
2010 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 precp 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 2010 we continued with the monitoring of the WSP population at Coal Oil Point Reserve as in previous years. We estimated chicks until fledged age. We had predator control during most of the breeding season and the loss of nests from skunk predation was greatly reduced. However chick predation from unknown predators was higher than normal. The beach was the narrowest we have observed during the breeding since 2001.

INTRODUCTION

Sands beach at Coal Oil Point Reserve (COPR) has a wintering populations of about 2500 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 off the potential breeding habitat at COPR 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 2010 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.

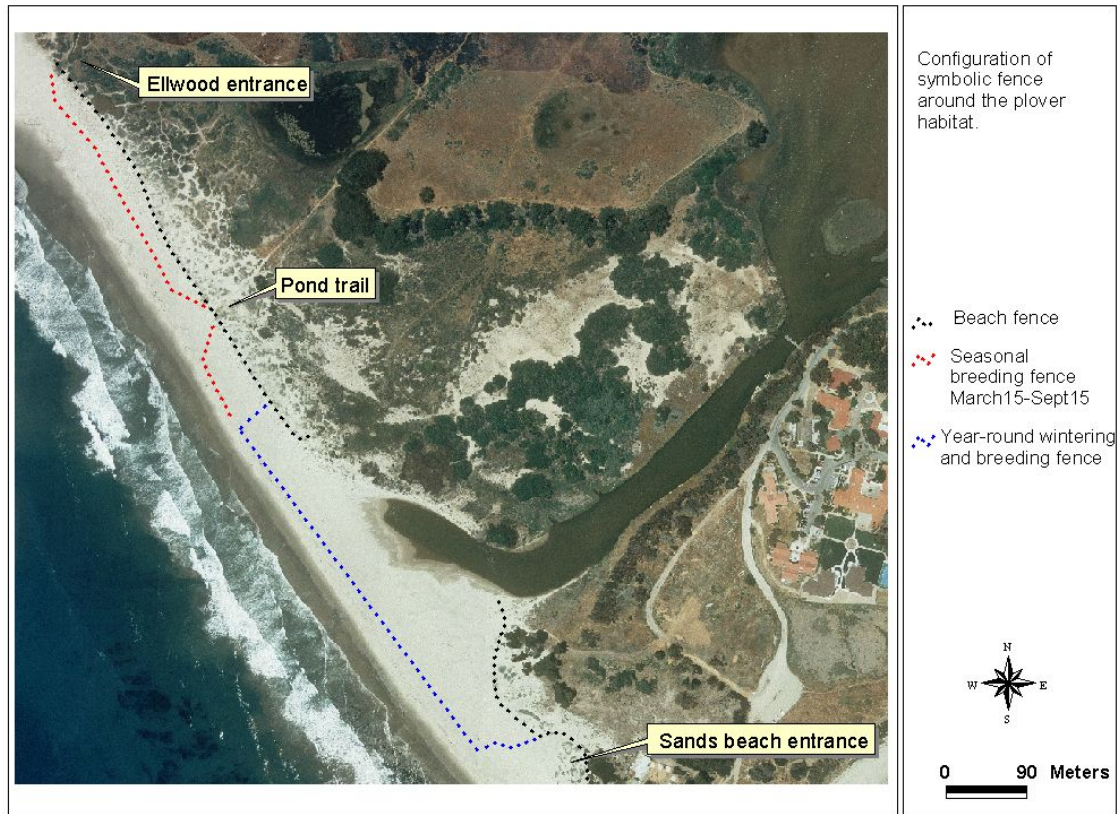


Figure 1. Location of the habitat protected for the Western Snowy Plovers on Sands beach at Coal Oil Point Reserve. The mudflats not shown in this photo area also protected.

WINTERING POPULATION

To count individuals of the WSP, we walked along the wet sand from the eastern boundary of Sands beach to the western boundary of the Reserve (Figure 2) and observe all individuals with a binocular. In the way back, we stop at groups of individuals to look for color bands on the legs.

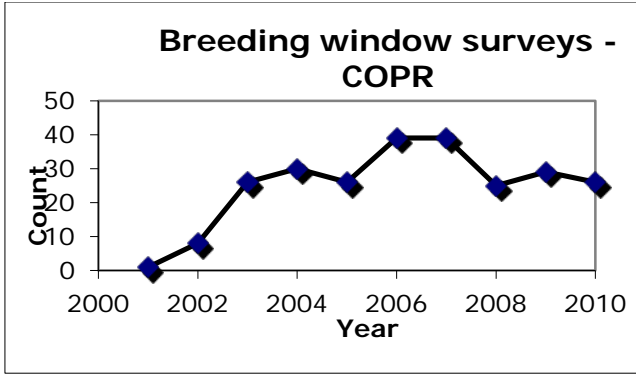


Figure 2. Winter window surveys of snowy plovers at Coal Oil Point Reserve.

BREEDING POPULATION

Nesting

In 2010, the number and location of adult plovers, nests, and chicks was counted 3 times per week by Cristina Sandoval and Pat Walker (Table 1).

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)
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)
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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, since 2009, also in the mud flats.

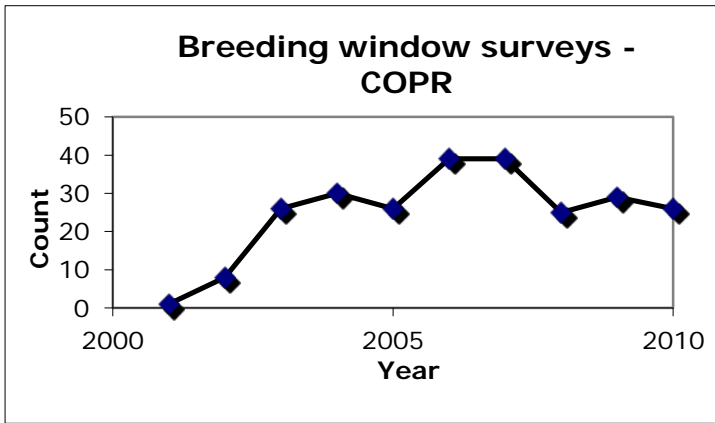


Figure 3. Counts of adult snowy plovers at Coal Oil Point Reserve in the breeding window surveys.

The total number of nests that successfully hatched (Figure 4). The number of chicks fledged was 42, the largest since 2001 (Figure 5). Yet, the fledgling rate was 0.5, the lowest since 2001.

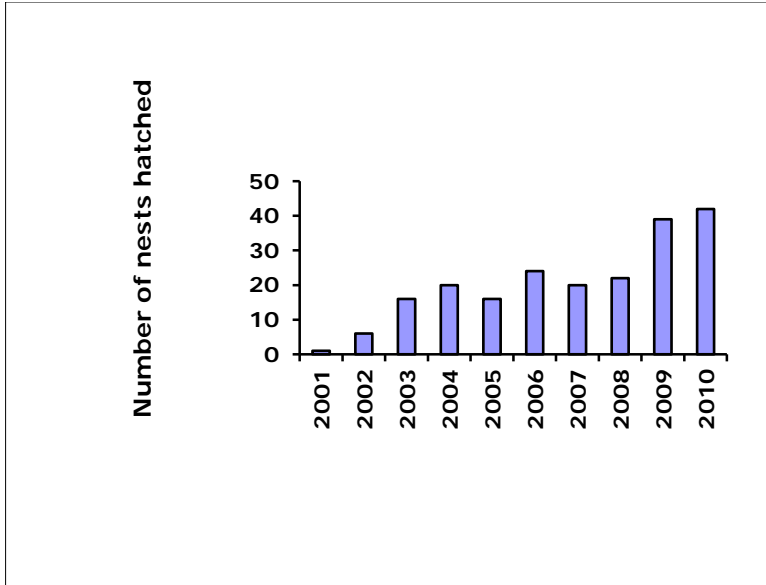


Figure 4. Total number of nests that hatched at Coal Oil Point Reserve.

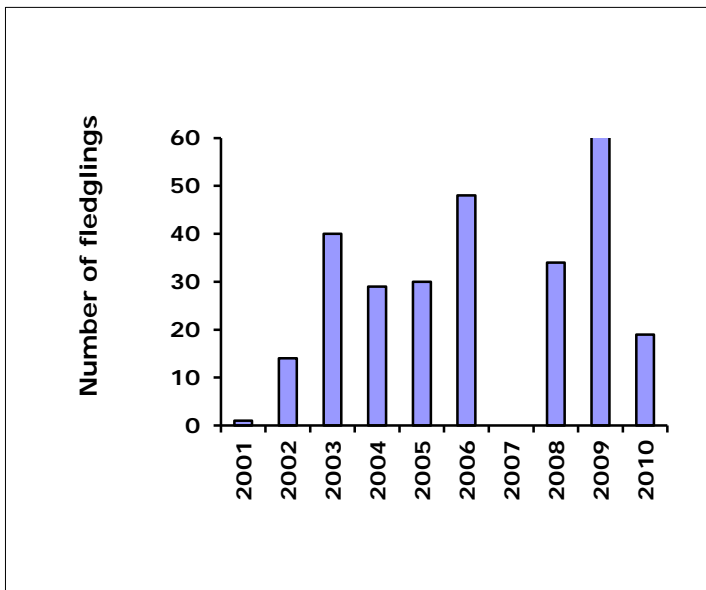


Figure 5. Number of chicks fledged at Coal Oil Point Reserve.

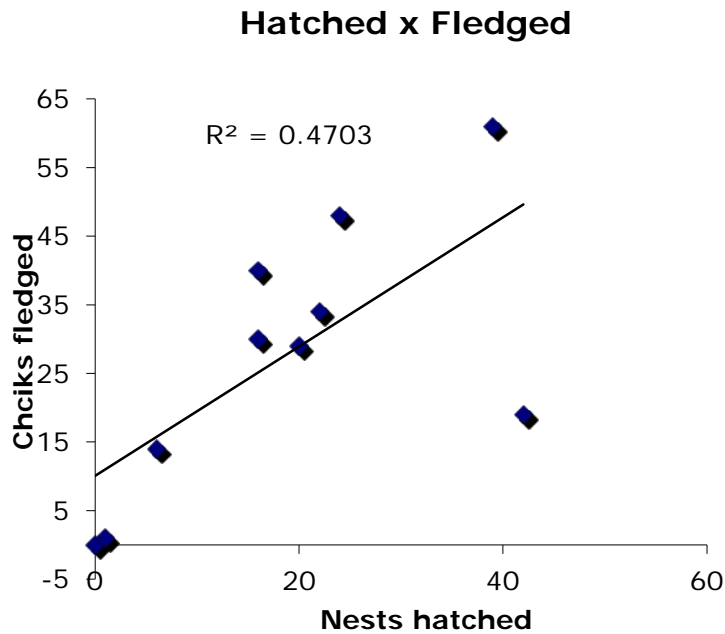


Figure 6. Regression of the number of chicks fledged each year and the number of nests that hatched. Note that in 2010, the last point on the right, deviates from the norm. In this year we had a low fledgling rate relative to the hatching rate.

Predation

Of the 59 nests that we determined the cause of failure none were attributed to skunks, which have been a problem in previous years (Figure 7, Table 2). Tides washing away beach nests and slough flooding from rains on nests at the mudflats were the main cause of failure of nests. We were not able to determine the fate of 15 nests, in most cases because these nests were behind the dunes and we avoided entering the nesting area in 2010.

Below is the USDA report.

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30 August 2010

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 the 2010 nesting season. Predator removal began on 28 April 2010 and ended 20 August 2010.

Striped skunks and raccoons were the target predators. Trapping was the method used to remove the predators. 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 four skunks and five raccoons were captured in padded leg-hold traps and euthanized. A total of four skunks were captured in cage traps and euthanized as well.

Wildlife Services spent 155 hours on predator removal activities, carcass disposal, and associated administrative duties at Coal Oil Point Reserve during the 2010 season. A total of four hundred nineteen padded leg-hold trap nights and one hundred eleven 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, etc.

Wildlife Services recommends beginning predator removal activities prior to pairing and breeding season in 2011. Each year the cost of conducting predator removal increases. Coal Oil Point Reserve should consider this and secure enough funding to conduct the desired amount of predator removal. Spotlight and scent station surveys should be conducted during the non-nesting season to identify predator species that inhabit the nesting area. Predator management should be continued each year to help ensure fledging success of the threatened Western Snowy Plover.

Feel free to contact me if you have any questions.

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Table 2. Number of nests lost by fate in 2010 and previous years.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total nests
Total nests	9	24	51	64	43	66	57	64	74	452
Hatched	6	17	20	16	25	30	22	39	42	217
Skunk			10	18	2	19	18	10	0	77
Crow	2	4	8	3	0	0	0	1	1	19
Wind	1	3	2	6	1	1	2	5	2	23
Tide			5	5	2		7	1	5	25
Abandoned			0	9	3		0	1	3	16
Abandoned Owl	0	0	0	0	6		0		0	6
Flooded			0	3	0		0		4	3
Raccoon			2	1	0		0	1	0	4
Whimbrel			1	0	0		0		0	1
Gull	0	0	0	0	1		0		0	1
Opossum				1	0		0		0	1
Unknown cause			0	1	3	11			15	15
Unk pred				1	1	1		4	0	7
Unk fate						4	4	2	0	8
Total lost	3	7	28	48	19	36	31	25	32	423
% loss	33	29	55	75	44	55	54	39	43	

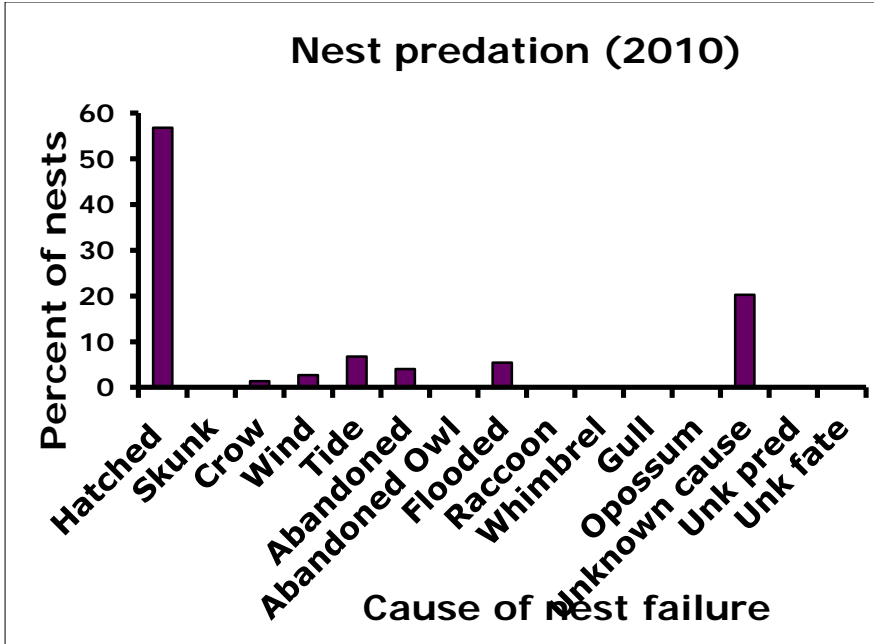


Figure 7. Nest predation at COPR in 2010.

Stopped here

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

The university is providing approximately 10 hours per week of enforcement of the leash law and other pertinent ordinances at COPR,

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 who helped count plovers, locate nests and determine their fate and constructed and maintained the fences. Jennifer Stroh, the docent coordinator, managed the docent program. Steve Ferry also continued to assist with fence maintenance. The docents, too many to count, kept a presence at the beach every day of the year.

CALIFORNIA LEAST TERNS

No pairs were observed at COPR in 2010 (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.

Lafferty, K.D. 2001b. **Disturbance to wintering western snowy plovers**. Biological Conservation 101: 315-325.

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>