts reported in the petition's table for years other than 1995 and 1997, along with population counts from 2002 through 2005 which we added to the Table.

The increase first observed in 2002 is encouraging, and we attribute the population increases to the implementation of conservation strategies by our recovery implementation stakeholders, such as California State Parks, who have engaged in habitat restoration and the use of extensive symbolic fencing. It is also important to note that the population level documented by Page and Stenzel (1981), was likely depressed by severe storms and resulting beach erosion during the winter of 1977 through 1978 (Page and Stenzel 1981). Counts conducted at VAFB from 1998 through 2000 showed a drop in adult plover numbers from 238 to 132 following similarly severe storms during the winter of 1997/1998 (Applegate and Schultz 1999; Applegate and Schultz 2000). Although the survey conducted in 1977 through 1980 provided fairly high population estimates, Page and Stenzel (1981) noted: ''Numbers have definitely declined on the coast; the species was not found breeding in 33 of the 53 locations with breeding records prior to 1970. Of the 33 areas, 28 are not likely to have regular breeding populations again because the habitat has been destroyed or human use of the area is too great.'' The petition interprets such conclusions as speculative since they were not based on census data and do not show how often particular breeding sites were used. While we agree that any precise population estimates based on such data would be speculative, we believe the indications of lost habitat provided by Page and Stenzel (1981) are well supported and reasonably lead to the conclusion that historic population levels were higher than those documented in the 1977 to 1980 census. We therefore consider the available data on the coastal California population to provide more support for the contention that the Pacific Coast WSP has declined from historical levels.

The listing decision was also based on the loss of 33 California breeding sites. An additional 11 sites have been subsequently identified as having also lost nesting plovers since the original work was completed and reported in the listing decision (L. Stenzel, *in litt.* 2004b). Consequently, the loss of 44 of 53 breeding sites in California represents an 83 percent reduction in historical nest locations. Some of those sites in southern California were especially significant. Places like Los Angeles County, where 25 miles of former breeding habitat were lost, may have supported up to 600 pairs (1200 breeding birds) of plovers. The estimate is extrapolated from an egg collector's 1903 record of 50 pairs along a 2 mile section of Manhattan Beach (L. Stenzel, *in litt.* 2004b). At the time of the 1993 listing, Oregon had lost 79 percent (23 of 29) of its historic nesting sites, and Washington had lost 40 percent of its nesting locations (2 of 5) (Service 1993 (58 FR 12864)). Additionally, the remaining habitat has been degraded by the colonization of nonnative European beach grass by occupying nesting substrate and changing from the open structure that plovers prefer, increased number of predators, and increased human use. Addressing the above three factors through effective management range-wide and the reestablishment of 4 former breeding sites in Oregon (D. Lauten, *in litt.* 2004) have bolstered plover populations since listing (G. Page, *in litt.* 2004a).

The petition also cites a recent Pacific Coast WSP viability analysis that indicates the population would likely remain above an ''extinction threshold'' of 50 individuals for at least 100 years under the 1999 status quo (Nur *et al.* 1999). However, the petition did not note that the ''status quo'' scenario (Scenario 1) assumed that existing protections and management actions under the Act would continue and projected a significant downward trend in population over the next 100 years in the absence of additional efforts. Under a ''no management'' scenario (Scenario 12), the analysis found a 51 percent probability of reaching an extinction threshold after 100 years. The analysis did not consider a scenario involving the complete removal of protections under the Act. We therefore do not consider the petition's statement that the Pacific Coast WSP population is healthy but in flux to be well supported by available data, especially if protections under the Act are removed.

Distinct Population Segment

In a 12-month finding, we must determine if: (1) The petitioned action is warranted; (2) the petitioned action is not warranted; or (3) the petitioned action is warranted but precluded by other higher priority activities. Under the Act, a species is defined as including any subspecies and any distinct population segment of a vertebrate species (16 U.S.C. 1532). To implement the measures prescribed by the Act and its Congressional guidance, we and the National Marine Fisheries Service (National Oceanic and Atmospheric Administration-Fisheries), developed a joint policy that addresses the recognition of DPSs of vertebrate species for potential listing actions (Service and NMFS 1996a (61 FR 4722)). The policy allows for a more refined application of the Act that better reflects the biological needs of the taxon being considered, and avoids the inclusion of entities that do not require its protective measures. As noted above, in 1993, we listed the Pacific Coast population of the WSP as threatened. As this was prior to our 1996 DPS policy, a first step in this status review process is to review the available information to assess whether the Pacific Coast WSP 1993 listing determination is consistent with the 1996 DPS policy.

The DPS policy specifies that we are to use three elements to assess whether a population segment under consideration for listing may be recognized as a DPS: (1) The population segment's discreteness from the remainder of the species to which it belongs; and (2) the significance of the population segment to the species to which it belongs; and (3) the population segment's conservation status in relation to the ESA's standard for listing (61 FR

4722, 4725). If we determine that a population segment meets the discreteness and significance standards, then the level of threat to that population segment is evaluated based on the five listing factors established by section 4(a) of the Act to determine whether listing the DPS as either threatened or endangered is warranted. The DPS policy also states: ''Listing, delisting, or reclassifying distinct vertebrate population segments may allow the Services to protect and conserve species and the ecosystems upon which they depend before large-scale decline occurs that would necessitate listing a species or subspecies throughout its entire range. This may allow protection and recovery of declining organisms in a more timely and less costly manner, and on a smaller scale than the more costly and extensive efforts that might be needed to recover an entire species or subspecies'' (61 FR 4722, 4725). Below, we address under our DPS policy the population segment of the WSP currently listed as a DPS that occurs within 50 miles of the Pacific coast in Oregon, Washington, California, and Mexico.

Discreteness

The DPS policy states that a vertebrate population segment may be considered discrete if it satisfies either of the following two conditions:

1. It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation; or

2. It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act.

The following discussion addresses only the first condition, since the Pacific Coast WSP DPS includes plovers within Baja California, Mexico and is not delimited by an international boundary.

The 1993 listing rule stated that the Pacific Coast WSP is ''genetically isolated'' from the interior breeding populations (58 FR 12864). We based this conclusion on banding and monitoring data, not genetic data. At the time of listing, we assumed the reproductive separation indicated by the banding data, over time, could lead to genetic differentiation. Genetic data for the western snowy plover was not available in 1993.

In this status review process, we examine the best information now available, which includes banding, monitoring, and genetic information, and assess the petition's additional points on discreteness, to determine if the 1993 listing determination was consistent with the 1996 DPS policy. Western snowy plovers from populations in the eastern interior (east of the Rockies), the Gulf Coast, and the Mexican interior are not likely to interact with the Pacific Coast WSP, and are not known to visit the Pacific coast (Page *et al.* 1995a). We thus focus our discreteness analysis on the Western snowy plovers from populations in the western interior (west of the Rockies), and the Pacific Coast WSP.

Banding and Monitoring Information

Banding and monitoring studies are useful methods for evaluating the discreteness of two populations provided that the banding effort adequately samples each population, and the monitoring effort is adequate to provide reasonable probabilities of detecting banded individuals (J. Plissner, *in litt.* 2005). Several banding and monitoring studies have been conducted that address the Pacific Coast WSP (Spear 1979; Stenzel and Peaslee 1979; Henderson and Page 1979; Widrig 1980; Page and Stenzel 1981; Page *et al.* 1983; Wilson-Jacobs and Meslow 1984; Warriner *et al.* 1986; Herman *et al.* 1988; G. Page, *in litt.* 1989; Page and Bruce 1989; Stern *et al.* 1990a, 1990b, 1991a, 1991b; Page *et al.* 1991; ODFW 1994; Palacios *et al.* 1994; Paton 1994; Persons 1994, 1995; Stenzel *et al.* 1994; Page *et al.* 1995b; G. Page *et al.*, Point Reyes Bird Observatory (PRBO), *in litt.* 2002; Powell *et al.* 2002; C. Sandoval, *in litt.* 2002; G. Page, PRBO, *in litt.* 2004b; G. Page, PRBO, *in litt.* 2005). Some of these studies were not specifically designed for the purpose of evaluating the discreteness of the Pacific Coast WSP, but nonetheless provide useful information for this analysis.

In this finding, we rely primarily on the banding and resighting efforts conducted during the period of 1984 through 1993, as this is the period when banding efforts were underway at several areas on the Pacific coast and in the western interior, and nest monitoring studies and breeding season surveys were underway at many locations when banded birds could be detected. Interior populations have not been banded since 1993 (L. Stenzel, *in litt.* 2005). From 1984 through 1993, a total of 4,170 plover chicks and breeding adults were banded at nine sites on the Pacific coast (3,077 banded birds), and at four western interior locations (1,093 banded birds) (G. Page, *in litt.* 2004b). The coastal locations included sites in both Oregon and central California, while the western interior locations included sites in Utah, Oregon, and California.

Subsequent nest monitoring and breeding season surveys conducted in the Pacific coast and western interior breeding zones from 1985 through 1995 provided an opportunity for resightings of banded birds. During that time, a total of 22 U.S. coastal surveys; 1 coastal Baja California, Mexico survey; and 4 western interior surveys were conducted, many of which were repeated over several years (Palacios *et al.* 1994; G. Page, *in litt.* 2004b). Collectively, these surveys covered essentially the entire extent of U.S. coastal breeding habitat, as well as extensive portions of western interior and Baja California, Mexico coastal habitat, though not all such locations were surveyed every year (Palacios *et al.* 1994). During this same time period, 10 U.S. coastal and 4 western interior nesting studies were also conducted at sites along the entire Oregon Coast, Utah, eastern Oregon, and numerous locations on the California coast and interior (G. Page, *in litt.* 2004b). Nesting studies involve repeated searching and monitoring of nests and nesting areas over the course of at least one breeding season, and are more comprehensive than surveys.

A total of 907 banded plovers were detected by these breeding surveys and studies. It is important to note that this figure does not include plovers that were resighted in their original region (coastal or western interior) without evidence of nesting, and does not include plovers that were banded on the coast during the winter, as their breeding range could not be established. The total does include six plovers that were found nesting in more than one location, and so were counted twice. Of these 907 resighted plovers, only 13 (1.4 percent) were found in a geographic area (coastal or western interior) that was different from their original breeding range. Two of those 13 plovers (0.2 percent of the total 907 birds) were found nesting outside of their original breeding range. One of these two plovers, a coastal female nesting at the Kesterson National Wildlife Refuge in 1986, was one of the two birds mentioned in the original listing rule (Service 1993 (58 FR 12864)). The other was a male banded in the interior (though never found nesting in the western interior) and later found nesting on the coast in 1995. The other 11 plovers were all coastally banded and found in the interior without nests (G. Page, *in litt.* 2004b).

In addition to the 1984 through 1993 period, the period from 1977 through 1983 provides another opportunity to detect movements between the western interior and Pacific Coast WSP populations. However, surveys were less comprehensive during this time period, and only one banding study took place in the western interior. Therefore, this period is less useful for assessing breeding dispersal, but still provides additional relevant information. During this period, 599 plovers were banded at seven sites along the central California coast, and 400 were banded in the western interior at Mono Lake, California (G. Page, *in litt.* 2004b). The coastal survey effort included seven breeding season surveys across the U.S. range of the coastal population, as well as seven nest monitoring studies from Marin to San Luis Obispo Counties, California. The interior survey effort included three breeding season surveys, as well as the ongoing banding studies at Mono Lake (L. Stenzel, pers. comm. 2004). None of the plovers banded at Mono Lake were observed on the coast during the breeding season. One female, banded as a chick at Monterey Bay along the California coast, was found nesting at Mono Lake in 1978. This was the first of the two females mentioned in our original listing determination (Service 1993 (58 FR 12864)) as having bred outside the coastal population.

In addition to colored bands, whose combinations were administered by the Point Reyes Bird Observatory (PRBO), some studies employed metal bands administered by the Patuxent Bird Banding Lab. Resightings of these bands were less common, since recapture of the bird is generally required to read the band number. Of the 304 band retrievals reported to Patuxent Bird Banding Lab for years 1969 to 2002, one male was found to have moved from the Pacific coast to an interior location. This plover was banded during the non-breeding season (November 1984) near Ano Nuevo, California, and retrieved during the breeding season (June 1988) near Lake Albert, Oregon (G. Goldsmith, *in litt.* 2004). The banding dates and associated migration suggest that the plover was an interior bird overwintering on the California coast. The age of the plover was unknown at the time of banding. There are no records in this data set of plovers moving in the opposite direction, from the western interior to Pacific coast.

Review of Banding Data

We asked six researchers familiar with avian banding studies to examine the available banding data for the Pacific Coast WSP and plovers from the interior west of the Rocky Mountains, and provide us their professional opinions about the adequacy of those studies for determining reproductive separation between the two populations. Four of the reviewers responded. Three concluded that there appears to be little exchange of reproductive individuals between the western interior and coastal sites (G. Smith, USGS, *in litt.* 2004; B. Andres, Service, *in litt.* 2005; J. Plissner, ABR Inc., *in litt.* 2005). However, three of the reviewers (the fourth reviewer and two of the three reviewers mentioned above) also noted that because monitoring in the interior had been less comprehensive than on the coast, there is more uncertainty about the ability to detect coastal plovers that may have moved to the interior (B. Andres, *in litt.* 2005; C. Elphic, University of Connecticut, *in litt.* 2005; J. Plissner, *in litt.* 2005). They felt it was possible that a coastal breeding plover could move to the interior undetected, but it was highly unlikely that an interior breeding plover could move to the coast without being observed, as the coastal resighting efforts were more extensive temporally and geographically than those at interior sites. These three reviewers stated that the available data are adequate to conclude that there is little interaction between the breeding coastal and interior populations. One reviewer noted dispersal between inland and coastal populations may be episodic and associated with temporal variation in breeding conditions at regional scales, and that the banding efforts have not been extensive enough to address this possibility for the range of conditions (J. Plissner, *in litt.* 2005).

Conclusion on Banding Data

We find that the existing banding and resighting data are sufficient to document that the Pacific Coast WSP and the western interior breeding populations experience limited or rare reproductive interchange. We are most confident in the data from the 12-year period 1983 through 1995, as that is the period with the most extensive banding studies and search efforts. The results from that period indicate that 98.6 percent of the sampled plovers were observed during the breeding season using the same breeding range as where they were originally banded. We consider the results from that period sufficient to document a marked separation of breeding ranges, and illustrate that the amount of interchange between coastal and western interior populations is likely to be extremely low, though not zero. Results from the 1977 through 1984 period and the Patuxent banding data are also consistent with this conclusion. Our DPS policy does not require complete reproductive isolation, and allows for some limited interchange among population segments considered to be discrete (Service and NMFS 1996a (61 FR 4722)). Based on the results of these banding and monitoring data, we conclude that the Pacific Coast WSP is not freely interbreeding with other members of the taxon, although some genetic interchange likely occurs at a very small rate. This constitutes a marked separation due to breeding behavior.

The banding data also indicate that interior nesting plovers overwintering on the Pacific coast are likely to be obligatory migrants, whereas many individuals in the Pacific Coast WSP either do not migrate, or do so only for short distances along the coast (Page *et al.* 1995a). This behavioral difference tends to set Pacific Coast WSP individuals apart from the interior birds with which they may mix during the winter.

Additional Points on Discreteness

The petition asserts that the Pacific Coast WSP is not highly isolated, and provides VAFB monitoring records from 1993 to 1999 as supporting documentation to demonstrate that the Pacific Coast WSP and western interior populations commonly interbreed. VAFB is a coastal Santa Barbara County breeding site. The petition contains a table summarizing the VAFB survey records and indicating that during 1993 to 1999, 90 plovers present during the breeding season had hatched elsewhere. However, our analysis below of the VAFB monitoring records supports a different conclusion than that reached by the petitioners and instead provides additional evidence demonstrating that coastal and interior populations do not commonly interbreed.

Two of the 90 non-local birds cited in the VAFB monitoring records came from the western interior. These two plovers were banded at Abert Lake (in interior Oregon) (Stern *et al.* 1990a) during the 1988 through 1989 banding season and were sighted at VAFB (on the California coast) on July 29, and August 19, 1993, during the breeding season (Persons 1994). However, as noted by Persons (1994), post-breeding migration of plovers typically begins in early July, so only late June censuses accurately reflect the size of the breeding population. Later censuses include many non-breeding plovers. Stenzel *et al.* (1994) also report that after the first few days of July, plovers that move into a breeding area do not nest in the area. Therefore, sightings made only after the

first week in July, unless supported by evidence of breeding, are not good evidence of population interchange.

The other 88 plovers in the VAFB monitoring records had all hatched on the coast, and were, therefore, also members of the coastal population (Stenzel *et al.* 1994). Such data tend to support our determination that the Pacific Coast WSP is discrete, as these data show that coastal population members tend to interbreed among themselves rather than with interior birds. These results are also consistent with additional studies, which found western snowy plovers renesting in new locations after having either lost or successfully fledged their first clutch (Warriner *et al.* 1986; Stenzel *et al.* 1994). For the Pacific Coast WSP, it is also common for one partner, usually the female, to abandon a brood between hatching and fledging and to start a new clutch in a new location with a new partner. Distances traveled to new nesting locations range from meters to hundreds of kilometers (Warriner *et al.* 1986; Stenzel *et al.* 1994). However, no such mid-season location changes have been shown to result in nesting at both coastal and interior sites.

Genetics

Evidence of genetic distinctness can inform our analysis of the discreteness of a population. In determining whether the test for discreteness has been met under our DPS policy, we consider available genetic evidence, but such evidence is not required to recognize a DPS. The petition questions the validity and effectiveness of using banding studies, as compared to genetics, for investigating levels of gene flow. When conducted properly, we find that both banding and genetics studies provide useful information. The petition relies heavily on a master's thesis (Gorman 2000) that did not find evidence of genetic differentiation between the Pacific Coast WSP and western interior snowy plover populations using mitochondrial DNA (mt DNA).

Several commenters also pointed out that mtDNA markers in Gorman's study may have been indicating interbreeding that happened thousands of years ago and suggested that additional studies using a marker with a finer resolution, such as microsatellite comparisons, should be conducted (B. Crespi, *in litt.* 2002; J. Neigel, *in litt.* 2004; B. Foster, *in litt.* 2004; L. Gorman, *in litt.* 2004). In fact, a more recent study by Funk *et al.* (2006) includes analysis of microsatellite DNA markers. Funk *et al.* (2006) found no statistically significant genetic differentiation between Pacific Coast WSP and western interior snowy plover populations using mtDNA and microsatellite DNA markers.

Given these available data indicating that the mtDNA and microsatellite data show no evidence of significant genetic differentiation between Pacific Coast and interior WSP populations, the Service's responsibility is to interpret the result in terms of our DPS policy. As noted in Funk *et al.* (2006), ''only a few dispersers per generation are necessary to homogenize gene pools between breeding habitats (Wright 1931; Slatkin 1985, 1987; Mills and Allendorf 1996).'' Therefore, failure to identify genetic differences between Pacific Coast and western interior plovers does not necessarily mean that there is a large amount of movement between the two areas. Movement of just a few individuals may prevent genetic differentiation, but movement of a few individuals may not be sufficient to maintain significant demographic connectivity (Funk *et al.* 2006).

Thus, the two regions (in this case, the Pacific Coast and western interior populations) may continue to function as demographically independent populations despite sufficient gene flow to homogenize gene pools (which may require just a few individuals per generation) (Funk *et al.* 2006). That the two may be demographically independent, as noted by Funk *et al.* (2006), is particularly likely given that they have unique habitats (*e.g.*, Pacific Coast birds tend to occur, with some exceptions, on open sandy beaches adjacent to the Pacific Ocean, while Great Basin birds occur on sand/salt flats on alkali lakes of the Great Basin (Page *et al.* 1995), low dispersal rates (Page, *in litt.* 2004a), and population declines (Page *et al.* 1991). Funk *et al.* (2006) suggest, for example, that ''if a Pacific Coast population of snowy plovers went extinct, a few immigrants from the Great Basin [interior] may not be sufficient to recolonize the empty habitat patch.'' They further suggest that empty patches of Pacific Coast habitat are not currently being recolonized in this fashion and that there is no reason to expect they would be recolonized in the future when habitat is even further fragmented.

In summary, the genetic information available to us in Gorman (2000) and Funk *et al.* (2006) shows no evidence of genetic differentiation between Pacific Coast and western interior WSP, using mtDNA and microsatellite markers. For this reason, we do not find that the genetics data currently available to us provide evidence that Pacific Coast WSP is ''markedly separated'' from western interior populations of WSP. However, as outlined above and articulated in Funk *et al.* (2006), it is reasonable to conclude that other data (*i.e.*, besides genetic data) are relevant to an analysis of whether WSP from these two geographic regions can be considered ''markedly separated'' (*i.e.*, discrete) per our DPS policy. As noted above in the Banding and Monitoring Information section, we believe there is substantial evidence from banding data to indicate that exchange of individuals between the Pacific Coast and western interior regions is minimal.

Conclusion on Discreteness

Based on the available information in the petition, scientific literature, and in our files regarding western snowy plover range and distribution, we conclude that the Pacific Coast WSP is markedly separate from other populations of the subspecies due to behavioral differences and that it, therefore, meets the requirements of our DPS policy for discreteness. Banding studies and resighting efforts demonstrate that during breeding, the Pacific Coast WSP segregates geographically from other members of the subspecies, even those that also winter on the Pacific coast. Although not absolute, this segregation is marked and significant.

Significance

Under our DPS policy (61 FR 4722), once we have determined that a population segment is discrete, we consider its biological and ecological significance to the larger taxon to which it belongs. This consideration may include, but is not limited to, the following factors:

1. Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon,
2. Evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon,
3. Evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range, or
4. Evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

We evaluated available information to assess whether the 1993 designation was consistent with the above factors or other relevant factors to explain why the Pacific Coast WSP is significant to the subspecies of western snowy plover. In this finding, we are only addressing the significant gap in the range of the taxon because that is the only significant criteria factor that applies.

Significant Gap in the Range of the Taxon

One approach to assessing whether the Pacific Coast WSP constitutes a substantial portion of the western snowy plover subspecies (Pacific Coast, interior, and Gulf Coast) is to evaluate the size of the subspecies. Estimating size of a broadly yet patchily distributed subspecies like the western snowy plover is a difficult task to accomplish (Gorman and Haig 2002). At this time, our best available estimate of the subspecies' current total size is about 24,136 birds (Page *et al.* 1995a; P. Paton, University of Rhode Island, *in litt.* 2004; Zdravkovic 2004; Gorman and Haig 2002; L. Kelly *in litt.* 2006; M. Jensen *in litt.* 2006; G. Page *in litt.* 2005) (see Table 1).

The estimate in Table 1 of the total number of birds of the subspecies takes into account the following new data: Dr. Peter Paton recently revised his original published estimate of 10,600 birds for Utah (Page *et al.* 1995a) to 4,189 birds (P. Paton, *in litt.* 2004). Stenzel provides information that the 4,478 figure used to describe the Pacific Coast WSP population through the 2004 breeding season is likely an underestimate due to some areas in southern California not being surveyed (L. Stenzel, *in litt.* 2004a). The new observed estimated number of birds (3,695) is based on the 2005 breeding season (see Table 1 above), which is approximately a 3 percent drop from Stenzel's 2004 figure. Additionally, researchers in Texas believe that as many as 1,000 plovers nested along the Texas Gulf coast in 2004, a substantial increase from the 100 reported by Page *et al.* (1995a) (Zdravkovic 2004). We are not aware of what effect, if any, the 2005 hurricanes may have had on the Gulf coast plovers and their habitat.

Monitoring results are not available for the interior and northeast coastal Mexico areas, and recent estimates have not been developed for several of the interior western snowy plover breeding areas. In light of this inconsistent survey coverage, we considered it appropriate to use the largest of the available estimate ranges available for the interior breeding plovers, so as not to overstate the significance of the Pacific Coast WSP. We acknowledge that the number of birds within the subspecies could be more or less than that indicated by the best available information. As presented in Table 1 above, the Pacific Coast WSP current population estimate is approximately 20 percent of the taxon's total estimated size (4,804 of 24,136 total birds). Therefore, we contend that using this conservative interpretation of the best available data, the 2005 Pacific Coast WSP constitutes approximately 20 percent of the subspecies.

The petition also states that because the range of interior western snowy plovers overlaps that of Pacific Coast WSP (by virtue of sharing winter ranges), they have ''ample opportunity to socialize, pair bond, and inter-breed.'' We agree that the potential exists for interactions to occur between wintering interior western snowy plovers and Pacific Coast WSP, but banding data indicate that such interactions occur at very low rates.

The petition suggests, without any supporting evidence, that interior-nesting western snowy plovers would colonize the coastal breeding habitat if the Pacific Coast WSP were extirpated. As described earlier, the Pacific Coast WSP population declined during the 1970s to mid-1990s, leaving many historical breeding locations vacant throughout the coastal range, and even though ample habitat remained intact, it was not colonized by any plovers (coastal or interior). Analysis of the available banding data indicates that there is little interchange between the coastal and interior breeding populations (G. Smith, USGS, *in litt.* 2004; B. Andres, Service, *in litt.* 2005; J. Plissner, ABR Inc., *in litt.* 2005). Although low levels of breeding dispersal from the coast to the interior remain a possibility, the banding studies provide a high degree of confidence that any such dispersal is out of the coastal population, and not into it (C. Elphic, *in litt.* 2005). This is consistent with additional analysis indicating that the available banding data are adequate to conclude that an insignificant number of individual plovers disperse from interior breeding sites to coastal breeding sites (J. Plissner, *in litt.* 2005), and it is unlikely that interior breeding plovers would disperse to coastal breeding sites (B. Andres, *in litt.* 2005). We have no data documenting interior birds colonizing vacant coastal areas.

This apparent lack of interchange between coastal and western interior breeding sites may be explained by the relatively high degree of site fidelity exhibited by this species. Breeding and winter site faithfulness vary between sites. Stenzel *et al.* (1994) report that plovers were faithful to their known breeding location in northern-central coastal California about 59 percent of the time for females and 84 percent of the time for males. Partial-absence (missing for a portion of the breeding season) from known breeding locations was more common than complete absence. Of the 147 birds observed moving during the breeding season, 25 females and 14 males moved from 50 to 708 miles (31 to 1,140 kilometers). All 147 birds remained within the coastal zone, either north or south of their previously known breeding location. There was no evidence of pair movements, only movements for individual plovers. Page *et al.* (1995a) present the following adult plover resighting rates at breeding locations between consecutive years: Monterey Bay, California, males 76.8 percent, females 65.8 percent (Warriner *et al.* 1986); Mono Lake, California, males 77.8 percent, females 44.9 percent (Page *et al.* 1983); Lake Abert, Oregon, males 64.1 percent, females 40.9 percent (Stern *et al.* 1990a). There is also evidence of fidelity to wintering areas. About two-thirds of plovers banded during the breeding season at Lake Abert, Oregon, were located on their coastal California or Baja California, Mexico, wintering areas for 2 subsequent years, and about one-third were subsequently located at least 3 years following banding (Page *et al.* 1995b).

There is no evidence to indicate western interior populations would recolonize the Pacific coast if the listed population were lost. Therefore, such loss would remove 2,000 miles of coastline, stretching from Washington to Baja California, from the subspecies' breeding range. The Pacific coast constitutes the vast majority of coastal breeding habitat used by the subspecies (the rest being in southern Texas and northeastern Mexico), as well as the westernmost extent of the taxon's breeding range.

We find that the Pacific Coast DPS is significant to the subspecies of western snowy plover because it comprises approximately 20 percent (one-fifth) of the subspecies' estimated population based on the 2005 breeding window survey results. We conclude that the best available data demonstrate that the likelihood of pair bonding and interbreeding between the Pacific Coast WSP and the interior-nesting western snowy plovers is very low, and that there is no evidence indicating that interior breeding plovers would rapidly reestablish a viable breeding population along the Pacific Coast following the extirpation of the coastal population. Accordingly, loss of the Pacific Coast WSP would result in a significant gap in the breeding range of the taxon. It would constitute the loss of a substantial percentage of the subspecies, curtailing the taxon's current breeding range by 2,000 miles of coast line.

DPS Status—Conclusion

We find that the Pacific Coast WSP qualifies as a DPS under the Act, as recognized under our 1996 DPS Policy (Service and NMFS 1996a (61 FR 4722)). The Pacific coast population is discrete based on extensive banding data showing marked reproductive separation from other populations. Of the 4,170 plovers banded over the 12-year period with the most extensive banding and resighting surveys, 907 were resighted. Of these 907, 894 plovers (98.6 percent) were resighted within their natal or nesting site breeding ranges, 11 coastal plovers (1.2 percent) were resighted in the interior without nests, and 2 plovers (0.2 percent) were resighted nesting outside of their original breeding range. These results suggest a marked reproductive separation between the Pacific Coast WSP and other interior western snowy plovers.

The 1993 listing decision suggested that genetic differentiation between coastal and interior populations was likely. There is no evidence that such differentiation exists and existing information suggests coastal and interim populations do not markedly differ genetically. However, the banding data and the resighting efforts provide compelling information that during breeding, the Pacific Coast WSP segregates geographically from other members of the subspecies, even those that winter on the coast.

The Pacific Coast WSP is also significant to the rest of the taxon because its loss would cause a significant gap in the range of the subspecies. The Pacific Coast WSP comprises approximately 20 percent of the subspecies estimated total size. We have no evidence that interior breeding plovers would reestablish a viable population along the Pacific coast following the extirpation of the coastal population. Accordingly, loss of the Pacific Coast WSP would result in a significant gap in the breeding range of the taxon.

Conservation Status

When considering an action for listing, delisting, or reclassifying a species, we are required to determine whether a species is endangered or threatened based on one or more of the five listing factors identified in section 4(a)(1) of the Act. These factors are: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) over utilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting the continued existence of the species. Delisting a species must be supported by the best scientific and commercial data available. Delisting may occur only if such data substantiates that the species is neither endangered nor threatened for one or more of the following reasons: (1) The species is considered extinct; (2) the species is considered to be recovered; and/or (3) the original data available when the species was listed, or the interpretation of such data, were in error (50 CFR 424.11).

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

The petition states that the ''western snowy plover has been very adaptive at exploiting opportunities to breed at new habitat that was created by humans including the Salton Sea, San Francisco Bay Salt Ponds, Central Valley agricultural ponds, and Batiquitos Lagoon.'' We agree with the petition's assessment as it relates to the Pacific Coast WSP. The western snowy plover is an early successional species that depends on dynamic habitat. As conditions change, the western snowy plover (including the Pacific Coast WSP) has the ability to colonize new sites. Because coastal habitats are dynamic, and change within a season or between seasons, the Pacific Coast WSP must adjust. However, our information shows that loss of nesting and wintering habitat remains one of the primary threats to the Pacific Coast WSP throughout its range. Causes of habitat loss include industrial and residential development, the spread of nonnative dune-stabilizing vegetation, human recreational use at levels that preclude nesting attempts, and various habitat alteration projects.

Urban development permanently removes important nesting habitat above the high tide line. It is a major source of habitat loss in all three western U.S. coastal States, and particularly in southern and central California (Page and Stenzel 1981; Page *et al.* 1995a). Development may also affect beach accretion processes by removing areas in which sand normally accumulates. Other secondary effects include increases in human use of nearby beach areas (as with piping plover, Service 1996), and increased predation of eggs and chicks in some areas (see Predation section below). The Pacific coast is one of the fastest growing regions within the United States (Crossett *et al.* 2004).

Another major source of habitat loss has been the spread of nonnative dune-stabilizing vegetation such as European beachgrass (*Ammophila arenaria*), which removes dune habitat by covering and anchoring dunes and preventing the free movement of wind-blown sand. Such grasses also provide cover for predators (Pickart 1997; Stern *et al.* 1991b). European beachgrass was introduced to the Pacific coast in the late 1890s as a means of stabilizing dunes to encourage development. A secondary effect of dune stabilization has been human development of beaches and surrounding areas (ODFW 1994). European beachgrass has since spread along the Pacific coast from British Columbia to Ventura County, California, invading every major dune system in the plover's range from Santa Barbara County north (Pickart 1997). It is considered one of the primary causes of plover population decline in Oregon (Oregon Parks and Recreation 2003). Once established, it is extremely difficult and expensive to remove (Pickart 1997).

American beachgrass (*Ammophila brevigulata*), which is native to the east coast and Great Lakes regions of North America, behaves similarly to European beachgrass and has become the dominant introduced beachgrass along much of the Washington coast (Washington Department of Fish and Wildlife 1995). In southern California, giant reed (*Arundo donax*) and South African iceplant (*Carpobrotus edulis*) have overgrown plover habitat in some areas.

In southern California, large expanses of beach previously used for nesting are no longer available as habitat due to extensive recreational use by humans. Popular recreational beaches may be completely covered by human footprints, and may also undergo daily or weekly mechanized beach raking to remove trash and tide-cast wrack (Page and Stenzel 1981; Powell *et al.* 2002). Although the removal of trash is beneficial to plovers (see Predation section below), natural tide-cast wrack such as seaweed provides important habitat for plover prey populations such as flies and other invertebrates (Dugan *et al.* 2000; 2003). Beach raking may also flush adults from nests and crush plover clutches, depending on the frequency of raking. Dugan *et al.* (2003) state that up to 99.4 miles (160 kilometers) of sand beach habitat south of Point Conception, California, are raked annually during the Pacific Coast WSP nesting season.

The final category of habitat loss is habitat alteration projects, which include diversions and impoundments of streams and rivers, management of salt ponds for marsh habitat, dredging

and sand mining, and inappropriately designed breakwaters or beach nourishment projects. Waterway diversion and impoundment activities, such as the construction of seawalls and use of rip rap, can limit the delivery of sand and thereby lessen the extent of beach habitat. In southern California, blockage of lagoon mouths for road construction has prevented tidal flushing and associated salt pan formation, thereby eliminating important nesting habitat (Powell *et al.* 2002). Stream stabilization projects can interfere with the natural shifting of river mouths across the landscape, thereby allowing beachgrass (*Ammophila* spp.) and other vegetation to take root (Powell *et al.* 2002).

Salt ponds, such as in the San Francisco, Monterey, and San Diego Bays in California, may be operated to the benefit or detriment of nesting plovers by allowing ponds to flood or dry at particular times (Page *et al.* 2003). In the San Francisco Bay, salt ponds that are managed for tidal marsh species, such as the salt marsh harvest mouse (*Reithrodontomys raviventris*) and California clapper rail (*Rallus longirostris obsoletus*), do not provide habitat for the plover (V. Bloom *in litt.* 2005). We are working with the California Department of Fish and Game and local landowners to develop a management plan for the area, which will best meet the needs of all the listed species in the area (M. Kolar, *in litt.* 2004).

A survey of breeding plovers in Baja California, Mexico, noted two large salt works (one completed and one planned) at Laguna Oja de Liebre and Laguna San Ignacia, respectively. The survey noted numerous plovers continuing to nest at the completed facility, but also noted the loss of some nests and chicks there due to vehicular use of the area. The survey was unable to determine whether overall impacts from the two facilities would be detrimental or beneficial (Palacios *et al.* 1994).

Sand mining by heavy machinery, such as at Monterey Bay, California, eliminates nesting habitat within the area subject to mining, degrades nearby habitat by removing replenishing sand, and disturbs adjacent nesting due to noise and vehicle traffic (Guinon 1988). Dredging can disturb nesting plovers, alter natural patterns of sand deposition, and encourage boat-related recreational activity in plover nesting areas. Alternatively, dredge tailings have served as important nesting habitat in Coos Bay, Oregon (Wilson-Jacobs and Dorsey 1985). Breakwaters and beach nourishment projects also have the potential to benefit habitat by causing sand to accrete in nesting areas, but if designed incorrectly can also erode nesting areas or increase the slope of the beach and encourage invasive plants (Service 2001).

The petition offers some brief analyses of some of the threats to the Pacific Coast WSP addressed by the listing rule. The petition points out that many Pacific Coast WSP now breed in human created habitat ''including the Salton Sea, San Francisco Bay Salt Ponds, Central Valley agricultural ponds, and Batiquitos Lagoon.'' However, the Salton Sea and Central Valley agricultural ponds are outside of the breeding range of the coastal population (Service 1993 (58 FR 12864)). Use of Batiquitos Lagoon as a breeding site has increased by a total of 14 birds since its restoration as a tidal marsh in 1996 (Port of Los Angeles 2003; L. Stenzel, *in litt.* 2004a). The San Francisco Bay Salt Ponds constitute genuine new, human-created habitat. In contrast to this addition, the species has lost 44 of its 53 known historical nesting sites in California prior to listing (Page and Stenzel 1981; L. Stenzel, *in litt.* 2004b), 2 of its 5 nesting locations in Washington, and 19 of its 29 nesting locations in Oregon (L. Stenzel, *in litt.* 2004b). Based on the best available data, we believe the loss of habitat remains a significant threat to the population and the addition of nesting habitat at the San Francisco Bay Salt Ponds does not offset the full impact of this loss.

In summary, habitat loss that negatively impacts Pacific Coast WSP has occurred in the past and continues to occur in the form of development, spread of nonnative dune-stabilizing vegetation, human recreational use at levels precluding nesting attempts, and habitat alteration projects. While some nesting habitat has been added at San Francisco Bay Salt Ponds that has benefited Pacific Coast WSP, it has not been sufficient to offset past and ongoing habitat losses.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The petition did not provide any information about this threat.

The only threat to Pacific Coast WSP from overutilization is potentially from scientific research. Currently, we issue permits under 10(a)(1)(A) of the ESA to qualified individuals for nesting studies, surveys, banding, and protective management techniques such as nest exclosures. Disturbance of plovers is kept to a minimum through surveyor training and by minimizing time spent in nesting areas. While exclosures typically increase fledge rate, they also reveal nest site locations to predators, thereby potentially increasing the danger to adults and chicks as they leave the nest site to forage (Neuman *et al.* in press). Accordingly, effects of exclosures should always be closely monitored. Bands may occasionally result in leg injuries, including foot loss, possibly due to abrasion and subsequent swelling (Page *in litt.* 2005a). The percentage and severity of bandings resulting in injuries is not currently known, but is likely to be low based on numerous sightings of uninjured banded birds. Despite the low risk of injuries, banding remains the best technique to study population variables such as survival, recruitment, and dispersal, and appears to be the most effective way to monitor populations and determine the effectiveness of management strategies (Nur *et al.* 1999). We are monitoring banding injuries through our Section 10(a)(1)(A) recovery permit program, and have initiated an experimental program in the Monterey Bay area to determine if band position on the leg can decrease injuries by reducing the metal band's contact with sand. Sand wear on the metal band may cause the band's edge to become sharp, contributing to plover leg injuries. Additionally, sand grains can become lodged between the metal band and the plover's leg, resulting in irritation of the leg. We do not have any indication that leg injuries in plovers are occurring as a result of using plastic colored bands, which are flexible.

As noted in the petition, it is also theoretically possible for bands to increase the likelihood of predation, by increasing the visibility of the plovers. This is extremely difficult to test because there is no way of knowing the predation rate on unbanded birds. If such an effect does exist it would be more likely to apply to avian predators, since the primary mammalian predators (red fox (*Vulpes vulpes*) and coyote (*Canis latrans*)) tend to hunt in the evening and night. Plovers depend on their cryptic coloration and behavior to remain undetected by avian predators. Typically, plovers will crouch, flattening their profile to approaching aerial predators. Consequently, colored leg bands are covered by the crouching bird, making the bands largely undetectable to predators until the plover is forced to flush. The petition also notes that surveys and banding studies conducted at VAFB from 1995 to 2000 did not find birds banded at VAFB that were more than 3 years old; however, the study period was too short to find older birds except during 1999 and 2000. Several older birds that

hatched at VAFB were found during surveys in coastal California in 2002, including 1 seven year-old, 2 six year-olds, 10 five year-olds, and 21 three or four-year olds (P. Nieto, SRS Technologies, *in litt.* 2002). Most of these birds were found outside Vandenberg AFB, yet all were found within the coastal population. In summary, we conclude that overutilization is not a significant threat to the Pacific Coast WSP because research and monitoring are conditioned through our Recovery Permit program to reduce impacts, and steps have been taken to monitor and reduce band-related injuries.

C. Disease or Predation

The petition did not provide any information about disease as a threat. However our information shows that West Nile virus, a mosquito-transmitted pathogen that can infect numerous species of birds, reptiles, and mammals, has killed birds of various species in every coastal California county (USGS 2005a), as well as one coastal county in Oregon (Lane County) (USGS 2005b). The disease has not yet been reported in any Washington coastal counties (USGS 2005c), but will likely reach those counties in the near future, as it has spread rapidly across the United States from an initial introduction in New England (National Audubon Society 2004). The deadliness of the disease to birds varies by species (National Audubon Society 2003), but the disease has been identified in dead piping plovers (*Charadrius melodius*) and killdeer (*C. vociferus*), both closely related to snowy plovers (CDC 2004).

Clark *in litt.* (2006) reported that 26 adult plovers either died or were found sick from the international boundary with Mexico to North Island Naval Air Station in San Diego Bay during the period of January through June, 2005. Although the cause of death remains uncertain, researchers believe an unknown toxin may be the cause. Tests have not identified the cause of sickness. We do not know if the illness extends within the Mexican portion of the Pacific Coast WSP. There is also a potential that ''Bird Flu'' (influenza) could also affect snowy plovers and other wildfowl, although Bird Flu has not been documented in the United States.

The petition raised the issue of predation in both an historical and contemporary context. Specifically, the petition maintains that humans have been altering predator populations in California since the 1700s when Spanish explorers began their movements along the Pacific Coast. Because predators have been removed from western snowy plover habitat, the petitioners believe that the plovers were able to ''colonize areas where they had never lived before.''

Predation has been found to be a major factor affecting nesting success across the range of the DPS. In San Diego County, California, crows (*Corvus brachyrhynchos*), ravens (*C. corax*), coyotes, and possibly Argentine ants (*Iridomyrmex humilis*) were the primary causes of nest failure in 1994, 1996, and 1997 (tidal flooding caused greater nest loss in 1995) (Powell *et al.* 2002). In Monterey County, nonnative red fox caused an increased number of nest failures from 1984 to 1991, while avian predators including shrikes (*Lanius ludovicianus*) and kestrels (*Falco sparverius*) had significant impacts on fledging success from 1996 to 1999 (Neuman *et al.*, in press). A study of Oregon beaches identified predation by crows and ravens as the primary cause of nest loss in 1978 and 1979 (Wilson-Jacobs and Meslow 1984); while red fox, crows, and ravens caused low fledgling success rates across coastal Oregon from 1990 to 2003 (D. Lauten *et al., in litt.* 2004). Additional major predators include skunks (*Mephitis mephitis*) (Stern 1990b), merlins (*Falco columbarius*), northern harriers (*Circus cyancus*) (Page *et al.* 1997), dogs (*Canis lupus*), and cats (*Felis cattus*) (B. Farner pers. comm. in Powell and Collier 1994; Page 1988).

Factors affecting predation levels on the Pacific Coast WSP include trash left near nesting areas; the availability of nearby cover for mammals or perches for birds; the existence of dependable food sources such as dumps and fish cleaning sites for gulls, ravens, crows, or red foxes; and the proximity of urban areas supporting dogs and cats (Service 2001). Plovers spend so much energy reacting to human disturbance that their ability to react appropriately to actual predators is lessened (Powell *et al.* 2002), either due to acclimation (Page *et al.* 1977) or stress and loss of foraging opportunities (Ruhlen *et al.* 2003).

The petition asserts that humans may have helped plover populations by killing many plover predators. Intensive management and control of predators has likely led to an increase in plover numbers since the DPS was listed. The use of nest exclosures has increased hatch rates (Colwell *et al.* 2005; Lauten *in litt.* 2004; Fancher *et al. in litt.*, 2005), and the removal of predators at selected sites has improved fledging rates (Lauten, *et al.* 2006). However, predation still impacts reproductive success at numerous nesting locations (Persons and Applegate 1997; Colwell *et al.* 2005) and therefore remains a threat to the Pacific Coast WSP.

In summary, disease and predation impact site-specific plover reproductive success and survival. Disease has become a recent, ongoing threat since the 1993 listing, resulting in the death of plovers from Monterey Bay, California, south to the Mexican border. We do not know the extent of the mortalities in the United States because not all of the carcasses are found due to predation, wind blown sand, and tidal action. In addition, we do not have information regarding the extent of plover deaths related to disease or toxins in Mexico. Deaths in the United States will continue to be monitored, and funding has been appropriated to help determine the cause of death. Predation continues to be a major factor affecting nesting success, and thus constitutes a threat to the Pacific Coast WSP. Management actions implemented largely in response to the listing have controlled many factors affecting predation. For example, the use of nest exclosures has significantly increased nest hatch rates by reducing predation (Colwell *et al.* 2005; Fancher *et al. in litt.*, 2005), and predator management improves fledging success and reproductive rates (Lauten *et al.* 2006). Current site specific predator management has reduced the significance of predation to the Pacific Coast WSP; however, if management actions are no longer implemented, plover populations would likely drop at several locations, possibly affecting population viability within key areas or on the rangewide scale.

D. The Inadequacy of Existing Regulatory Mechanisms

The petition did not provide any information about this threat. Our information is discussed below.

Federal Laws

United States

Since the species is currently listed under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), this law is the primary mechanism for protecting the Pacific Coast WSP. Multiple sections of the Act contain provisions that promote conservation of listed species. Section 2(c)(1) states the policy of Congress that all Federal agencies shall seek to conserve listed species and utilize their authorities to further purposes of the Act. Section 4 outlines: The threat factors for which a species can be listed; the formation of recovery teams and development of recovery plans to address those threats; reclassifications and delisting, and post

delisting monitoring requirements; and protective regulations (special rules) for threatened species. Section 5 discusses conservation of listed species through land and water acquisition. Section 6 calls for cooperation with the States by entering into management and cooperative agreements, and providing funding to those States with cooperative agreements. Section 7 requires Federal agencies to carry out programs to conserve listed species and to consult with the Service to ensure that their actions do not jeopardize the continued existence of listed species. Section 9 makes it unlawful to import, export, take, or violate any regulation pertaining to listed wildlife, and on Federal lands, plants. Section 10 authorizes: Scientific permits for research or to enhance the survival and recovery of listed species; incidental take permits based on a habitat conservation plan that will not appreciably reduce the likelihood of survival and recovery of the listed species; and experimental populations outside a species' current range. Section 11 assesses civil and criminal penalties for violations of the Act or its implementing regulations. These provisions are applicable to the protection of a species while it is on the Federal List of Endangered and Threatened Wildlife and Plants. If removed from the list, the Pacific Coast WSP would no longer receive the protections of listing or from the designation of critical habitat. Federal agencies would no longer consult with us concerning the impacts of actions that may affect Pacific Coast WSP to ensure that such actions do not jeopardize the continued existence of Pacific Coast WSP, nor would individuals seek section 10(a)(1) permits for private actions affecting the species. It is possible that, in the absence of the Federal listing, many state/local regulations and programs that currently protect the Pacific Coast WSP would be repealed and dismantled.

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 *et seq.*), protects Pacific Coast WSP, and their eggs and nests, from being killed, taken, captured, or pursued. However, it does not protect habitat except to the extent that habitat alterations would directly kill birds.

The Clean Water Act (CWA) (33 U.S.C. 1251 *et seq.*) prohibits unpermitted discharge of pollutants (including dredge and fill material) into ''the waters of the United States'' (33 U.S.C. 1311, 1362), including most rivers, streams, wetlands, and the ocean below high tide (33 U.S.C 1362; 33 CFR 328.3, 328.4). The CWA affects numerous potential threats to Pacific Coast WSP, including dredging and most sand-mining operations, construction of jetties and breakwaters, beach nourishment projects, oil and contaminant spills, sewage discharge, construction in many ephemeral pool areas forming in dune hollows, and discharge of fill material capable of altering river flows and sand deposition. Permits for dredge and fill discharge, including that resulting from construction, are governed by the Army Corps of Engineers (Corps). Permits for actions likely to affect listed species receive greater scrutiny, and no discharge of dredged or fill material shall be permitted if it jeopardizes the continued existence of a listed species or results in the likelihood of the destruction or adverse modification of critical habitat (40 CFR 230.10).

Section 10 of the Rivers and Harbors Act (33 U.S.C. 403) requires a permit from the Corps for any structure or work that takes place in, under, or over a navigable water or wetland adjacent to navigable waters of the United States (Army Corps of Engineers, *in litt.* 2004). As with the CWA, permits for actions likely to affect listed species receive greater scrutiny.

The National Environmental Policy Act, as amended (42 U.S.C. 4321–4347), requires that each Federal agency prepare an environmental impact statement on the potential environmental consequences of major actions under their jurisdiction. This does not preclude the agency from choosing environmentally damaging actions, but it does disclose the existence of such actions and any less environmentally damaging alternatives.

The Coastal Zone Management Act (CZMA) (16 U.S.C. 1451–1464) helps fund State development of comprehensive programs to protect and manage coastal resources, and requires Federal agencies to act consistently with those programs.

Finally, the National Wildlife Refuge System Improvement Act of 1997 (Pub. L. 105–57) establishes the protection of biodiversity as the primary purpose of the national wildlife refuge system. This has lead to various management actions to benefit Pacific Coast WSP at national wildlife refuges in the three Pacific coastal States. For instance, the Don Edwards-San Francisco Bay National Wildlife Refuge has acquired lands and is working with the Cargill Salt Company to restore historic salt marsh around San Francisco Bay (M. Kolar, *in litt.* 2004). Other coastal refuges in these States provide benefits to plovers and are an important component of the recovery strategy for the Pacific Coast WSP.

Mexico

Other than the MBTA, the Pacific Coast WSP has no regulatory protection in Mexico.

Summary of Federal Regulations. Other than the Endangered Species Act and MBTA, existing U.S. Federal laws and regulations only provide protection for the Pacific Coast WSP in specific cases, such as where the species may be impacted by dredge and fill projects. These protections are therefore applied sporadically throughout the range of the Pacific Coast WSP, and are currently inadequate to comprehensively address the threats to the species. Absent the protection accorded due to its listed status, these statutes and regulations will not provide sufficient minimal protections for the Pacific Coast WSP. Mexican laws and regulations are also inadequate to comprehensively address the threats to the species.

State Laws

State lands administered by the California Department of Parks and Recreation, California Department of Fish and Game, Oregon Department of Fish and Wildlife, Oregon Parks and Recreation Department, Washington Department of Fish and Wildlife, Washington State Parks and Recreation Commission, and Washington Department of Natural Resources play an important role in conservation of western snowy plovers and their habitats. Approximately 21 percent, 12 percent, and 9 percent of the breeding population of western snowy plover in California, Oregon, and Washington, respectively, occurs on State lands. Intensive management for western snowy plovers occurs at a number of State-owned plover habitat areas.

California

The western snowy plover is a Bird Species of Special Concern in California. This designation confers no regulatory advantage, but is associated with recommendations and increased visibility to management agencies (Remsen 2003).

The California Coastal Management Program, administered by the California Coastal Commission in accordance with the CZMA includes a system of: (1) Coastal permits and appeals; (2) planning and implementation of local coastal programs; and (3) Federal consistency review. Most local coastal programs and general plans were completed prior to the 1993 Pacific Coast WSP's listing; therefore, many do not reflect protective measures specifically for the western snowy plover. However, it is likely that the

Pacific Coast WSP has benefited from actions, such as limiting development, regulated by the California Coastal Commission in some areas.

In California, biannual western snowy plover coordination meetings are held among Federal and State agencies and Point Reyes Bird Observatory staff to track the breeding population of western snowy plovers in the Monterey Bay area. Meetings of this working group have been ongoing since 1991. Management needs such as exclosures, symbolic fencing, predator control, removal of exotic vegetation, and acquisition of key sites are considered and planned through this forum. A working group for San Luis Obispo and Santa Barbara Counties, consisting of site managers, western snowy plover monitors, and our staff, began meeting twice annually in 2001 to address management needs of the Pacific Coast WSP. The group is also coordinating window surveys of breeding and wintering birds in that region.

Management actions of California State Parks along with other entities. The California State Parks has been a leader with habitat restoration, monitoring, and the use of symbolic fencing to direct human use at the beach. Plovers nested at Manchester State Beach for the first time in 2003, and returned in 2004. A single plover nest was documented at Gold Bluffs Beach in 2004, which was the first since the early 1980s. Humboldt County Parks has enacted a ''plover friendly'' ordinance to reduce impacts to breeding plovers. The Bureau of Land Management and the California Department of Fish and Game also manage winter and breeding habitat, and have conducted habitat restoration and human disturbance management (Colwell, *et al.* 2005).

The California State Parks and the Point Reyes Bird Observatory have developed some of the leading outreach tools, such as the docent program implemented at Half Moon Bay State Beach, that have been found to be effective rangewide. California State Parks and the Point Reyes Bird Observatory have worked cooperatively with the National Park Service (Golden Gate National Recreation Area and Point Reyes National Seashore), the Salinas River National Wildlife Refuge (NWR), and the California Department of Fish and Game to manage human use in plover wintering and breeding habitat adjacent to large population centers (Page, *et al.*, 2005).

The Salinas River NWR, along with California State Parks and Point Reyes Bird Observatory, has made significant achievements in habitat and predator management. Symbolic fencing, nest exclosures, lethal and nonlethal methods of predator control, and outreach techniques have all been pioneered in this area. Plovers had record reproductive success at Monterey Bay during 2003 (Page, *et al.* 2005). Management actions at Oceano Dunes State Vehicular Recreation Area have also bolstered the plover numbers. The California State Parks is developing a Habitat Conservation Plan (HCP) for plovers for the San Luis Obispo District, including Oceano Dunes State Vehicular Recreation Area.

Oregon

The western snowy plover is listed as threatened under the Oregon Endangered Species Act (Oregon Administrative Rules (OAR) 635–100–0125). This OAR protects against actions that would directly kill plovers (OAR 635–100–0100, 41 ORS 498.026), and also requires the establishment of ''survival guidelines,'' which in the plover's case refers to a conservation program defined at OAR 635–105–000. The program authorizes the preparation of several site-specific management plans for State lands. State agencies must consult with the Department of Fish and Wildlife (ODFW) as to whether their actions are consistent with the local management plan (if one exists), or if not, whether the actions will appreciably reduce the likelihood of survival or recovery of the western snowy plover. The action agency makes the final determination. At this time, the local management plans are not completed, but an interagency group has been formed to work on them, as well as on a Statewide habitat conservation plan under section 10 of the Act, and on coordination of various protective management efforts such as predator control and monitoring (Lauten, *et al.* 2006).

Oregon has also developed a coastal zone planning system consistent with the CZMA, which includes several elements beneficial to western snowy plovers and their habitat. The system requires local jurisdictions to develop local comprehensive plans and implementing measures according to a set of 19 goals. Those goals include requirements for protection of wildlife habitat, including estuarine, beach and dune ecosystems, and also encourage planning and coordination among agencies.

Washington

The snowy plover is listed as endangered under the State endangered species regulations (Washington Administrative Code 232–12–14), which authorizes the preparation of a recovery plan for the species. The State's Shoreline Management Act (RCW 90.58), which enacts coastal zone management programs applicable to the CZMA, also provides some protection to the species by requiring local planning efforts to regulate coastal development. The Shoreline Management Act exempts single family housing construction from the coastal permit process (WDOE 1999).

In summary, while State laws and regulations provide some level of protection for the Pacific Coast WSP, those protections are not consistent throughout the Pacific Coast WSP's range. As a result, these existing regulatory mechanisms do not address threats to the Pacific Coast WSP to such an extent that it is no longer in need of the protections of the Act.

Local Regulations

In addition to various protections for coastal habitat enacted under the CZMA related statutes (see above), several local jurisdictions, such as Half Moon Bay, California, and Coos and Curry Counties, Oregon, have enacted regulatory policies specifically to protect the western snowy plover. However, based on results of a questionnaire sent to local governments, it appears that other local planning efforts generally do not take the snowy plover into account (Service 2001). In totality, existing local regulations are inadequate to address the Pacific Coast WSP's threats to such an extent that it is no longer in need of the protections of the Act.

Many of these Federal, State, and local regulatory mechanisms were in place prior to the Federal listing of the Pacific Coast WSP, and were not adequate to prevent the loss and degradation of Pacific Coast WSP habitat and decreases in Pacific Coast WSP population numbers, and therefore, not adequate to preclude the need to list the Pacific Coast WSP under the Endangered Species Act (Service 1993). While some significant gains in protection have been made by entities such as California State Parks, overall, we find that the existing regulatory mechanisms, beyond the listing itself, have not addressed the threats facing the Pacific Coast WSP, and are therefore not sufficiently adequate to warrant delisting of the Pacific Coast WSP. The Endangered Species Act provides comprehensive conservation of the Pacific Coast WSP and provides the mechanisms under which we can continue to work with the States and local governments to implement actions to recover the species. Delisting would

remove this most comprehensive means of achieving the eventual recovery of the species. We thus conclude that the regulatory mechanisms in the absence of listing are inadequate to address the threats to the Pacific Coast WSP to such an extent that it is no longer in need of the protections of the Act.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

The petition did not provide any information about this threat. However, our information shows that most Pacific Coast WSP nesting areas occur on unstable sandy substrate which results in weather-related nest loss, a fairly common natural phenomenon. High tides and strong winds cause nest losses annually. Events such as extreme high tides (Wilson 1980; Stenzel *et al.* 1981), river flooding (Stenzel *et al.* 1981; Colwell *et al.* 2004), and heavy rain (Wilson 1980; Warriner *et al.* 1986; Page 1988) have been reported as causes that destroy or wash away nests. The annual percentage of total nest loss attributed to weather-related phenomenon has reached 15 to 38 percent at some locations (Wilson 1980; Warriner *et al.* 1986). Severe winter storms may also significantly impact plover populations. For example, after a series of severe storms during the winter of 1997 to 1998, coinciding with an El Niño event (a collection of oceanic and atmospheric phenomena involving shifted trade winds and warmer ocean waters), the plover breeding population at VAFB suffered a 10 to 30 percent decline (Applegate and Schultz 1999). Additionally, erosion of beach sand or flooding of coastal lagoons or river bars may reduce habitat available for nesting in some years (Colwell *et al.* 2005), which likely forces some plovers to nest in marginal habitat where nesting success is lower.

Disturbance of nesting or brooding plovers by humans and domestic animals is a major factor affecting nesting success. Plovers leave their nests when humans or pets approach too closely. Disturbance distances that may cause plovers to leave their nests vary widely, from about 3 to 200 meters (10 to 656 feet) in a Point Reyes, California, study (Page *et al.* 1977), and from about 3 to 50 meters (10 to 164 feet) in a study at VAFB, California (Fahy and Woodhouse 1995). Humans accompanied by dogs tend to elicit stronger avoidance responses than humans alone (Page *et al.* 1977; Fahy and Woodhouse 1995; Lafferty 2001). Dogs may also deliberately chase plovers and trample nests (Lafferty 2001). Repeated flushing of incubating plovers exposes the eggs to the weather, interrupts foraging, and depletes energy reserves needed by the adult, which may result in reductions to nesting success during the breeding season and in reduced survivorship during the winter (Lafferty 2001).

Surveys at VAFB, from 1994 to 1997, found the rate of nest loss on southern beaches to be consistently higher than that on north beaches where recreational use was much lower (Persons and Applegate 1997). Ruhlen *et al.* (2003) found that increased human activities at Point Reyes, California, beaches resulted in a lower plover chick survival rate. Nests may also be lost directly from human recreational activities. Warriner *et al.* (1986) documented a 14 percent loss of clutches at a Monterey Bay site due to being stepped on, driven over, or deliberately collected. Motorized vehicles, where allowed onto stretches of beach used by plovers, can stress or directly kill adults and chicks, as well as destroy nests and eggs (Colwell *et al.* 2004). Plovers' cryptic coloration and habit of crouching in depressions such as tire tracks make them particularly susceptible to being hit by vehicles. They are especially vulnerable at night, when they are most difficult to see. Recent efforts in various areas have been implemented to isolate nesting plovers from recreational beach users through the use of docents, symbolic fencing, and public outreach, and have correlated with higher nesting success in those areas (Page *et al.* 2003; K. Palermo, *in litt.* 2004; G. Page, *in litt.* 2004a).

Motor vehicles that are driven in breeding habitat may result in the crushing of eggs, chicks, and adults; cause abandonment of nests; separate chicks from brooding adults; and provide a source of considerable stress and disturbance to plover family groups and wintering plovers (J. Myers, *in litt.* 1988; Stern *et al.* 1990b; Widrig 1980). In Baja California, Mexico, vehicle traffic at Laguna Ojo de Liebre has destroyed plover nests and chicks, and the level of off-road vehicle use was considered ''heavy'' at 3 of 16 nesting areas surveyed (Palacios *et al.* 1994). In addition to recreational vehicles, vehicles used for military activities have also caused western snowy plover mortality (Powell *et al.* 1995; Powell *et al.* 1997; Persons 1994).

Additional recreational activities with potential impacts similar to those discussed for pedestrians include commercial and surf fishing, clamming, campfires, and camping. If conducted near a nest, these activities may result in long-term disturbance and ultimately nest abandonment (Colwell *et. al.* 2003).

Plover populations can be negatively impacted by oil spills (Persons and Applegate 1997; U.S. Bureau of Land Management 2001; Kritz 1999). Oiled plovers lose their ability to regulate their body temperature and often die of hypothermia or exposure. Additionally, oiled adults can pass oil onto eggs if they are incubating. Oil on eggs limits their ability to breathe, and introduces toxic hydrocarbons. Likewise, oiled adults that attempt to preen inhale and ingest hydrocarbons. Invertebrate populations are likely reduced as a result of beaches being oiled, reducing the available plover prey base. Oiled invertebrates may also be another source of hydrocarbon ingestion for plovers. During the 1990s, at least six oil spill incidents in California and one in Oregon resulted in adverse impacts to plovers. For example, in February 1999, the freighter *New Carissa* went aground near the North Jetty of Coos Bay, Oregon, leaking oil from the stern section on repeated occasions (U.S. Bureau of Land Management 2001). The incident oiled over 50 percent of the Oregon wintering population of western snowy plover (Kritz 1999). Had this occurred during nesting season at one of the major nesting sites the impacts (both from the oil directly and from subsequent disturbance due to the spill response crew) could have been extremely severe. Plovers may also be affected by chronic oil pollution not easily attributable to specific spills. Intermittent oil spills from unknown sources have been noted on central California beaches for decades. The cause of some of these spills, such as those related to periodic oil leakages from the sunken vessel *S. S. Jacob Luckenbach*, have recently been identified, while the source of others remains a mystery (Hampton *et al.* 2003).

In summary, we conclude that unmanaged human disturbances and impacts related to oil spills remain a significant threat to the Pacific Coast WSP. Unmanaged human disturbances that negatively impact Pacific Coast WSP primarily include disturbance of nesting or brooding plovers by humans and domestic animals and motorized vehicle use. Oil spills and their associated clean-up can result in reproductive failure, direct mortality and injury from being oiled, and contamination of food sources. The significance of an oil spill to plovers depends on the extent of the spill, the material spilled, and the timing of the spill in relation to plover habitat and breeding chronology.

Status of the DPS—Conclusion

Threats to the Pacific Coast WSP remain essentially the same as at the time of its listing in 1993. However, the magnitude of the threats has been reduced through active management afforded by protections under the Act, with a resultant increase to the overall Pacific Coast WSP population. Despite the reduction in the threats' magnitude relative to the time of listing, the Pacific Coast WSP is still at risk. The most important threats are ongoing habitat loss and fragmentation; mortalities, injuries, and disturbance resulting from human activities; and lack of comprehensive State and local regulatory mechanisms throughout the range of the WSP. Although overall increases in plover numbers (which can be attributed to management actions currently being implemented) have been observed, plover population sizes are low or plovers are absent throughout parts of their historical range in Washington, Oregon, and California. Accordingly, we find that the Pacific Coast WSP continues to qualify as a threatened species under the Act (see also Finding section below).

We also note that: because some of the threats have been reduced, the estimated WSP population levels in the United States have increased over the last 4 years (L. Stenzel, *in litt.* 2004a); management actions in several areas appear to be effective (Page *et al.* 2003; G. Page, *in litt.* 2004a); and numerous local management plans, habitat conservation plans, and integrated natural resource management plans have been implemented or are in the planning stages (Lauten *et al.* 2006; Colwell *et al.* 2005). We find these trends and management actions encouraging. We believe significant progress has been made toward recovery in a relatively short period of time (approximately 10 years), and that continued implementation of recovery actions that reduce the remaining threats could justify a delisting of the Pacific Coast WSP in the near future. In the interim period, we are providing a mechanism that will afford regulatory relief for areas that are contributing to recovery now. In today's issue of the **Federal Register**, we have published a proposal for a special rule under section 4(d) of the Act that would exempt certain actions in certain areas from the section 9 take prohibitions of the Act, throughout the range of the DPS. Please see the Proposed Rules Section of today's **Federal Register** for more information on this proposal.

Finding

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species. We reviewed the petition, available published and unpublished scientific and commercial information, and information submitted to us during the public comment period following our 90-day petition finding. This finding reflects and incorporates information we received during the public comment period and responds to significant issues. We also consulted with recognized western snowy plover experts and Federal and State resource agencies. Based on this review, we find that (1) the Pacific Coast WSP constitutes a valid DPS, which is both discrete and significant under our DPS policy, (2) delisting of the Pacific Coast WSP is not warranted due to continued existence of threats to the DPS and its habitat, and (3) the DPS should remain classified as threatened. We reviewed the available data and information on the life history and ecology of the Pacific Coast WSP and did not find convincing information that the plover was listed in error or that the threats have changed to such an extent as to warrant delisting.

In making this determination we have followed the procedures set forth in section 4(a)(1) of the Act and regulations implementing the listing provisions of the Act (50 CFR part 424). We recognize that in the past there have been declines in the distribution and abundance of the Pacific Coast WSP, primarily attributed to habitat loss and alteration. Much of the Pacific Coast WSP's historic habitat and range has been lost or degraded. There is substantial information indicating that plover habitat continues to be threatened with loss and fragmentation (listing Factor A) resulting in a negative impact on plover distribution and abundance. Mortalities and injuries resulting from human activities that cause continued habitat loss and disturbance (listing Factors A and E) may be frequent enough to prevent local recovery of populations, or prevent the re-occupation of suitable habitat. Although overall increases in plover numbers (which can be attributed to management actions currently being implemented) have been observed, plover population sizes are low, and plovers are absent throughout parts of their historical range in Washington, Oregon, and California. Although there are some local exemptions, current regulations (particularly if the protections of the Act are removed) provide insufficient certainty (listing Factor D) that conservation efforts will be implemented or that they will be effective in reducing the level of threat to the Pacific Coast WSP throughout the listed range.

Therefore we believe that the Pacific Coast WSP DPS is still likely to become endangered within the foreseeable future. In addition, we therefore believe (per the analysis conducted as part of the 12 month status review and the 5-year review) that the Pacific Coast WSP should remain classified as a threatened species, because it is not extinct, it is not considered to be recovered, and the original data used for classification were not in error.

While the finding reflects the analyses conducted to fulfill our responsibilities under sections 4(b)(3)(A) (status review) and 4(c)(2) (5-year review) of the Act, we request that you submit any new information, whenever it becomes available, for this species concerning status and threats. This information will help us monitor and encourage the conservation of this species. We intend that any action for the Pacific coast DPS of the western snowy plover be as accurate as possible. Therefore, we will continue to accept additional information and comments from all concerned governmental agencies, the scientific community, industry, or any other interested party concerning this finding.

References Cited

A complete list of all references cited is available on request from the Arcata Fish and Wildlife Office (see **ADDRESSES**).

Author(s)

The primary author of this document is staff from the Arcata and Sacramento Fish and Wildlife Offices (see **FOR FURTHER INFORMATION CONTACT**).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: April 13, 2006.

H. Dale Hall,

Director, Fish and Wildlife Service.

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