

## 2013 ACTIVITIES INVOLVING THE WESTERN SNOWY PLOVER AT SALINAS RIVER NWR

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### INTRODUCTION

The western snowy plover, (*Charadrius alexandrinus nivosus*), relies heavily on coastal beaches from southern Washington to Baja California for food, shelter, and raising their young. The plovers' Pacific coast population has been in decline due to the severe loss of habitat related to industrial, urban, and recreational development, human disturbance, and exotic vegetation encroachment. This coastal population was Federally listed as a threatened species under the Endangered Species Act in 1993.

Western snowy plover breeding areas in the Monterey Bay area have been greatly impacted by pressures from development and thousands of summer beach visitors. In 1986, a severe decline in plover nest success at the Salinas River National Wildlife Refuge (SRNWR) and adjacent lands was reported by PRBO Conservation Science (PRBO) plover monitors. This area had been one of the most productive Snowy Plover breeding areas in central coastal California. Between 1988 and 1990, 47 percent of all nests found at the SRNWR were lost to non-native red fox predation. In addition, nesting attempts had decreased from 40 in 1986 to 24 in 1990.

In 1991, personnel at the San Francisco Bay National Wildlife Refuge Complex began protecting individual plover nests with exclosures at the SRNWR. Hatching success increased from a low of 10% in 1987 to approximately 83% in 1994. However, during the 1992 and 1993 breeding seasons, high levels of adult mortality were recorded. In addition, the chick fledging rate between 1991 and 1993 decreased below the pre-exclosure period. In an attempt to increase fledging success and reduce adult mortalities, an integrated predator management program, which combines predator exclosures with the removal of non-native mammals, was initiated in August 1993.

Mammalian predator removal on the SRNWR has been conducted by the U.S. Department of Agriculture, Wildlife Services. Efforts were expanded at the beginning of the 1994 plover nesting season to include California Department of Parks and Recreation and private lands, an approximately 10 mile stretch of beach from Zmudowski State Beach in the north to the Cemex Sandmining Company in the south. Efforts were further expanded to the California Department of Fish and Game, Moss Landing Ecological Reserve salt ponds in 1997.

Implementation of the mammalian predator management program throughout the mid to late 1990s reduced the need for exclosures, thereby decreasing adult mortality levels, and allowed for continued hatching success. Fledge rates, however, continued to decline in some parts of the Monterey Bay area. From numerous field observations, it was concluded that plover chick predation by avian predators was a key factor in the continued low fledge rate. In 1999 the Service entered into an agreement with Santa Cruz Predatory Bird Research Group to begin a small-scale experimental avian predator removal program at the SRNWR. Results from 1999-

2002 have shown that fledge rates in the study sites steadily increased with the removal and/or translocation of problem avian predators. Based on these results, the avian predator management program was included in the SRNWR Comprehensive Conservation Plan.

## **METHODS**

PRBO Conservation Science has been collecting breeding biology data on plovers in and around the SRNWR area since about 1982 and has been intensively monitoring this stretch of beach since 1984. PRBO personnel again monitored snowy plover nests on the SRNWR in 2013.

Wildlife Services monitored for signs of mammalian predators. Priority areas were established for monitoring, based on those areas that traditionally supported large numbers of nests and broods. Areas with increased adult SNPL mortality were subsequently monitored heavily, as were areas with decreased fledging success, and/or mammalian predator signs.

In 2013, there was an increase in nest predation by skunks.

During the 2013 breeding season, as in previous years, Wildlife Services was also contracted to control problem avian predators throughout the same priority areas as the mammalian predator management program. These areas were monitored for the arrival of target species common raven (*Corvus corax*) and American crow (*Corvus brachyrhynchos*). Problem avian predators were identified by nesting attempts and active hunting behavior in, and close to, plover breeding areas.

It is suspected that common ravens predated SNPL nests at SRNWR in 2013. It is often difficult to determine conclusively what predator may have taken a particular nest.

A depredation permit (Permit # MB89533A-0) was applied for and issued by the U.S. Fish and Wildlife migratory bird office. This renewable permit was specifically applied for to protect threatened and endangered bird species in the area of the San Francisco Bay NWR Complex. It not only covers the refuge properties but efforts to control avian predators on adjacent and nearby lands both private and state owned.

Refuge personnel erected symbolic fencing consisting of low metal posts and cabling, along the beach front/dune area to protect critical nesting areas from human disturbance and trampling by gulls. The symbolic fencing was also posted with bilingual signs about the plovers and their sensitive habitat.

## **RESULTS**

The specific data results for the entire Monterey Bay and Santa Cruz County can be found in the PRBO annual endangered species report. All monitoring this field season was done under the PRBO permit.

The 2013 snowy plover breeding season was characterized by subpar reproductive success throughout the Monterey Bay area. There were 57 nesting attempts at the refuge in 2013. Of these attempts only 26.3% hatched. The percent of fledges ranged from 47.7- 56.8%. The refuge yielded .35 juveniles per nesting attempt. At the time of this writing, fledges per male data was not yet available but will be included in the PRBO report for the Monterey Bay area.

## **CONCLUSION**

The integrated mammalian predator management program combined with avian predator management and the use of symbolic fencing has proven to be somewhat effective in maintaining fledgling success. Challenges such as new and inexperienced predator management staff create inefficiencies within the program but are still valuable in reducing nest loss to mammalian and avian predators. Continuation of these programs is recommended as a means to reach the Recovery Plans target goals.

Permitting issues with the Monterey County Water Resources Agency pose a threat to continued SNPL success on the SRNWR. Breaching of the Salinas river lagoon and rises in water levels will continue to be a threat to SNPL continued success at the refuge.