

**State of California
Natural Resources Agency
Department of Fish and Game
Wildlife Branch**

**Western Snowy Plover (*Charadrius alexandrinus nivosus*) and
California Least Tern (*Sternula antillarum browni*)
Final Nesting Season Report**

for

Ormond Beach, Ventura County, California

2013 Season

By

**Nancy Fox-Fernandez, Jennifer Kendrick,
Carie Wingert, Duane Vander Pluym**

Nongame Wildlife Program Report 2013

Final Report

To

State of California
Department of Fish and Game
South Coast Region
3883 Ruffin Road
San Diego, CA 92123

And

California Coastal Conservancy
Ventura Audubon Society
United States Fish and Wildlife Service

**Western Snowy Plover (*Charadrius alexandrinus nivosus*) and
California Least Tern (*Sternula antillarum browni*)
Final Nesting Season Report**

for

Ormond Beach, Ventura County, California

2013 Season

By

**Nancy Fox-Fernandez, Jennifer Kendrick,
Carie Wingert, Duane Vander Pluym**
Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, CA 93003
(805) 644-4455

Prepared 30 September 2013

State of California
Natural Resources Agency
Department of Fish and Game

**Western Snowy Plover (*Charadrius alexandrinus nivosus*) and
California Least Tern (*Sternula antillarum browni*)
Final Nesting Season Report
Ormond Beach, Ventura County, California
2013 Season¹**

by

**Nancy Fox-Fernandez, Jennifer Kendrick,
Carie Wingert, Duane Vander Pluym**
Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, CA 93003
(805) 644-4455

ABSTRACT

Western snowy plover (*Charadrius alexandrinus nivosus*) and California least tern (*Sternula antillarum browni*) breeding at Ormond Beach, Ventura County, California, was monitored in 2013 to track the outcome of nests and estimate reproductive success, as well as to identify threats to reproductive success at this breeding location. Western snowy plover (WSPL) surveys were initiated on March 18, while California Least Tern (LETE) surveys began on April 1. After April 1, surveys for both species were conducted concurrently and concluded on August 21 for a total of twenty three (23) WSPL and twenty one (21) LETE survey events. Two areas of the beach were temporarily fenced to exclude predators and humans. We estimated between 14 and 38 WSPL nesting pairs and identified 38 WSPL nests and 7 LETE nests. No LETE nests hatched successfully, with 72% of nests failed due to abandonment, 14% due to either predation or abandonment, and 14% due to being washed out by tidal surges. 92% percent of WSPL nests failed due to depredation, and 8% due to being washed out or covered by sand during a storm. Three percent of nests hatched. While the number of LETE nests initiated in 2013 was slightly higher than the previous year, the percent of nests hatching was lower. The number of WSPL nests initiated in 2013 was slightly lower, while the number hatching was significantly lower than the previous year. Predators, such as common ravens (*Corvus corax*), California ground squirrels (*Otospermophilus beecheyi*), and peregrine falcons (*Falco peregrinus*) may have contributed to the reduction of nest success this year; however the species of predators could not be identified for the majority of predation events.

¹ N. Fox-Fernandez, J. Kendrick, C. Wingert, D. Vander Pluym. 2013. Western snowy plover (*Charadrius alexandrinus nivosus*) and California least tern (*Sternula antillarum browni*) final nesting season report, Ormond Beach, Ventura County, California, 2013 season. Rincon Consultants, Inc. Ventura, CA. 27 pp.

INTRODUCTION

Rincon Consultants, Inc. (Rincon) is pleased to submit this Final Nesting Season Report documenting the 2013 monitoring results for the western snowy plover (*Charadrius alexandrinus nivosus*; WSPL) and California least tern (*Sternula antillarum browni*; LETE) breeding colonies at Ormond Beach, Ventura County, California. This report is provided under the Cooperative Endangered Species Conservation Fund (Section 6) Grant Agreement Number P. The purpose of this monitoring effort was to track the outcome of nests and estimate reproductive success of WSPL and LETE, as well as to identify threats to reproductive success at this breeding location. Surveys and nest monitoring for these species were conducted under United States Fish and Wildlife Service (USFWS) Recovery Permits TE436745A-0 (Nancy Fox-Fernandez) and TE217119-0 (Carie Wingert), and California Department of Fish and Wildlife Scientific Collecting Permits SC-008529 (Nancy Fox-Fernandez) and SC-005898 (Carie Wingert).

STUDY AREA

Ormond Beach is located on the coast of southwestern Ventura County, California, between Port Hueneme and Point Mugu Naval Air Weapons Station (Figure 1). The beach is bordered by Point Mugu to the south, Port Hueneme Beach to the north, and wetlands, an NRG Ormond Beach Generating Station power plant, and agricultural habitat to the east. Ormond Beach is approximately two (2) miles in length with a width ranging from approximately 0.8 mile to approximately 0.2 mile, and has an elevation of up to eight (8) feet above mean sea level. The beach is depicted on both the *Oxnard, California*, and *Point Mugu, California*, United States Geological Survey (USGS) 7.5-minute quadrangles.

Ormond Beach has a northwest to southeast orientation. The northwestern portion is owned by the City of Oxnard and the central and southeastern portions are owned by the California Coastal Conservancy. Included within the study area for this project is a wetland salt panne located in the southeastern portion of the beach.

Two areas of the beach were enclosed by temporary protective fencing with signs prohibiting trespass (Figure 2). The southern enclosed area begins south of the power plant and extends towards Point Mugu, leaving an open path between the parking area at Arnold Drive and the shoreline for members of the public to access the beach. This enclosure has been expanded based upon the 2010 nesting activity and includes the salt panne towards the rear of the beach. The northern enclosed area begins north of the power plant and extends north for approximately 0.5 mile. The area of beach directly in front of the power plant has not been enclosed.



Map images copyright © 2011 ESRI and its licensors. All rights reserved. Used by permission.



Figure 1. Ormond Beach Project Site and Location. The top figure depicts the project site boundaries (yellow outline). The bottom figure depicts the regional location of the project.

METHODS

The entire beach and adjacent salt panne wetland was surveyed once per week beginning the week of March 18. Surveyors conducted meandering transects over the entire beach and utilized minimum 7x35 binoculars to achieve 100% visual coverage. Surveyors also used a 20-60x80mm spotting scope to locate nests from a distance where breeding colonies were most dense. Each nest located was mapped with a Garmin eTrex Legend HCx GPS unit and marked with a labeled tongue depressor placed approximately four feet inland of the nest. Data collected for each nest included the number of eggs present at initial discovery and during each subsequent visit, as well as adult WSPL or LETE presence and incubation of the nest. Each nest was monitored during subsequent weeks until the eggs were no longer present.

A WSPL nest was determined to have successfully hatched if a pip shell was found within the empty nest and no broken egg shells with yolk were observed near the nest, and/or if chicks were located near the nest site. If none of the above were observed, then the fate of an empty nest was determined as unknown. Predation was determined based upon the presence of large shell fragments, egg yolk, predator tracks, and/or the presence of the actual predator at the nest site. Attempts were made to identify the species of predator wherever possible.

A LETE nest was determined to have successfully hatched if feces were observed near and/or within the nest and/or chicks were observed near or within the nest. Predation was determined based on the same characteristics used for WSPL. If none of the above were observed, then the fate of an empty nest was determined unknown.



Figure 2. Ormond Beach Study Area. The study area boundary is indicated by the yellow line. The red dashed lines depict the location of temporary fencing installed to deter trespass by humans. A small area of permanent (chain link) fencing is indicated by a line of white dots. Fencing is installed based on where nests have been located in previous years. These two areas are labeled as northern enclosure and southern enclosure.

RESULTS

Site Preparation

Enclosure Fencing

The location of the enclosure fence remained the same as during the nesting season of 2012. The fence consisted of four foot high plastic mesh fencing (Cintoflex, ~2" x 1 ½" mesh size) attached to t-posts with cable ties. Interpretive signs were attached to the fences to explain their purpose.

The southern enclosed area begins south of the power plant and extends to near the boundary with Point Mugu, leaving an open path between the parking area at Arnold Drive and the shoreline for members of the public to access the beach. This enclosure was expanded in 2011 based upon the 2010 nesting activity to include the wetland salt panne at the southeast end of the southern enclosure. This area was enclosed with fencing following the pedestrian pathway established along the boundary with Point Mugu. Once the fencing reached the foredunes, it was directed northwest approximately 0.5 mile along the interior of the foredunes before turning northeast towards the rear of the beach. The fence continued until it reached a canal and then followed the canal eastward approximately 600 feet before turning south and reaching its terminus.

The northern enclosure fence begins immediately north of the power plant and extends north for approximately 0.5 mile. The southern, western, and northern boundaries are completely fenced. The eastern boundary of the area is comprised of a combination of temporary and permanent (chain-link) fencing with several gaps that permit both access and trespass. The area of beach directly in front of the power plant has not been enclosed as WSPL have not historically nested in this area. Numbers of nesting plovers has increased in this area recently which could be attributed to the NRG Ormond Beach Generating Station turning off their lights at night per the request of VC Shorebirds (C. Kahler pers. comm.).

Beach Management

Ormond Beach is not subject to clearing activities. Vegetation management is not necessary on the beach in general as few non-native species are present; however, non-native species such as iceplant (*Carpobrotus* sp.) near the power plant are removed at various times throughout the year. Trash and other debris, including wood piles created by humans, are also removed periodically through the year. Materials from illegal encampments were removed from the Ormond Beach area this year. The Nature Conservancy hired a security company this year (Draganchuk) to control illegal encampments on their land (east of the permanent fencing in the northern enclosure) and one illegal encampment was observed this year on their property to the northeast of the northern enclosure. An encampment was also observed within the eastern portion of the northern enclosure. A State Fish and Wildlife Warden spoke to the man on July 23, stating he could not live in the enclosure. By July 31 the man had left the area and was not observed again. Tracks (bicycle and human) through the enclosures from the beach to the northeast were observed in both enclosures.

2013 Population Status

Western snowy plover surveys were initiated on March 18, 2013, while LETE surveys began on April 1, 2013. After April 1, surveys for both species were conducted concurrently and ceased on August 21, 2013 (after August 8, 2013 consultation with Nancy Frost, CDFW), for a total of twenty three (23) WSPL and twenty one (21) LETE survey events. Because high winds (over 15 mph) occurred during the April 17 survey, the remaining area was surveyed on April 19 to avoid any potential negative impacts to nesting WSPL and their young.

Western Snowy Plover

The number of adult WSPL observed during the survey period fluctuated between 13 and 95 individuals (Table 1). At the start of the survey period, most adult plovers were observed along the shoreline and amongst the beach debris/rack. WSPL were consistently observed in this portion of the beach throughout the 2013 survey period even after nesting was initiated at Ormond Beach. The first WSPL nest was discovered on March 25, the first chicks were observed on May 1, while the first fledglings were observed on May 28 (Table 2).

Table 1. Number of western snowy plover adults, fledglings and nests observed and the status or fate of nests per survey period: March 18 – August 21, 2013.*

Survey Date	Number Observed				Nest Status or Fate			
	Adults	Chicks	Fledges	New Nests	Active	Hatched	Failed	Unknown
18-Mar	78	0	0	0	0	0	0	0
25-Mar	78	0	0	2	2	0	0	0
1-Apr	95	0	0	4	6	0	0	0
10-Apr	62	0	0	8	14	0	0	0
17, 19-Apr	41	0	0	0	14	0	0	0
24-Apr	47	0	0	0	1	0	13	0
1-May	39	3	0	0	0	0	1	0
9-May	23	2	0	3	3	0	0	0
15-May	46	2	0	3	5	0	1	0
21-May	37	4	0	3	6	0	2	0
28-May	46	4	0	2	2	0	6	0
4-Jun	26	0	0	5	5	0	2	0
12-Jun	30	0	0	2	2	0	5	0
19-Jun	19	0	0	1	2	0	1	0
26-Jun	36	0	0	1	2	0	1	0
2-Jul	21	0	0	0	2	0	0	0
11-Jul	30	0	0	2	2	0	0	0
17-Jul	41	0	0	1	3	0	0	0
24-Jul	13	0	0	0	1	0	2	0
31-Jul	34	0	0	0	1	0	0	0

Table 1. Number of western snowy plover adults, fledglings and nests observed and the status or fate of nests per survey period: March 18 – August 21, 2013.*

7-Aug	56	0	0	0	0	1	0	0
14-Aug	50	0	0	0	0	0	0	0
21-Aug	53	0	0	0	0	0	0	0

*Based on direct counts.

A total of 38 WSPL nests were located. Nests were widely distributed throughout the study area, in both the northern and southern enclosures (including the wetland/salt panne area), as well as in the open beach area between the enclosures. Of the 38 known nests, 37 had failed. Failed nests were positively identified by the presence of egg shell fragments, yolk, blood and/or sign of potential predators (e.g. squirrel tracks), or were observed to be covered by sand due to tidal surges or wind/rain. Two broods, one with one chick and the other with three chicks, both tended by adults, were observed north of the northern enclosure, likely from nests outside the survey area (Figure 5).

Seven WSPL nests (one on April 9, one on May 15, one on June 26, two on July 17, and two on July 24) were observed to likely have been established and predated between surveys. Blood, eggshells, yolk, and a scrape typical for a plover species were typically observed at these depredated nests. Although eggshells appeared to be WSPL, these were not included in the final nest count because they could not be definitively identified as WSPL nests from this season. Locations and habitat were similar to WSPL in Figure 5, and predator species could not be determined with certainty.

California Least Tern

The number of adult LETE observed during the 2013 survey fluctuated between 1 and 25 individuals (Table 2). Two LETE were first observed in the study area landing on Ormond Beach in the northern enclosure on April 9. On May 1, they were observed flying over the study area (likely flying between Pt. Mugu and Ormond Lagoon). No other LETE were observed landing on the beach until the first nests were observed on June 4 when three LETE adults were observed incubating three nests (one in the southern enclosure, and two north of the north enclosure). At this time, LETE were observed on the ground in both enclosures as well as north of the northern enclosure, adjacent to Ormond Lagoon. The highest concentration of LETE was observed in the area adjacent to Ormond Lagoon, where courtship behavior (flying with food, males bringing food to females) and foraging was observed.

The estimated number of breeding pairs within the study area was 7 (based on number of active nests; Table 2). No LETE nests hatched within the study area as all were abandoned, predated, or washed out.

Population Trends

Figure 3 illustrates the WSPL and LETE populations at Ormond Beach over the course of the 2013 breeding season based upon direct counts. WSPL adult numbers were highest at the

beginning of the survey period prior to initiation of nesting while LETE adult numbers were highest in the middle of the survey period. The WSPL population fluctuated throughout the peak nesting period, but generally experienced an overall declining trend in numbers over the course of the breeding season. Patterns for males and females were similar throughout the season (Figure 4).

Table 2. Number of California least tern adults, fledglings and new nests observed, and the status or fate of nests per survey period*: April 1 – August 21, 2013

Survey Date	Number Observed			Nest Status or Fate			
	Adults	Fledglings	New Nests	Active	Fledged	Failed	Unknown
1-Apr	0	0	0	0	0	0	0
10-Apr	0	0	0	0	0	0	0
17, 19-Apr	0	0	0	0	0	0	0
24-Apr	0	0	0	0	0	0	0
1-May	3	0	0	0	0	0	0
9-May	10	0	0	0	0	0	0
15-May	10	0	0	0	0	0	0
21-May	10	0	0	0	0	0	0
28-May	10	0	0	0	0	0	0
4-Jun	25	0	4	4	0	0	0
12-Jun	7	0	3	3	0	4	0
19-Jun	7	0	0	0	0	3	0
26-Jun	0	0	0	0	0	0	0
2-Jul	7	0	0	0	0	0	0
11-Jul	7	0	0	0	0	0	0
17-Jul	1	0	0	0	0	0	0
24-Jul	1	0	0	0	0	0	0
31-Jul	0	0	0	0	0	0	0
7-Aug	0	0	0	0	0	0	0
14-Aug	0	0	0	0	0	0	0
21-Aug	0	0	0	0	0	0	0

*Based on direct counts.

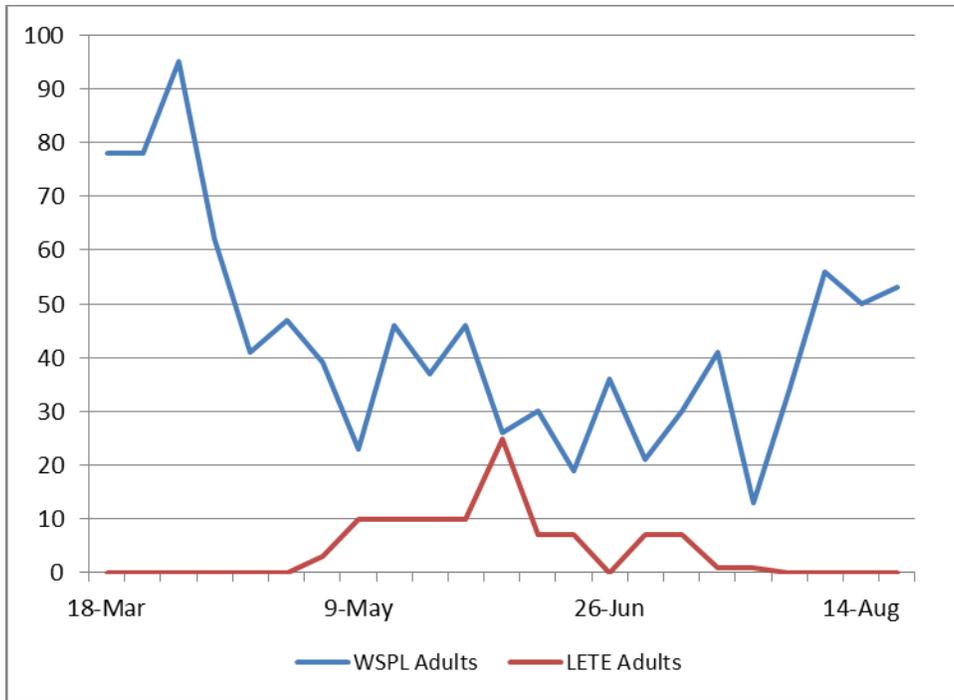


Figure 3. Total adult WSPL and LETE adults observed at Ormond Beach during the 2013 breeding season.

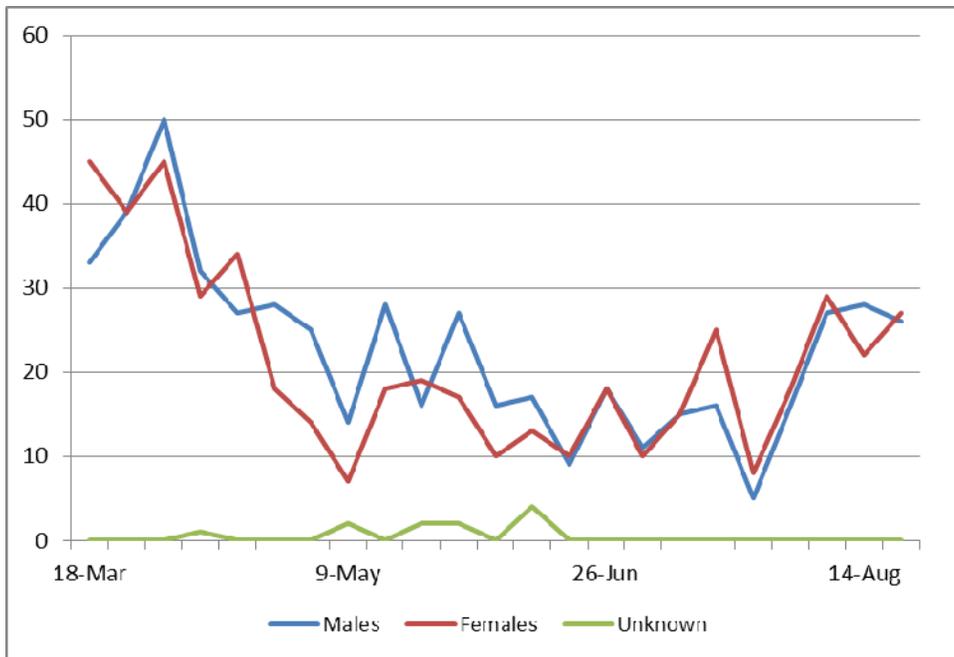


Figure 4. Male and female WSPL observed during each survey event at Ormond Beach in 2013.

Pair Estimation

We estimated that the range of WSPL nesting pairs for the 2013 breeding season was between 14 and 38 pairs. The estimated minimum number of pairs is based on the maximum number of nests seen during any one survey during the season, whereas the maximum number of pairs is based upon the total number of nests initiated over the course of the breeding season. This range is presented to account for re-nesting attempts due to the high rate of nest failure.

The number of LETE pairs attempting to nest was 7, but none were successful (one was washed out by the tide, one was predated or abandoned, and the other five were abandoned). It is unclear whether or not the only nest where incubation was observed was abandoned or predated first, given a week after it was first observed, corvid tracks were present near the nest and no eggs or LETE were present. Because all nests were unsuccessful, none of the three pair estimation methods were used. The total number of successful nests was zero because all of the known nests failed. No second wave of nesting attempts occurred.

Nesting Locations

WSPL nests were scattered between the northern and southern enclosures during the 2013 nesting season (Figure 5). Fifteen (15) of the nests were located in or immediately adjacent to the northern enclosure. Fourteen (14) nests were located in or immediately adjacent to the southern enclosure. Six (6) nests were found in the open area beachside of the power plant and two (2) nests were found on the flat beach just southwest of the southern tip of J Street Drain/Ormond Lagoon, north of the northern enclosure.

LETE nests were scattered throughout the survey area during the 2013 nesting season (Figure 5). Three (3) of the nests were located in the northern enclosure, two (2) nests were located in the southern enclosure, and two nests were north of the northern enclosure in rolling dunes adjacent to the J Street Drain/Ormond Lagoon.

WSPL and LETE nests in the northern enclosure were most commonly found in a relatively flat and open sandy area, with some nests found on a few small (~3-5 feet high) dunes. This area is bordered by foredunes up to approximately six (6) feet high to the west and low backdunes and wetlands to the east. A series of interior dunes are located to the south, and densely vegetated sandy areas and a lagoon are located to the north. This was the most densely vegetated portion of the beach. Plant species scattered throughout the area included beach bur (*Ambrosia chamissonis*), beach morning glory (*Calystegia soldanella*), and beach evening primrose (*Camissonia cheiranthifolia*). Very small, isolated patches of iceplant were widely scattered across the beach. In the northern enclosure, a series of interior dunes are present to the south, while densely vegetated sandy areas and a lagoon were located to the north.

In the southern enclosure, only one WSPL nest was observed in the salt panne wetlands, and was located where vegetation was sparse or absent. Larger dunes are found throughout the southern enclosure as compared to the northern enclosure. WSPL and LETE nests in the beach area of the southern enclosure were found in flat areas in and amongst scattered dunes up to 10 feet high, with vegetation sparse or absent. The same plant species observed in the northern enclosure

were also found in the southern enclosure. A greater amount of debris and gravelly sand is found in the southern enclosure than in the northern enclosure. Nests just southwest of the power plant were in similar habitat as the southern enclosure, but habitat was more heavily traveled near the power plant by pedestrians and domestic dogs due to the lack of fencing surrounding the area.

North of the north enclosure, LETE established two nests within an unfenced area of steep dunes adjacent to Ormond Lagoon. No vegetation was present, and the area was considerably closer to the ocean than the nesting areas in the northern and southern enclosures. This area is open to the public and experiences a high level of human activity.

Productivity

Nest Fate

The first WSPL nests for the 2013 nesting season was recorded on March 25. The last nest start for the 2013 breeding season apparently occurred during the week of July 11 (given WSPL incubation is generally 28 days, and the nest had hatched by August 7). A total of 38 WSPL nests were documented during the 2013 breeding season (Table 3). Of these, one (3.0%) hatched, and 37 (97.0%) failed. Of those that failed, two (5%) were washed out by tidal surges, one (3%) was covered by sand due to wind and rain, and 34 (92.0%) were due to predation. A nest was considered hatched if at least one egg had hatched successfully.

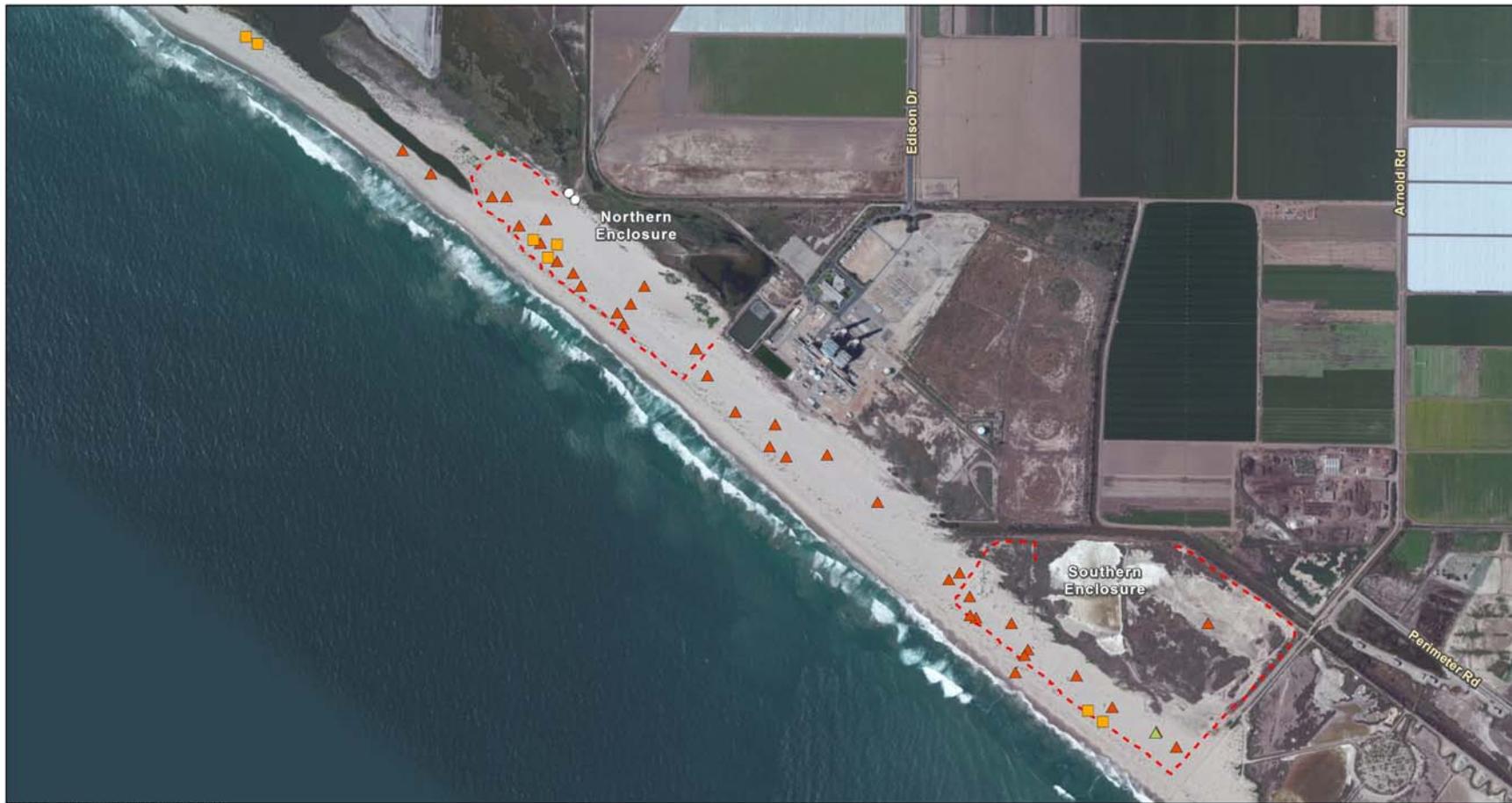
Table 3. 2013 Western Snowy Plover Nest Fates

Fate	Number	Percent of Total
Hatched	1	3.0%
Failed	37	97.0%
<i>Abandoned</i>	0	0%
<i>Lost to tide/wind</i>	3	8%
<i>Depredated</i>	34	92.0%
Unknown	0	0.0%
Total	38	—

As illustrated by Figure 6 below, the number of failed WSPL nests was greatest in late April.

The first LETE nests for the 2013 nesting season were recorded on June 4. The last nests documented for the 2013 breeding season were recorded on June 12, however only three of seven nests was observed being incubated (on June 4 only) and no eggs hatched. As such, the initiation date for all nests could not be determined with certainty.

A total of 7 LETE nests were documented and monitored during the 2013 breeding season (Table 4). Of these, 0 (0.0%) hatched and all 7 (100.0%) failed. Of those that failed, 5 (72.0%) were due to abandonment, 1 (14%) was due to abandonment or predation, and 1 (14.0%) was washed out by tidal flows. Figure 6 shows the progression of nest fate over the course of the breeding season, as documented during each survey event.



Imagery provided by ESRI and its licensors © 2013.

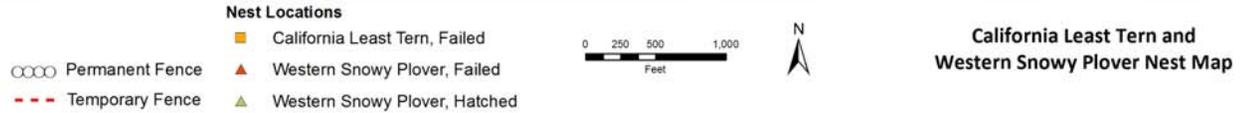


Figure 5. Western snowy plover and California least tern nest locations during the 2013 breeding season. Nests marked with red triangles or orange squares did not have any eggs hatch and were either predated or abandoned.

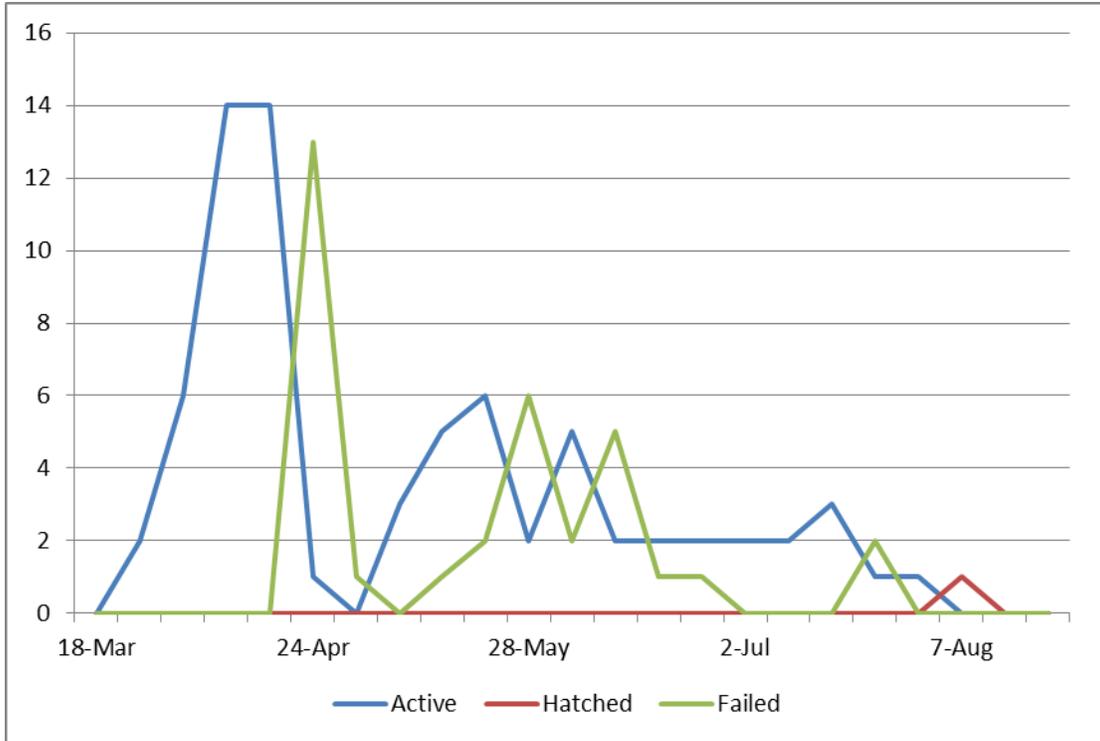


Figure 6. 2013 Western Snowy Plover Nest Fate Trends for Ormond Beach. Nest fate data is reported for each of the survey events. The blue line represents active nests. The red line represents nests that successfully hatched at least one egg. The green line represents nests that failed either due to abandonment or predations.

Table 4. 2013 California Least Tern Nest Fates

Fate	Number	Percent of Total
Hatched	0	0.0%
Failed	7	100.0%
<i>Abandoned</i>	7	72.0%
<i>Abandoned/Predated</i>	1	14.0%
<i>Washed out</i>	1	14.0%
Unknown	0	0.0%
Total	7	—

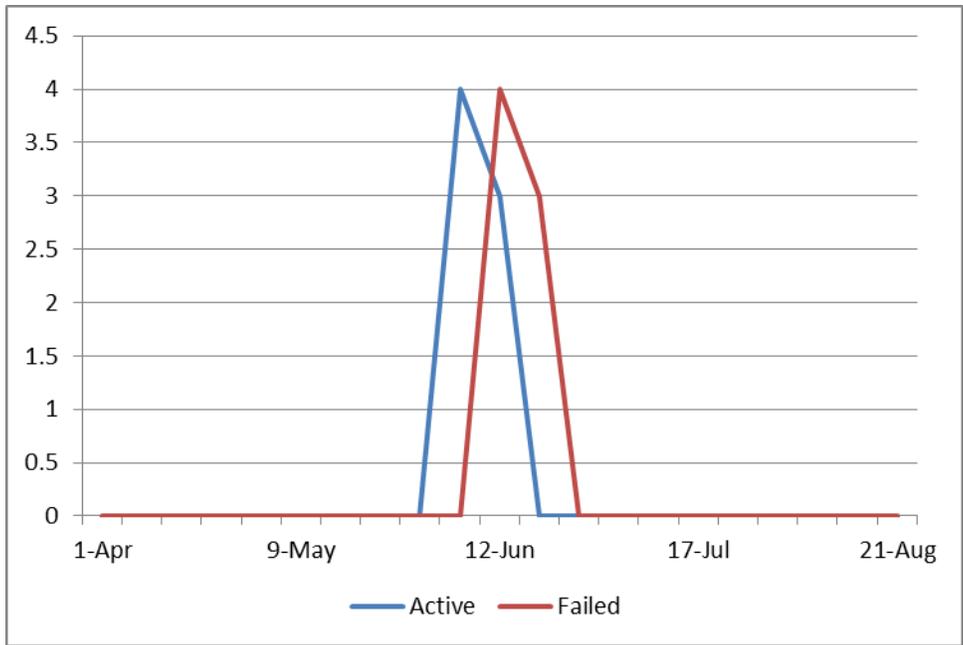


Figure 7. 2013 California Least Tern Nest Fate Trends for Ormond Beach. Nest fate data is reported for each of the survey events. The blue line represents active nests. The green line represents nests that failed due to abandonment, tide/weather, or predation.

Eggs and Fledglings

A total of 72 WSPL and 10 LETE eggs were documented within the survey area and mean clutch size (total number of eggs divided by total number of nests) was 1.4 for LETE and 1.9 for WSPL. Of these, no eggs are believed to have hatched for LETE for a hatching success rate of 0.0% and one nest with three eggs is believed to have hatched (all three eggs are believed to have hatched) for WSPL for a hatching success rate of 0.3%. However, no chicks known to be from this nest were ever observed.

Banded Bird Sightings

Monitors observed no banded LETE and one banded WSPL during the course of the season (Table 5).

Table 5. Banded WSPL sightings during the 2013 breeding season.

Band Combination	Date Observed	Age	Gender	Notes
OW:BY	4/1/2013	Adult	Female	WSPL

The highest number of chicks observed at any one time was four (4) WSPL on May 28. No LETE chicks were observed during any survey event. Three of the four chicks observed on May

28 were of flying age, and these were the only fledged (flying) WSPL young observed during surveys.

Mortality and Predation

Fifteen (15) species capable of predating WSPL and LETE nests, chicks, and/or adults were documented on Ormond Beach in 2013 either by direct observation of the predator or identification of predator sign. These include:

- Northern Harrier (*Circus cyaneus*)
- American Crow (*Corvus brachyrhynchos*)
- Red-tailed Hawk (*Buteo jamaicensis*)
- Great Blue Heron (*Ardea herodias*)
- Western Gull (*Larus occidentalis*)
- Osprey (*Pandion haliaetus*)
- Peregrine Falcon (*Falco peregrinus*)
- Coyote (*Canis latrans*)
- Common Raven (*Corvus corax*)
- Black Skimmer (*Rynchops niger*)
- White-Tailed Kite (*Elanus leucurus*)
- Homeless Person
- California Ground Squirrel (*Otospermophilus beecheyi*)
- Barn Owl (*Tyto alba*)
- Domestic Dog

Most of the avian predators were observed flying over the beach and/or over the adjacent wetlands. The homeless person was observed in the northern enclosure. Despite detecting predators during each survey event, nest predation events were rarely attributable to a particular species due to lack of sign. Given that corvid and rodent tracks were observed at several failed nests, these species appear to be the most likely primary predators.

Northern harriers, red-tailed hawks, American crow, common raven, and a peregrine falcon have been seen perched within the study area. Squirrels are present throughout the enclosures. Ravens and crows seem to be the biggest threat to the colony based on documented nest predation, tracks, and activity level in the enclosures.

Humans are a regular presence on Ormond Beach, and they frequently breach protective fencing despite the presence of signs prohibiting entry. Domestic dogs off leash also continue to be a threat.

DISCUSSION

Nesting success for WSPL and LETE at Ormond Beach was lower in 2013 than in previous years (Tables 6 and 7). Data prior to 2007 for WSPL and 2006 for LETE was not available at the time of this report. The number of WSPL nests initiated in 2013 had the lowest percent of nests hatched successfully over this seven year period.

Table 7. Comparison of Western Snowy Plover Nest Success at Ormond Beach from 2007 to 2013.

Year	2007 ¹	2008 ²	2009 ³	2010 ⁴	2011	2012	2013
Number of nests	19	43	33	27	32	41	38
Number of unsuccessful nests	5	5	15	6	11	20	37
Number of hatched nests	14	38	18	19	18	20	1
Percent of nests hatching	73.7%	88.4%	54.5%	70.3%	56.0%	48.8%	0.3%

¹Gocal, 2008; ²Hartley, 2008; ³Hartley, 2009; ⁴Hartley, 2010

Table 6. Comparison of California Least Tern Nest Success at Ormond Beach from 2006 to 2013¹

Year	2006	2007	2008	2009	2010	2011	2012	2013
Number of nests	53	52	81	44	48	60	6	7
Number of unsuccessful nests	17	11	14	11	13	27	4	7
Number of hatched nests	36	41	67	33	35	27	2	0
Percent of nests hatching	67.9%	78.8%	82.7%	75.0%	72.9%	45.0%	33.0%	0%
Number of fledges	44	35	30	24	16	12	0	0
Fledge to nest ratio*	0.83	0.67	0.37	0.54	0.33	0.20	0.00	0.00

¹ Data from 2004 to 2010 from Reed Smith (2010).

*Previous reports provided a "fledge to nesting adult pair ratio." However, a "fledge to nest ratio" was preferred given the subjectivity in estimating the number of nesting pairs.

WSPL and LETE productivity dropped dramatically in 2013 compared to previous years. Multiple factors are likely to have contributed to this decline including predation pressure, human disturbances, lack of food, and low productivity during previous years. Predatory pressure is an important factor at Ormond Beach. As described above, several potential predatory species were observed at the beach over the course of the 2013 breeding season, and some of these predators have been reported as preying on nests in previous years at Ormond Beach (pers. comm. VC Shorebirds staff) as well as Point Mugu (pers. comm. Martin Ruane). California ground squirrels and common ravens have historically been a considerable threat to WSPL and LETE nests at Ormond Beach. The presence of avian predators such as peregrine falcon, northern harrier, white-tailed kite, and red-tailed hawk are also problematic as these species are more likely to take adult and fledgling WSPL and LETEs. Male and female peregrine falcons were observed at both the north and south sides of the enclosures throughout the season. White-tailed kites, Northern harriers, and a barn owl were observed to the north and east of the northern enclosure, likely attracted to the prey diversity of the wetland area. Several

herons and a gull were also observed within or near the nesting colony and these species have been documented predated shorebird chicks at other beaches during previous years (Oceano Dunes SVRA, pers. obs. Carie Wingert). Despite the wide variety of predators observed at Ormond Beach, it is difficult to conclusively determine which species was responsible for predation events. Further, evidence of predation events is often lost due to winds moving sand across the beach.

Human presence also continues to be a potential problem for nesting WSPLs and LETEs at Ormond Beach. On several occasions, evidence of human trespass into the enclosures was recorded either through observation of human footprints or direct observation of humans crossing the enclosure fencing. Pedestrian tracks to and from encampments on the north end appear to be from a person or persons traveling in the same path through the enclosure each time, whether going to or from the beach.

Humans also bring their dogs to the beach and frequently allow the dogs to run off leash. Typically, these dogs were observed near the shoreline where WSPLs and LETEs were not often found, but dogs did also venture into the enclosures as determined by the presence of tracks. Dogs were also observed near Ormond Lagoon where WSPL and LETE adults and fledglings have been observed during the past two year's surveys.

Although the numbers of adult WSPL observed over 2011 to 2013 appear generally the same throughout the nesting season (Figure 8), the number of hatched nests decreased dramatically this year from previous years (Table 7). A large decrease in hatching success occurred between 2008 and 2009, but generally between 18 and 20 hatched nests were observed from 2009 to 2012. Although never directly observed, the low percentage of hatched nests observed this year is likely attributable to corvid predation, as many tracks were observed in the enclosures near predated nests and throughout the enclosures.

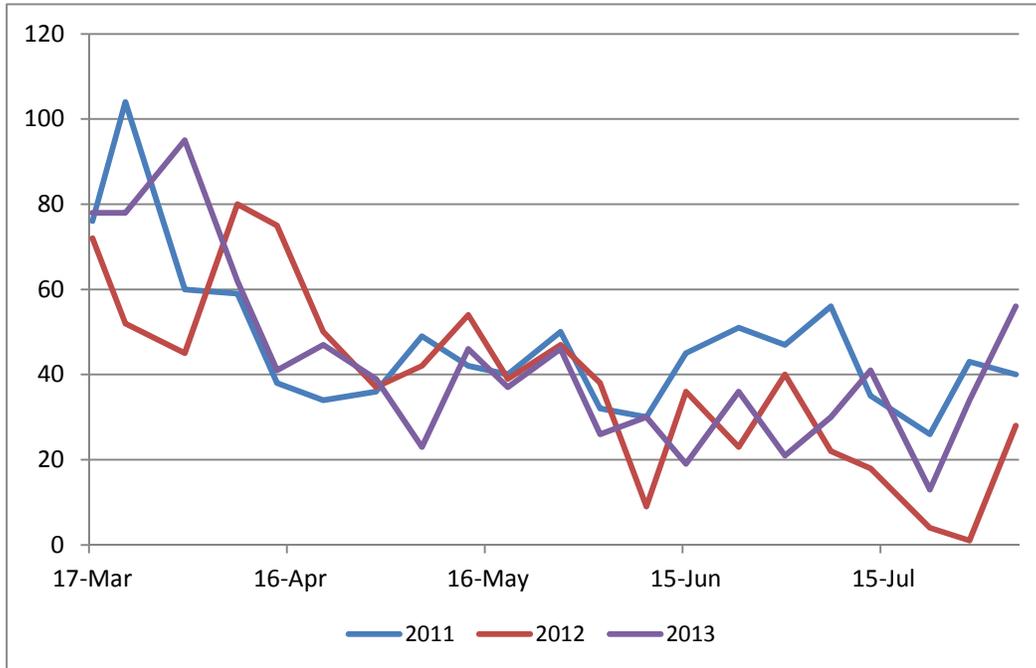


Figure 8. Monthly WSPL Adult Population numbers during 2011, 2012 and 2013.

Food availability is likely to also be a very important factor at Ormond Beach. LETE feed primarily on small fish and must leave the nesting site in search of food for themselves and their young. Feeding areas for LETE nesting at Ormond Beach have not been documented, but they are likely limited to Ormond Lagoon/J Street Drain, possibly the wetlands east of the beach, and the Pacific Ocean. Other feeding areas would be further away, requiring LETE adults to leave the nest and young unattended for longer periods of time.

Low productivity during previous years may also be a factor in the continual decline in LETE populations observed on Ormond Beach over the past few years. LETE typically breed during their third year, and they do exhibit some site fidelity (U.S. Fish and Wildlife Service, 2006). If fewer fledges are being produced each year then it is possible that fewer LETE, both experienced and new breeders, are returning to the nest site. LETE may also be choosing to nest elsewhere. Figure 9 shows the dramatic decrease in numbers documented on Ormond Beach for 2012 and 2013 as compared to 2011. This decrease in LETE adults is apparently not a region-wide occurrence as LETE adults at Point Mugu were more numerous this year than in previous years; (however, productivity was also very low at Point Mugu compared to previous years, with abandonment and predation considered primary factors [pers. comm., Martin Ruane]).

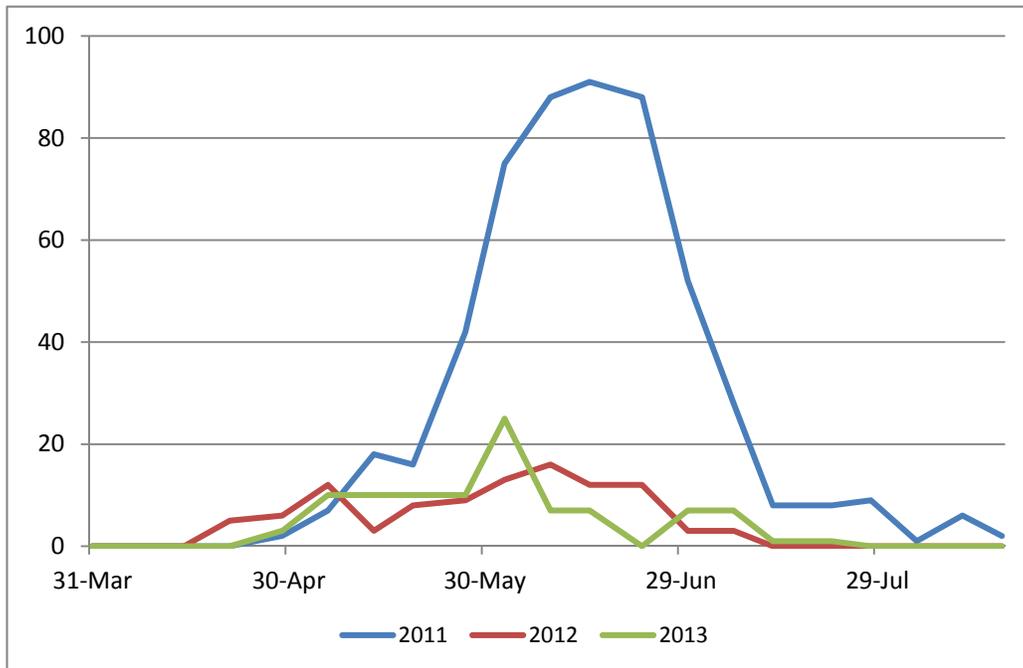


Figure 9. Monthly LETE Adult Population numbers during 2011, 2012 and 2013.

Although the enclosure fencing has not appeared to prevent predation by corvids this season, it continues to provide protection from humans and many mammalian predators. A significant effort to repair the fencing throughout the survey area was undertaken at the beginning of the season, but a section approximately 10 feet wide remained unfenced during the entire season due to lack of available material. The southern enclosure was not fenced along a portion of the salt panne wetlands due to the presence of water. This water did not dry up until after the nesting season began, leaving a large opening through the fencing and allowing easy access to humans and predatory mammals. Also, where the northern enclosure fence joins the eastern beach property boundary, permanent fencing is intermittent with no temporary fencing, and large gaps are present.

WSPL Recovery Plan Management Activities

The following management activities have been identified in the *Western Snowy Plover (Charadrius alexandrinus nivosus) Pacific Coast Population Draft Recovery Plan* (USFWS, 2001) for Ormond Beach, and the current status of each:

- Enforce protective rules/regulations
 - Protective rules/regulations are being enforced through installation of enclosure fencing around nesting areas with informational signage. However, the effectiveness of this method is limited.
- Prohibit/restrict pets
 - Dogs are required to be kept on a leash at all times on Ormond Beach, and signage indicating this requirement is present at public access points. However,

limited enforcement of this restriction occurs and this is not likely to change.

- Seek landowner cooperation/cooperative agreement
 - No formal agreement is in place. Most of the nesting area is public beach and no agreement is necessary.

The management goal for Ormond Beach is 50 breeding adults. Based on the number of adult birds observed during weekly surveys and the number of nests initiated, it is likely that at least 50 breeding adults are visiting Ormond Beach each year. However, the percent of nests hatching has been declining. Given the high site fidelity WSPL exhibit for nesting sites, fewer fledges produced are expected to lead to fewer breeding adults visiting and remaining at Ormond Beach for nesting in future years.

No regular law enforcement patrol/presence occurs at Ormond Beach. VC Shorebirds has been present at the beach and has provided some informational programs for visitors. However, the funding source that supported the regular presence of this organization on-site is no longer available. Additional funding to support a docent program operated by trained volunteers and led by VC Shorebirds could benefit nesting WSPL through increased implementation of public awareness and education programs.

RECOMMENDATIONS

Based on the findings of the 2013 surveys, Rincon recommends the following measures be implemented to promote WSPL and LETE nesting success at Ormond Beach:

- Adaptive Management Program
 - An Adaptive Management Program should be developed to manage Ormond Beach for nesting WSPL and LETE. The program should be implemented for a period of ten (10) years or longer with mechanisms for review and modification if adaptive management strategies are deemed unsuccessful. The program should identify who will be responsible for implementation, the goals of the program, the methods by which the goals will be achieved, success criteria, and annual reporting requirements to the local, state, and federal agencies with authority over the resources covered in the program. The program should address, at a minimum, all of the recommendations outlined below. The program should be reviewed and approved by the CDFG and the USFWS, and should be adopted by both the City of Oxnard and the California Coastal Conservancy.
- Temporary Fencing Improvement
 - The temporary enclosure fencing should fully encircle both the northern and southern nesting areas, as well as the area in front of power plant given that the birds are now nesting in this area. The fencing should also encompass the foredunes where possible.
 - The t-posts to which the fence is attached should be spaced no more than eight (8) feet apart to provide greater stability to the fencing. Should these t-posts fall, the fence and t-post should be repaired quickly, with as little disturbance to nesting

WSPL and LETE as possible, and in coordination with the federally and state permitted nest monitors.

- Six (6) to ten (10) cable ties per t-post should be used to secure the fencing, and the cable ties should be resistant to solar degradation, if possible.
- No individuals, including students and professors, should be allowed to enter the enclosures during the nesting season without the assistance of a biologist permitted by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife to conduct WSPL and LETE surveys and monitoring.
- Permanent Perimeter Fencing
 - The eastern boundary of the beach north of the power plant should have permanent (chain-link) fencing installed to prevent trespass by humans and predators.
- Shelters
 - Shelters should be installed at various locations within and adjacent to the LETE nesting colonies to provide shelter for adults and chicks from predators. The shelters can be constructed in a tent-like shape out of wood that has not been weather-treated. The shelters should be installed so that they will not be moved by winds.
- Interpretive Materials and Education
 - Additional signage explaining the purpose of the enclosures should be installed at a greater frequency on the enclosure fencing. Docent-led tours outside of the enclosure areas should continue.
- Predator Management
 - A Predator Management program should be implemented year round to control terrestrial mammal species such as California ground squirrels. California ground squirrels should be removed from the beach by trapping them outside of the nesting season, and their burrows should be backfilled. Trapping activities should not occur during the nesting season; as such, removing squirrels outside of the nesting season is key to removing them from the beach. The entire beach should be surveyed regularly to identify the locations of ground squirrels, and traps should be set up specifically where ground squirrels occur. Baiting should not occur unless necessary and approved by applicable local, state, and federal agencies. This plan should be developed so that other predatory mammal species can be managed including, but not limited to, raccoons, opossums, and coyotes, with any necessary approvals from applicable resource agencies.
 - All deceased animals should be removed from the beach regularly to discourage the presence of scavenging predators such as coyotes and ravens.
 - If approved by state and federal agencies, a predatory bird removal program should be implemented by a qualified biologist/predator management specialist. This program should be focused on ravens, but could be applied to other species such as gulls (especially if they are found nesting on the beach). These birds should be captured and relocated to a state-and federally-approved location.
- Foraging Habitat Management

- Efforts should be undertaken to identify where WSPLs and LETE are foraging, and to promote the management of this foraging habitat for continued support of nesting WSPLs at Ormond Beach.
- Domestic Dog Control
 - Current leash laws should be fully enforced and signage clearly indicating that dogs are not allowed off-leash should be posted at both ends of Ormond Beach.
- Nest monitoring should occur at least twice per week during the nesting season. This would provide necessary additional information as to the threats to and activities of WSPL and LETE, and would allow the monitoring of nest enclosures, if utilized.

ACKNOWLEDGEMENTS

We would like to thank Jennifer Turner, Jerry Hidalgo, Jenny Alvarado, Lindsay Griffin, Carie Wingert, and Christopher Kahler for their assistance with data collection. We would also like to acknowledge VC Shorebirds staff for their ongoing contributions to the nesting success of shorebirds at Ormond Beach. We also wish to thank Cynthia Hartley for providing the 2008-2010 reports for this site, and to Frances Bidstrup for providing information on banded bird sightings.

LITERATURE CITED

- Gocal, C. 2008. *2007 Western snowy plover breeding season report for Ormond Beach*. California Department of Fish and Game, Wildlife Branch, Nongame Wildlife Program Report, 2008-XX, Sacramento, CA. 6 pp. +app.
- Fox-Fernandez, N., Wingert, S. J. Hongola, and J. Dreher. 2012. Western snowy plover (*Charadrius alexandrinus nivosus*) final nesting season report, Ormond Beach, Ventura County, California, 2012 season. Rincon Consultants, Inc. Ventura, CA. 19 pp. + app.
- Fox-Fernandez, N., Wingert, S. J. Hongola, and J. Dreher. 2012. California least tern (*Sternula antillarum browni*) final nesting season report, Ormond Beach, Ventura County, California, 2012 season. Rincon Consultants, Inc. Ventura, CA. 18 pp. + app.
- Hartley, C. 2008. *Western snowy plover breeding survey, Ormond Beach, California, 2009 season*. Prepared for the South Coast Region of the California Department of Fish and Game. 13 pp. +attachments.
- Hartley, C. 2009. *Western snowy plover breeding survey, Ormond Beach, California, 2009 season*. Prepared for the South Coast Region of the California Department of Fish and Game. 10 pp. +attachments.
- Hartley, C. 2010. *Western snowy plover breeding survey, Ormond Beach, California, 2010 season*. Prepared for the South Coast Region of the California Department of Fish and Game.
- Marschalek, D. A. 2010. California least tern breeding survey, 2010 season. California Department of Fish and Game, Nongame Wildlife Program, San Diego, CA, 72 pp.
- Smith, R. V. 2010. *California Least Tern Breeding Survey, Ormond Beach, Ventura County, 2010 Season*. Prepared for the California Department of Fish and Game, Nongame Wildlife Program, San Diego, CA
- U.S. Fish and Wildlife Service. 2006. California least tern (*Sternula antillarum browni*) 5-year review summary and evaluation. Carlsbad Fish and Wildlife Office, Carlsbad, California.
- Wingert, C., J. Turner, N. Fox-Fernandez, S. J. Hongola, and D. Vander Pluym. 2011. Western snowy plover (*Charadrius alexandrinus nivosus*) final nesting season report, Ormond Beach, Ventura County, California, 2011 season. Rincon Consultants, Inc. Ventura, CA. 19 pp. + app.
- Wingert, C., J. Turner, N. Fox-Fernandez, S. J. Hongola, and D. Vander Pluym. 2011. California least tern (*Sternula antillarum browni*) final nesting season report, Ormond Beach, Ventura County, California, 2011 season. Rincon Consultants, Inc. Ventura, CA. 17 pp. + app.