

**California State Parks
Western Snowy Plover Management
2007 Systemwide Summary Report**

In 1993, the coastal population of western snowy plover (WSP) in California, Washington and Oregon was listed as a threatened species under the Federal Endangered Species Act due to habitat loss and disturbance throughout its coastal breeding range. In 2001, the U.S. Fish and Wildlife (USFWS) released a draft WSP recovery plan that identified important management actions needed to restore WSP populations to sustainable levels. Since California State Parks manages about 25% of California's coastline and a significant portion of WSP nesting habitat, many of the actions called for were pertinent to state park lands. Many of the management recommendations were directed at reducing visitor impacts since visitor beach use overlaps with WSP nesting season (March to September).

In 2002, California State Parks developed a comprehensive set of WSP management guidelines for state park lands based on the information contained in the draft recovery plan. That same year a special directive was issued by State Park management mandating the implementation of the most important action items which focused on nest area protection (such as temporary fencing), nest monitoring, and public education to increase visitor awareness and compliance to regulations that protect plover and their nesting habitat. In 2007 USFWS completed its Final Recovery Plan for the WSP, which is accessible on the Internet at: http://ecos.fws.gov/docs/recovery_plan/070924_2.pdf. Both a hard copy and an electronic copy are kept at the Natural Resources Division Office.

This 2007 State Parks Systemwide Summary Report summarizes management actions taken during the 2007 calendar year and results from nest monitoring. This information was obtained from the individual annual area reports prepared by State Park districts offices and by the Point Reyes Bird Observatory - Conservation Science PRBO (for Monterey Bay and Oceano Dunes State Vehicular Recreation Area). A 6-Year Systemwide Summary chart is included that summarizes nesting data from state park lands over the last 6 years by region and by systemwide total. The chart shows for each year the total number of nests and total number successfully hatching eggs. The number of chicks reported to have fledged (reached flying age) is also shown for districts where young were banded.

Management Activities:

- **Public Education.** Districts continued to distribute western snowy plover (WSP) brochures first published in 2002 by the Department, providing information on WSP natural history and their threatened status, and on what the Department is doing to help recovery the species. The brochures also explain how visitors can help protect habitat and nesting plovers and the importance of complying with park regulations. This year, the brochure was revised by Natural Resource Division staff to improve the clarity of some of the information and to include some new photographs. The Mendocino District continued its collaboration with Mendocino Coast Audubon Society, which had secured a \$12,000 grant to fund "Save Our Shorebirds" project. Part of this project included classroom visitations in which children learned about the WSP and created their own designs for signage. Some of these signs were used in the State Parks to inform the public about snowy plover habitat. The Channel Coast District used a campground host as a public contact person to inform visitors about snowy plover management and to lead occasional "bird walks." The North Coast Redwoods District had continuing campfire presentations about the WSP at Patrick's Point State Park, as well as involvement in the local WSP Recovery Unit's "Share the Beach" docent program. The San Luis Obispo Coast District installed new interpretive panels in Montana de Oro State Park to educate the public about the snowy plover.

- **Training.** Many districts trained and used volunteers to help with plover monitoring. Park employees and concessionaires also had formal training in WSP natural history and stewardship responsibilities, such as the importance of driving parks vehicles slowly in the wet sand zone, away from breeding and foraging plovers. The Mendocino District continued to work with the local Audubon Society chapter, which provided trained volunteers for plover monitoring. San Diego District also had a trained docent program for more public outreach.
- **Enforcement.** Public compliance with the dog leash rule continued to be an enforcement issue and was especially challenging in certain park units. Both San Luis Obispo Coast and Mendocino Districts offered the public a solution by designating certain beaches known to be unused by plovers as “dog walking” beaches, while continuing to enforce dog leash rules and dogs prohibited rules at nesting beaches. However, monitors in some districts continued to note many dogs off leash. In addition, there were continued problems with some visitors crossing the symbolic fence and destroying plover nests or vandalizing fences or signs. Some districts reported no citations being given, in spite of infractions of park regulations witnessed by resource staff. Other districts, such as San Luis Obispo Coast, reported a number of citations given for dogs off leash or for trespassing in areas closed for plover nesting.
- **Beach Restoration.** Restoration efforts, most notably the removal of the exotic European beach grass, continued in several districts along the coast, including North Coast Redwoods, Mendocino, San Luis Obispo Coast, Oceano Dunes, and Channel Coast Districts. Methods utilized included controlled burning followed by herbicides, dune reformation with heavy equipment, or broadcasting of native plant seed.
- **Predator Control.** Predation of nests and chicks continues to be the top limiting factor in WSP reproductive success. Many districts had contracts with permitted predator control specialists (usually USDA Wildlife Services) to monitor and remove predatory species where they posed a special threat to WSP reproduction. For example, the San Obispo Coast District reported red fox, ground squirrel, feral cat, and crow removal during the 2007 breeding season. Predation accounted for about 61% of the systemwide nest failures identified in 2007, with avian predators representing over 75% of the total. Reported avian predators included: gull-billed terns, northern harrier, American crow, common raven, peregrine falcon, and various gull species. Most districts were more judicious this year in use of wire nest enclosures as their use has been shown to actually attract more avian predators, which cue in on the plover nest.
- **Field Management and Monitoring.** Management effort continued to focus on nest area protection and nest monitoring. Actions included installing temporary symbolic fencing and signage, providing for public education, enforcing of State Park regulations, restoring habitat and monitoring all nesting areas. Nest monitoring was performed in most areas up to 5 times per week in order to record the number of nests initiated, and the number of chicks hatched and their fate. Intensive nest monitoring allowed for early detection of nest disturbance and predation, and provided information necessary to take appropriate corrective management actions. Systemwide information collected each year represents thousands of hours of nest monitoring. WSP nest monitoring activities were again achieved in cooperation between State Parks, Point Reyes Bird Observatory, U. S. Fish & Wildlife, and other conservation organizations. Many volunteers continued to help State Parks protect WSP nest sites. The Department also participated in range-wide WSP summer and winter population surveys.

Major Results:

Western snowy plover nesting was reported in 16 units managed by the Department, down from 19 units in 2006 and 23 units in 2005. A total of 265 nests were reported to have successfully hatched a clutch in state park units, out of 544 nest attempts. This is a 12% decrease in the number of nest attempts and a 29% decrease in successful nests from 2006. It is also the third consecutive year of decrease both in total and successful snowy plover nests. We are reporting both total nest attempts and total successful nests because using only the number of nesting attempts is not a reliable indicator of reproductive success, especially when following long-term trends. Snowy plover pairs often re-nest several times if the adults are disturbed, if the eggs are taken by predators, or the nests are destroyed by high tides or wind. The number of additional nests initiated by a pair can vary from year to year depending on the birds' fitness.

Causes of nest loss were varied, but 61% of systemwide losses were directly attributed to predation, with avian predators reported more than mammal predators. Wind and tide inundation were the next highest cause of nest loss (14%), with abandonment the third in importance (10%). Nest abandonment is commonly caused by disturbance of the breeding pair during the process of egg laying and incubation. Human caused nest loss was low (2%) but represents six acts of vandalism.

It was reported by most Recovery Units that an intense cold snap in California during January 2007 resulted in appreciably lower winter count of adults. This probably contributed to the lower number of nest attempts in some of the districts, and subsequently a slightly lower total number of chicks. However, the combined number of chicks that fledged in Monterey Bay, Oceano Dunes SVRA, and San Diego District, where banding occurs, was no different than the previous two years. Of a systemwide total of 561 banded and monitored chicks, 250 (45%) of those were reported to have reached fledging age (28 days from hatching). This is a relative increase from a 35% fledging rate for the chicks in 2006, though the total number of chicks fledged is about the same.

The following is a brief overview of the 2007 nest monitoring data that is reported in detail in the individual area reports and entered into the Department's WSP data base. A summary of this information and comparison with previous years is shown in the 6-Year Annual Summary Chart.

- Santa Cruz and Monterey Bay area units include both Santa Cruz and Monterey Districts, stretching from Manresa State Beach to Fort Ord Dunes State Park. These districts reported 115 nests successful in hatching at least one egg (47% of 245 nesting attempts). The previous year had a higher number of nest attempts (12% more) and lower hatching success (13% less) than in 2007. Nests in 2007 produced 319 chicks, a 19% decrease over the number of chicks hatched the previous year. Of these chicks, 170 were reported to have successfully fledged, a 53% fledging rate (compared to 55% in 2006). Predator-caused nest loss (35% of nest attempts) was up compared to 2006 (25%), including approximately five times more avian-caused predation than the previous year. Of the total number of nest loss due to avian predators (57) in six park units, nearly 74% of the losses were at one unit: Zmudowski State Beach. This unit includes the Pajaro River spit, where many ravens preyed on nests this year. Skunks caused the most nest losses by ground predators.

The annual report by Point Reyes Bird Observatory (PRBO) indicates that the overall Monterey Bay area, which includes State Park property, has experienced a decline in breeding adults since 2004. This was determined by measuring the percent of banded

adults returning each year to nest. Actual fledging rate for Monterey Bay in 2007 was 1.37 young per male, which based on prior analysis by PRBO, should be sufficient to sustain the population. This indicates that the survival rate of adults has been below average for a number of years and that much of the mortality is occurring prior to the breeding season. Analyzing the winter WSP count data in the PRBO study area shows a similar downward trend in numbers of wintering WSP (see attached graph). Between 2004 and 2007 there has been a 37% drop in wintering WSP numbers.

The Santa Cruz/Monterey Bay area has the longest record of plover monitoring and protection in the state, dating back to efforts in the mid-1980s led by the PRBO. Since then, State Parks and USFWS have become increasingly involved in cooperative monitoring and management activities in the larger study area, which includes State Park System units, other state lands, federal property, and private lands. PRBO prepares and publishes annual reports on nesting activities for the study area which stretches from Waddell Creek to the City of Monterey and includes lands other than State Parks. Since the recent expansion of Wilder Ranch State Park to include coast to the north, the results for the Laguna Creek beach are now included in the annual report, though no nesting occurred this year.

In 2006, 62% of the total nests documented in the PRBO study area (State Park and other lands) were on State Park System lands, the percentage in 2007 was 72%. Nest hatching success on DPR lands in the study area was 47%, and for non-DPR lands it was 66%. Fledging success on State Park lands was 53%, higher than on non-DPR lands (34%).

- San Luis Obispo Coast District (referred to as Estero Bay / Morro in past reports) units reported 44 nests successfully hatching at least one egg (27% of a total of 164 nesting attempts). The number of successfully hatched nests was down 57% from the previous year. This year proved to be the worst year for reproduction in this area of coast since management started in 2002.

At Montana de Oro State Park, 24 nests were successful at hatching at least one egg (22% of 109 nesting attempts). All nests were located in the Sandspit area of the park, and normally comprise the largest population for this State Parks region. This year represents one of the lowest recorded numbers of nests. Determination of an accurate chick count and fledging rate was not possible due to the lack of a banding program at the San Luis Obispo Coast District. Other park units in this region with nesting reported in 2007 included the Estero Bay/Villa Creek Beach unit with a total of 30 nesting attempts and 7 successful nests (23% hatching success). Morro Strand State Beach had only 7 successful nests, 37% of the 19 recorded nesting attempts. San Simeon State Park had 5 successful nests out of a total of 6 nests initiated; monitoring now includes all of the newly acquired land in an 18-mile strip of coastline.

Predation was a major problem in this district. At the Sandspit, at least 45 nest losses were due to avian predators, probably more. A pair of northern harriers was thought to be one of the main culprits there. In other sites American crow, gulls, coyote, and red fox were responsible for nest loss or abandonment. The district utilized various methods at controlling predator damage, including use of custom-made exclosures (designed to prevent avian predators from perching on them) and contracting Wildlife Services to remove some predators.

- Oceano Dunes State Vehicular Recreation Area reported a total of 70 nests hatching eggs successfully (77% of the 91 nesting attempts). One third of nest loss was due to abandonment, while over half was due to unknown reasons.

This is a decrease from a total of 87 successful nests in 2006, however a slightly better hatching rate. Hatching success at Oceano Dunes SVRA has been consistently higher than other regions over the past six years. Nests this year produced 198 chicks and fledged 66 young (33% fledging success), a notable improvement from the year before.

Habitat enhancement continued in three large enclosures of the breeding area. Driftwood, wood chips, and kelp collected from the beach were spread in small areas throughout the enclosure to provide disruptive cover, and these areas were used by plovers for nesting. Plovers were also observed utilizing areas that had been planted in sea rocket and beach-bur, using the plants for cover.

Predator management included both day and night surveys of predator activity, along with use of enclosures, padded leg traps, and removal of known habitual predators. Observed predator species included coyote, raven, raptors, opossum, and skunk.

- San Diego Coast District reported a total of 20 successful nests (87% of the 23 nesting attempts), less in number than 2006, but a higher rate of hatching.

At Silver Stand State Beach, 11 of the 12 reported nests were successful in hatching chicks (92%), and 11 of the 15 chicks produced fledged. The number of nest attempts was a record low for this beach. Dogs were reported to be an increasing presence at this beach compared to past records, with 40 surveys out of 63 total having observations of either dogs or dog tracks. Predation of nests or chicks was not a major problem at Silver Strand SB, although it is speculated that a few chicks were taken by gull-billed terns.

At Border Field SP, 9 of the 11 nests attempted were reported successful in hatching (82%). Counts of chicks reported 24 hatched and 2 fledging (8%). Again, the low fledging rate has been attributed to predation. Potential predators include Northern harrier, gull-billed tern, burrowing owl, and several other avian or mammal species.

- Santa Barbara and Ventura area units (Channel Coast District) reported 14 nests being successful on property managed by State Parks, 45% of the 19 nesting attempts. This is the same number of successful nests as in 2006.

In 2007, 18 nesting attempts were on McGrath State Beach and 1 nesting attempts on Mandalay State Beach, operated by Ventura County. At McGrath State Beach, 14 nests hatched eggs successfully (78%) and at Mandalay State Beach no nests were reported to be successful. Reliable information on fledgling success was not obtained because chicks were not banded.

In addition to the snowy plover nesting population at McGrath SB, there were 77 California least tern nests (a State and Federal endangered species). Most of these were outside of symbolic fencing and many were close to the campground. The presence of least terns might be one reason that McGrath had a high hatching success rate; least terns actively harass avian predators. Therefore, it may benefit the least terns and the plovers by association, to extend the symbolic fencing to include their nesting ground in the future.

- San Mateo and Northern Santa Cruz area units (Santa Cruz District) reported 2 successful nests out of 2 reported nesting attempts, all at Half Moon Bay State Beach. One of the five chicks from the successful nests was reported to have fledged. No other nests were reported between Half Moon Bay and Santa Cruz.
- Mendocino District units reported no nesting attempts along their coast. The district continues to maintain its management program, which includes beach restoration and education programs coordinated with the local Audubon Society chapter.
- Del Norte and Humboldt coast units (North Coast Redwoods District) reported no nesting attempts, a record low. All other management activities are continuing in the district, such as beach restoration, public outreach, and predator surveys.

6-Year Summary:

The 6-year Systemwide Summary chart shows, by region and year, the number of nests where at least one egg was reported to have hatched, often referred to as “successful nests” in comparison to the total nest attempts. Failure of a nest hatching eggs in a particular year may be due to high winds or high tides, by predation of adults or eggs, and by other disturbances. The chart also includes the number of chicks that fledged (reached flying age) in park units in Monterey Bay, Oceano Dunes SVRA, and the San Diego Coast, where chicks are individually leg banded before they leave the nest. Knowing the identity of each individual allows their fate to be monitored and the fledging rate to be determined.

The 6-year chart shows that State Parks systemwide WSP nesting success began with an increase between 2002 and 2004, followed by a three-year sequential decrease. North of San Francisco, the number of nest attempts on State Park System lands has been consistently low over the entire 6-year period. The Monterey Bay and Oceano Dunes areas have had a stable number of successful nests both in terms of hatching eggs and fledging young over the past 6 years, with the exception of last years’ low fledging number at Oceano Dunes SVRA. The Morro Bay area (part of the San Luis Obispo Coast District) has had a negative trend in both number of nest attempts and hatching success since 2004. The Sandspit at Montana de Oro State Park, where the largest number of plovers are found, has been especially vulnerable.

Both the Ventura and San Diego coast areas, though having low total nest numbers, have been consistent over the past several years in their hatching success and have contributed to the systemwide population.

Results from adult WSP winter surveys conducted on lands managed by State Parks were pooled for each year, and then standardized by the number of surveys per each year, indicate a general decline in the average numbers of adult snowy plovers from 2004 – 2007 (see attached graph).

A complete compilation of reports on State Park management actions and monitoring results for 2007 is on file in the Natural Resources Division Headquarters.

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