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Title

2009 Final Report on the Western Snowy Plovers

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Author

Sandoval, Cristina

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Data Availability

The data associated with this publication are available upon request.

2009 Final Report on the Western Snowy Plovers

Coal Oil Point Reserve
University of California
Santa Barbara, CA

Site: Sand's Beach, Coal Oil Point Reserve (COPR)

Location: RU5, Santa Barbara, CA

Lat-Long: 34 25 00 N, 119 52 30 W

USGS maps: Goleta 7.5, Dos Pueblos Canyon 7.5, Goleta 15

Jurisdiction: Owned and managed by the University of California Santa Barbara.

Climate: Avg precip 14-21 in/year, avg min temp 42 F, avg max temp 75 F

Total linear beach length: 1,200 m

Protected linear beach length: 300-400 m during Winter and fall and 800 m during the breeding season

Protected area during breeding season: 30,700 sq meters or 7.6 acres

Docent program? Yes, all year, most daylight hours

Interpretive and regulatory signs? Yes, at beach entrances and fences

Management Plan? Yes

Enforcement? Docents request compliance with leash law and restricted areas. Officers are called when problem is not solved.

Monitoring: Yes, weekly in the winter and Fall and daily in the spring and Summer.

Predator management: harassment of crows, fencing to prevent skunk, predator control.

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ABSTRACT

In 2009 we continued with the monitoring of the WSP population at Coal Oil Point Reserve as in previous years. We were able to estimate chicks until fledged age. This year we had predator control during most of the breeding season. The predator control focused on trapping skunks in the nesting habitat. Another highlight of 2009 was the successful use of the Devereux Slough mudflats as nesting area. This has happened before but not in significant numbers. 2009 had the best fledgling rate of all years so far.

INTRODUCTION

Sands beach at Coal Oil Point Reserve (COPR) has a wintering populations of about 300 individuals and a breeding population of about 20 pairs of the Western Snowy Plover. The beach is open to the public all year, but a portion of the dry sandy beach, which is the plover habitat, has been protected since Spring 2001. Presently, all the potential breeding habitat is protected during the breeding season and the beach east of the slough mouth is protected during the wintering months.

METHODS AND RESULTS

We continued in 2009 with the same management practices established in 2004 (Sandoval, 2004). Figure 1 shows the location of the plover habitat and the permanent and seasonal fences to protect them.

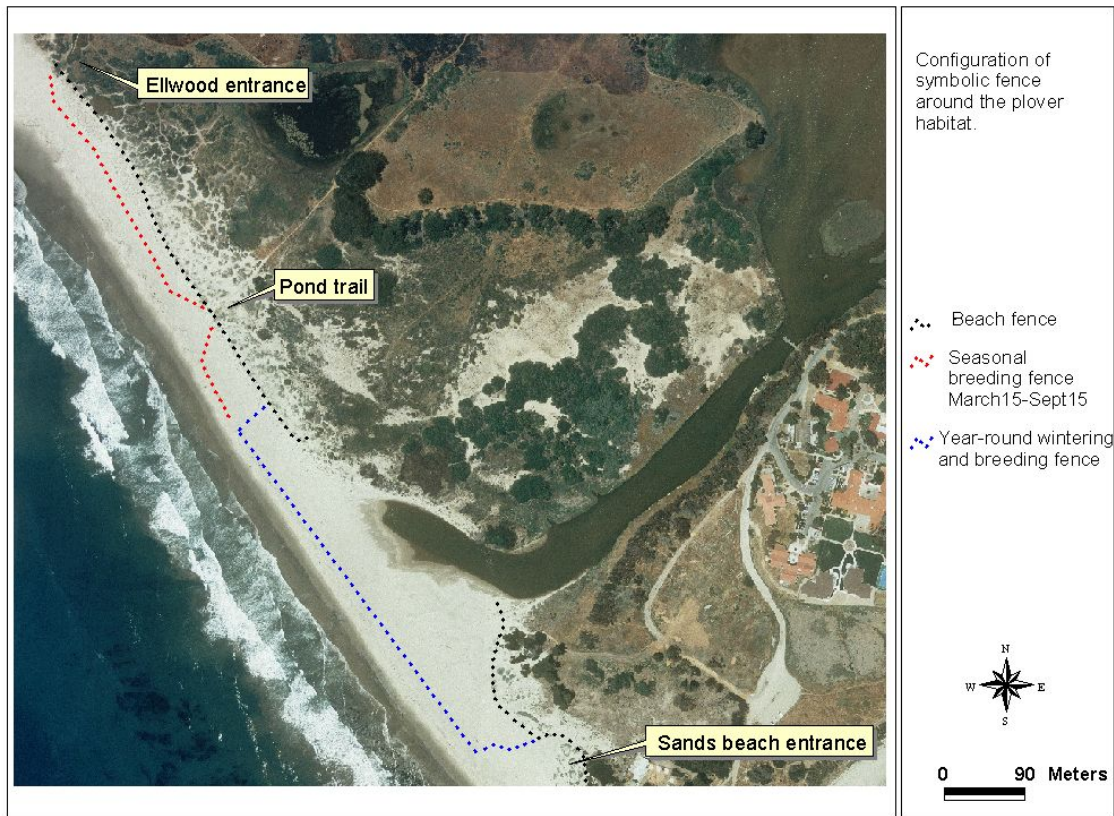


Figure 1. Location of the habitat protected for the Western Snowy Plovers on Sands beach at Coal Oil Point Reserve.

WINTERING POPULATION

When we counted, we walked along the wet sand from the eastern boundary of Sands beach to the western boundary of the Reserve (Figure 2) spotting and counting plovers with a binocular.

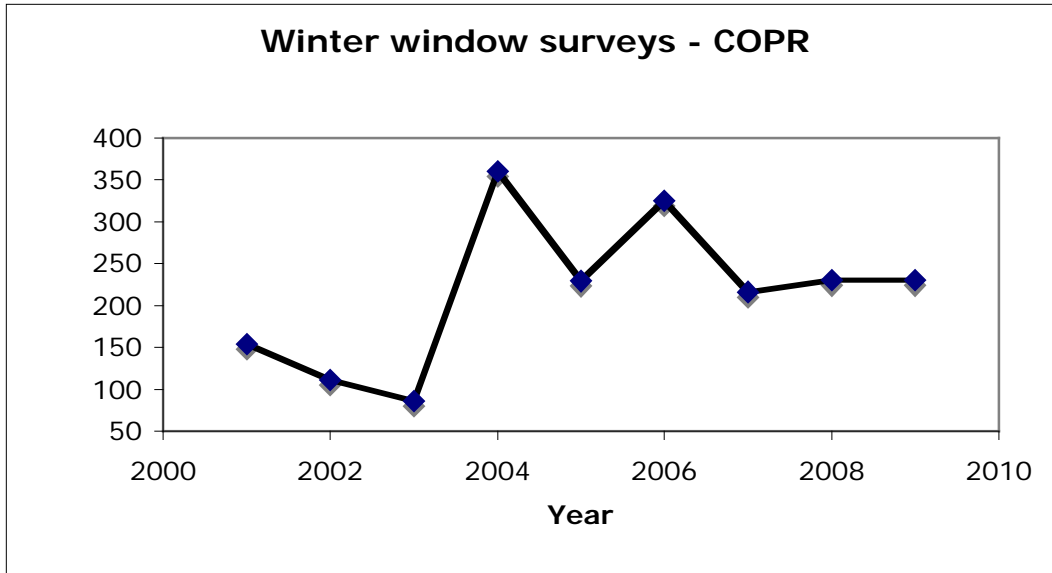


Figure 2. Winter window surveys of snowy plovers at Coal Oil Point Reserve.

BREEDING POPULATION

Nesting

In 2009, the number and location of adult plovers, nests, and chicks was counted 3 times per week by Cristina Sandoval, Pat Walker, and Erin Feinblast (Table 1).

Of significance, 15 out of the 64 plovers nests were laid on the slough mudflats instead of the beach. 9 of the 15 nests hatched successfully.

Table 1. Changes in breeding at Coal Oil Point since 2001. The number of fledged chicks is estimated based on half of the adult number counted in the window survey. Because males can move around within a season, this number may be overestimated.

Year	Breeding survey #	Nests	Nests Hatched (Nests hatched/#nests)	Chicks Fledged (Fledged/male)
1970- 2000	few	~2-4/30yr	none	none
2001	1	1	1 (100%)	1 (1)
2002	8	9	6 (67%)	14 (2.8)
2003	26	24	16 (67%)	40 (3.3)
2004	30	51	20 (39%)	27 (1.9)

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2005	26	64	16 (25%)	30 + 17 (2.3)
2006	39	43	24 (56%)	48 + 11 (2.5)
2007	39	66	20 (30%)	?
2008	25	57	22 (38%)	39 (2.8)
2009	29	64	39 (60%)	61 (+3)

The breeding window surveys show that the number of adults increased right after the implementation of the management plan in 2001 and reached a mean of about 35 adults after 2003 (Figure 3). The nests have been found in highest density around the slough mouth and, in 2009, also in the mud flats.

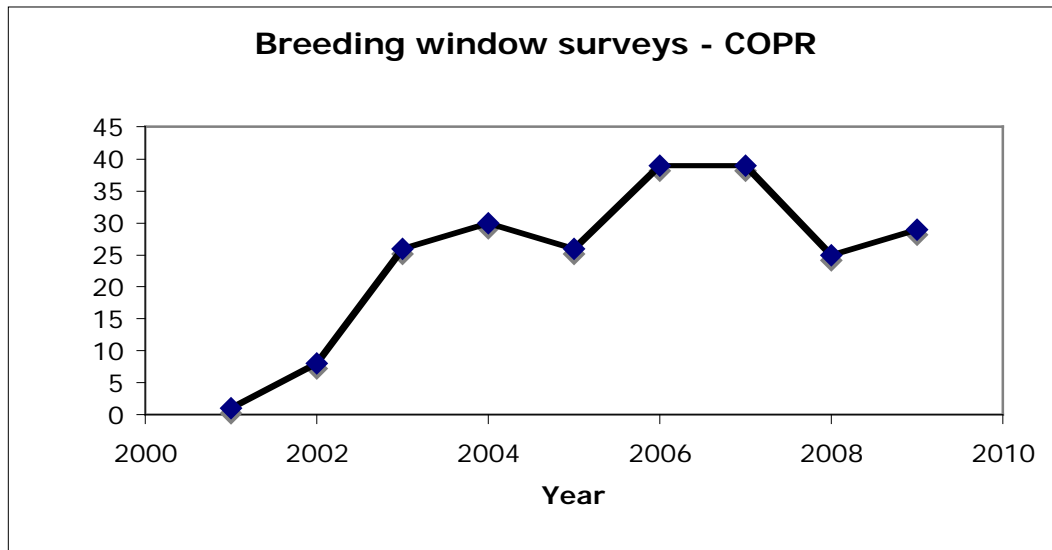


Figure 3. Counts of adult snowy plovers at Coal Oil Point Reserve in the breeding window surveys.

The total number of nests that successfully hatched (Figure 4) and the number of chicks fledged (Figure 5) seems to have reached a stable level, although 2009 had an unusual high success rate, perhaps as a result of the new nesting habitat that was available in the mud flats.

The number of chicks that have fledged in a year closely correlates with the number of nests that hatched (Figure 6). If this trend continues, we can start using the number of

nests hatched as a measure of nesting success at the reserve, instead of attempting to count chicks.

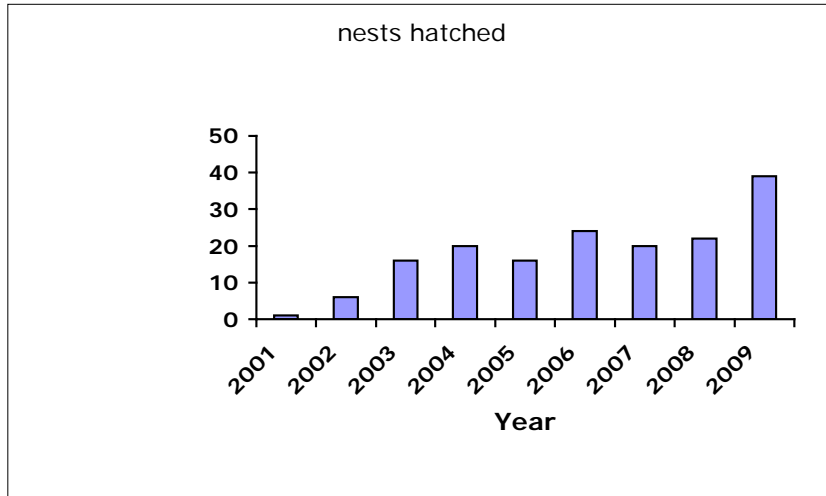


Figure 4. Total number of nests that hatched at Coal Oil Point Reserve.

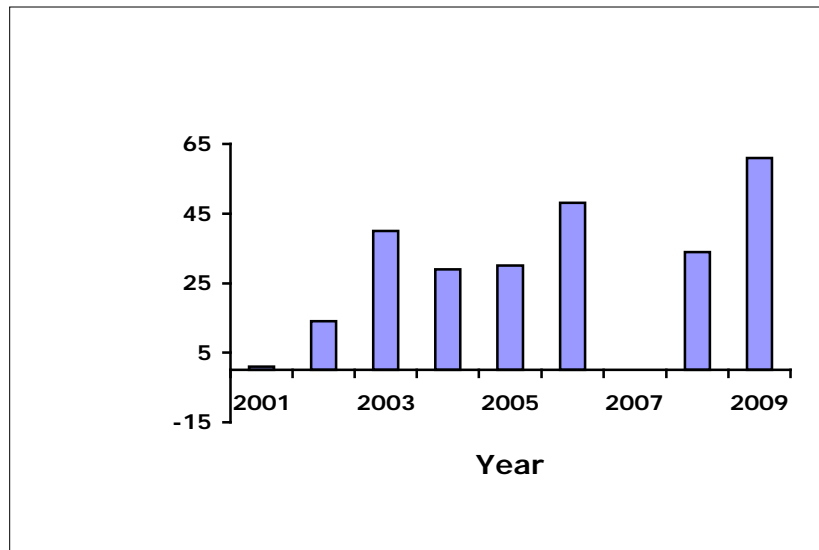


Figure 5. Number of chicks fledged at Coal Oil Point Reserve.

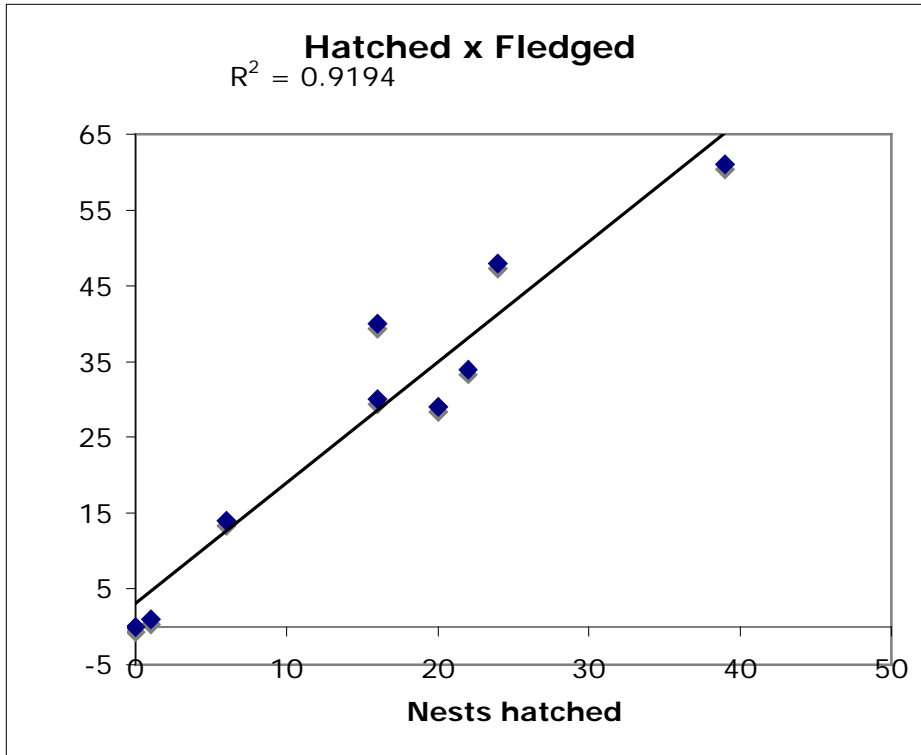


Figure 6. Regression of the number of chicks fledged each year and the number of nests that hatched.

Predation

Again, skunks were the main cause of nest failure in 2009 (Figure 7, Table 2) and they were also a problem in previous years (Figure 8). However, the better hatching success in 2009, may be attributed to the predator control conducted by USDA. The meshed fence used to help prevent skunks from moving from inland to the beach was maintained as the trapper believes it helped focusing the trapping effort to fewer areas.

Below is the USDA report.

14 December 2009

Report of Predator removal for Coal Oil Point Reserve:

Predator management activities were conducted on the Coal Oil Point Reserve in an effort to protect the threatened Western Snowy Plover against predation by mammalian

predators during their 2009 nesting season. Predator removal began on 14 April 2009 and ended 28 August 2009.

Striped skunks and raccoons were the target predators. Trapping was the method used to remove predators. The traps used to remove mammalian predators were Victor #1½ padded jaw traps and Tomahawk cage traps. All target species captured in traps were given an injection of sodium pentobarbital as a means of euthanasia. A total of thirteen skunks and three raccoons were captured in padded leg-hold traps and euthanized. A total of eleven skunks and five raccoons were captured in cage traps and euthanized as well.

Wildlife Services spent 192.5 hours on predator removal activities, carcass disposal, and associated administrative duties at Coal Oil Point Reserve during the 2009 season. A total of six hundred twenty-four padded leg-hold trap nights and two hundred ninety-four cage trap nights were spent trapping and removing predators. A trap night is where one trap is set for one night. Two traps set for one night would be two trap nights.

Wildlife Services recommends beginning predator removal activities prior to pairing and breeding season in 2010. Spotlight and scent station surveys can be conducted during the non-nesting season to identify predator species that inhabit the nesting area. Predator management should be continued each year to ensure fledging success of the threatened Western Snowy Plover. total of eleven skunks and five raccoons were captured in cage traps and euthanized as well.

Table 2. Number of nests lost by fate in 2009 and previous years.

	2002	2003	2004	2005	2006	2007	2008	2009	Total nests
Total nests	9	24	51	64	43	66	57	64	314
Hatched	6	17	20	16	25	30	22	39	136
Skunk	0	0	10	18	2	19	18	10	67
Crow	2	4	8	3	0	0	0	1	17
Wind	1	3	2	6	1	1	2	5	16
Tide	0	0	5	5	2	0	7	1	19
Abandoned	0	0	0	9	3	0	0	1	12
Abandoned Owl	0	0	0	0	6	0	0	0	6
Flooded	0	0	0	3	0	0	0	0	3
Raccoon	0	0	2	1	0	0	0	1	3
Whimbrel	0	0	1	0	0	0	0	0	1
Gull	0	0	0	0	1	0	0	0	1
Opossum	0	0	0	1	0	0	0	0	1
Unknown cause	0	0	0	1	3	11	0	0	15
Unk pred	0	0	0	1	1	1	0	4	3
Unk fate	0	0	0	0	0	4	4	2	8
Total lost	3	7	28	48	19	36	31	25	

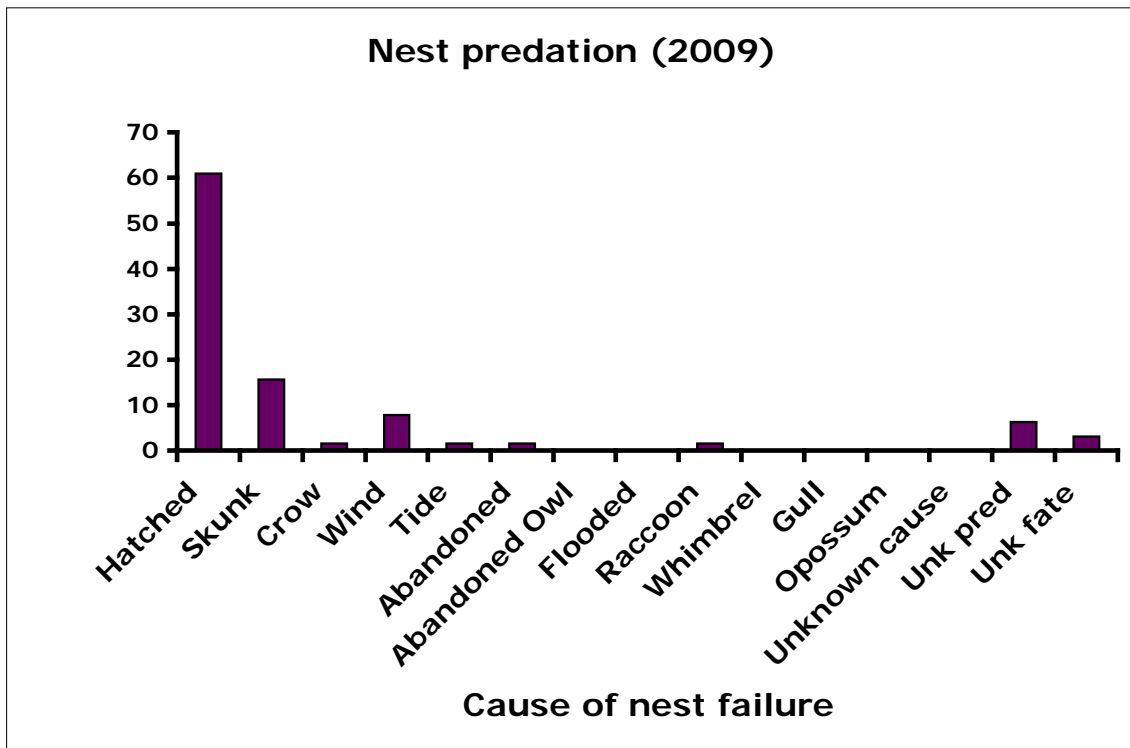


Figure 7. Nest predation in 2009.

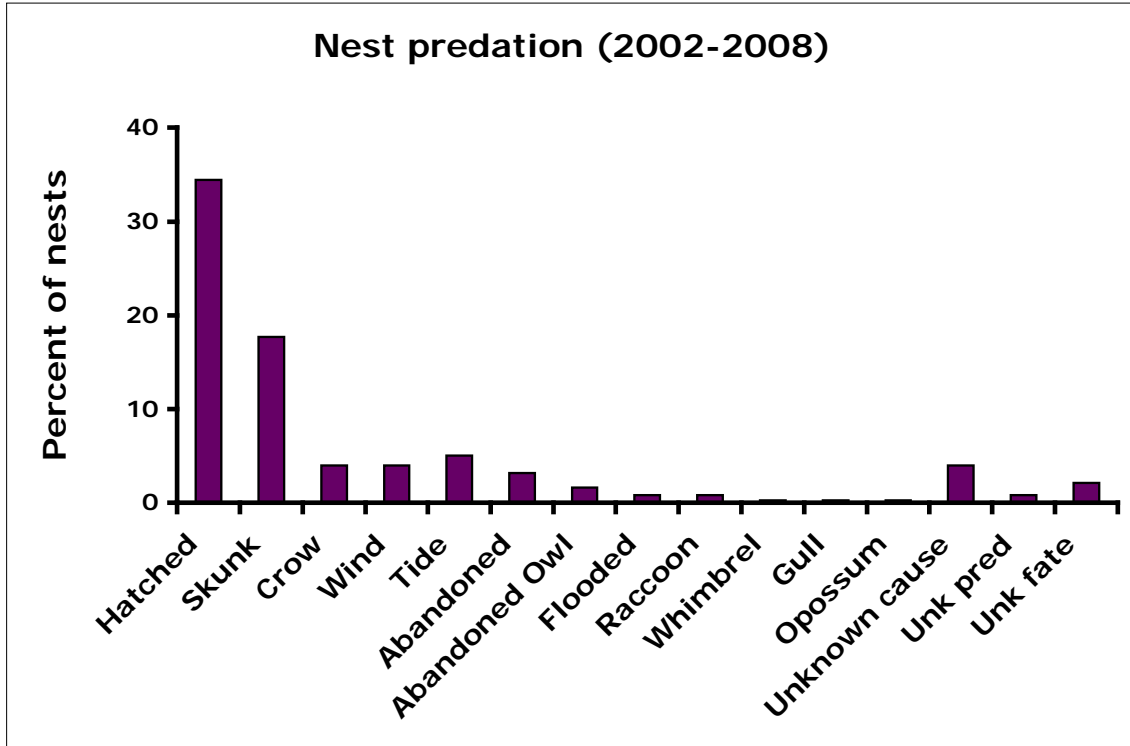


Figure 8. Percent of nests destroyed by various causes between 2002 and 2008

Egg replacement experiment

We did not replace plover eggs with wood eggs in 2009 since we wanted to study the efficacy of predator control.

Hand-raised chicks

In 2009, we raised 7 snowy plover chicks in our nursery. 3 were from a nest washed away by the high tide. 3 were from a nest abandoned at ODVRA. 1 newborn chick was found near the ocean edge on the beach at COPR. After 1 hour of observation, we concluded it was separated from the parent and we did not know what parent it belonged too because many nests hatched synchronously this year.

All 7 chicks raised in the nursery fledged and were released at COPR. Doug George banded the 3 chicks from ODVRA. We did not band the other chicks because we could not find an available bander with a permit to band plovers.

We used a different strategy to feed the nursery chicks in 2009. We offered them mealworms at libidum, in a dish, and supplemented the feeding with beach hoppers 3 times a day. This allowed us to feed them less frequently.

Enforcement

We started an enforcement plan in March 1st, 2009.

Location of nests

The location of nests was recorded in relation to the numbered posts along the beach but we did not obtain GPS coordinates to avoid disturbing nests..

Docent program

The docent program continues at the same level as in 2006. The docents have been very instrumental in reducing the impact of beach users to the Snowy Plovers. The docents main duties include showing and educating people about the plovers, requesting compliance to the leash law, requesting people to stay away from the symbolic fence, requesting people to move around the plover flock, and scaring away crows.

APPENDIX 1. Band sightings banding at the reserve

Sightings

No banded plovers nested in the reserve in 2009.

CONCLUSION

The plover breeding and wintering populations at COPR appear to have recovered since the implementation of a management plan in 2001. The control of skunks has become a management priority to improve hatching success. Because the density of nests is relatively high compared to other beaches, a nest predator can cause a large impact in a single night. We were pleased to find out that the number of chicks fledged in a year correlates with the number of nests that hatched. This allows us to focus on nest success

rather than tracking chicks, which are not banded at the reserve. The docent program continues to be an effective way to reduce human impact on the plovers.

RECOMMENDATIONS

- The USDA trapping program worked well and should be continued.
- The mud flats should be included as part of the plover nesting habitat and be regularly monitored.
- The chick nursery. We need to obtain a banding permit for a local biologist because it was not feasible to "borrow" plover banders from other locations as their were busy during the breeding season.

ACKNOWLEDGEMENTS

We are very thankful to Pat Walker and Erin Feinblast who helped count plovers and nests. Jennifer Stroh, the docent coordinator, managed the docent program. Steve Ferry and Pat Walker continued to assist with fence maintenance. The docents, too many to count, showed that people care and are willing to work from their hearts to save the plovers.

CALIFORNIA LEAST TERNS

1 pair nested in the reserve in 2008 and this nest were destroyed by skunks before the second egg was laid (Table 5).

Table 5. Nesting of California Least Terns at Coal Oil Point Reserve.

Year	# pairs	# nests	# nests hatched	# chicks fledged	Observations
2006	5	4	4	7	Skunks ate 5 nests. Red Tail Hawk
2007	4	6	1	0	ate chicks
2008	2	1	0	0	Skunk ate 1 nest

Bibliography of other Snowy Plover studies at COPR:

Lafferty, K.D. 2000. **Status, trends and conservation of the western snowy plover with a focus on the Devereux Slough population at Coal Oil Point Reserve, Santa Barbara County, CA**, Museum of Systematics and Ecology, University of California, Santa Barbara, Santa Barbara, CA.

Lafferty, K.D. 2001a. **Birds at a southern California beach: seasonality, habitat use and disturbance by human activity**. Biodiversity and Conservation 10: 1-14.

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Kevin D. Lafferty, Darcie Goodman and Cristina P. Sandoval 2005. **Restoration of breeding by snowy plovers following protection from disturbance**. Biodiversity and Conservation. Online at: <http://www.kluweronline.com/issn/0960-3115>