

Ormond Beach, California

**Western Snowy Plover and California Least Tern Breeding
Survey**

2016 Season

Submitted to:
Chris Kofron
Recovery Permit Coordinator
U.S. Fish and Wildlife Service 2493 Portola Rd, Suite B Ventura, CA 93003

Cynthia Hartley
Ventura Audubon Society
Permit# TE-181713-2



Table of Contents

INTRODUCTION	4
EXECUTIVE SUMMARY	4
SITE DESCRIPTION	5
BEACH OWNERSHIP	5
SURVEY AREA	5
FACILITIES AND BEACH ACCESS	6
RECOVERY PROGRAM	7
NESTING HABITAT FENCING	7
SYMBOLIC FENCING	8
PREDATOR EXCLOSURES FOR WSP	8
METHODS	8
POPULATION ABUNDANCE	8
BREEDING ACTIVITY	8
<i>Nest Fate</i>	8
<i>Nest Initiation</i>	9
<i>Breeding Adults</i>	9
<i>Banded Birds</i>	9
<i>Chick and Fledgling Observations</i>	10
RESULTS	10
WESTERN SNOWY PLOVER BREEDING OUTCOME	10
<i>Adult Population Abundance and Pair Estimate</i>	10
<i>Nest Fates and Locations</i>	11
<i>Nesting Chronology</i>	13
<i>Chicks and Fledglings</i>	14
<i>Nest Protection Outcome</i>	15
CALIFORNIA LEAST TERN BREEDING OUTCOME	16
<i>Adult Population Abundance and Pair Estimation</i>	16
<i>Nest Fates and Locations</i>	16
<i>Nesting Chronology</i>	17
<i>Chicks and Fledglings</i>	17
PREDATORS	18
DISCUSSION	19
NESTING OUTCOME AND TRENDS	19
<i>Western Snowy Plover</i>	19
.....	19
<i>California Least Tern</i>	20
IMPACTS TO NESTING SUCCESS	20
<i>Predation</i>	20
<i>Shifting nest patterns</i>	21
<i>Ormond Ordinance: Dogs, Horses and other Human Caused Disturbance</i>	23
AGROMIN	23
RECOMMENDATIONS AND OBJECTIVES FOR 2017 NESTING SEASON	24
ACKNOWLEDGEMENTS	25

APPENDIX A: SUPPLEMENTAL MAPS	26
APPENDIX B: TABLES	27
APPENDIX C: PHOTOGRAPHS	31
APPENDIX D: NESTING AREA SIGNS	34
APPENDIX E: ORMOND BEACH ORDINANCE.....	35
APPENDIX F: COMMENT LETTER, AGROMIN EIR SCOPING MEETING	41
REFERENCES.....	43

Introduction

The abundance and productivity of the threatened western snowy plover (WSP) (*Charadrius alexandrinus nivosus*) and the endangered California least tern (CLT) (*Sternula antillarum browni*) was monitored at Ormond Beach in Oxnard, Ventura County, California from March 15, 2016 to September 15, 2016. Loss of habitat, predation pressures, and disturbance have caused the decline of the coastal population of the western snowy plover and led to the federal listing of the Pacific Coast Population of WSP as threatened under the ESA on March 5, 1993 (Federal Register 1993). The California least tern subspecies was federally listed as an endangered species in 1970 and as endangered by the state of California in 1980 (USFWS 1985).

Executive Summary

Western Snowy Plover

Population abundance varied from approximately 70 individuals at the beginning and end of the season to a low of 6 individual birds mid-season (June 30). A total of 21 WSP nests were located, of those 13 hatched (62%), 6 failed (29%) and 2 had unknown outcomes (10%). Of the failed nests, 5 were depredated and 1 was abandoned. The number of breeding WSP calculated was 16. Thirty-five eggs hatched out of the 54 eggs that were laid and as least 8 chicks fledged.

First Nest Initiation:	March 20
First Hatch:	April 28
Period of Peak Nesting:	April 14-June 7
Last Nest Initiation:	July 4
Last Hatch:	August 1

Threats to WSP Nesting Success: Depredation of nests by ravens and other unidentified predator(s) were the biggest contributor to nest failure. Wind events in March and April contributed to the loss of one nest and possibly the loss of one chick and eggs in two other nests. Beach joggers who favor running of the tops of dunes pose a risk to nests placed outside and seaward of the habitat fences.

California Least Tern

Least terns first appeared at the north end of Ormond Beach on May 5. The population reached a peak of 34 adults in late June. The last CLT was seen on August 9. A total of 18 CLT nests were found, of those 16 hatched (89%) and 2 failed (11%). The number of breeding CLT was calculated to be 36 individuals. The 2 failed nests were abandoned and there was no evidence of predation. One adult CLT and one fledgling were found dead, the cause of death for both is unknown. The adult did not appear to have been depredated and the fledgling was too far decayed to determine cause of death. Out of 34 eggs that were laid, 31 hatched and 14 fledged.

First Nest Initiation:	May 26
First Hatch:	June 23
Last Nest Initiation:	June 16
Last Hatch:	July 7
Date of first fledgling:	July 7

Threats to Nesting Success: The north habitat fence where CLT nested is a site of regular trespassing inside the habitat fences and through the nesting area. Homeless encampments near the nesting habitat contributed to regular foot traffic outside the habitat fence close to nests, and the beach berm where fledglings roosted. At least

one encampment had a pit bull that was brought inside symbolic fencing erected to protect the birds from disturbance. Helicopters and ultralights regularly flew over the north nesting habitat, and were seen to circle the area for extended periods time. Beach joggers pose a risk to flightless chicks that move out of the fenced area before fledging.

Site Description

Beach Ownership

Ormond Beach is owned by a patchwork of landowners. Nesting occurs on land owned by both the City of Oxnard and the State of California Coastal Conservancy (SCC). Beach access entails crossing boundaries of different land owners, depending on point of entry. Legal jurisdiction also varies depending on location. The boundaries of Ormond Beach are defined on the southeast by the Naval Base Ventura County Pt. Mugu, and on the northwest by the City of Port Hueneme. The northern portion of Ormond Beach is owned by the City of Oxnard. The center and southern portion of the dunes and an inland salt pan are owned by the SCC. Inland on the north end is the former Halaco property, which was a scrap metal recycling operation designated an EPA superfund site in 2007. Adjacent to Halaco and inland of the northern nesting area is property owned by The Nature Conservancy (TNC). Southeast of the TNC property is a power plant owned and operated by NRG. This parcel is encircled by SCC land and fronts beach dunes where WSP nest. Adjacent to the salt pan is a small parcel owned by the Ventura County Game Preserve. Just inland from this is the Agromin Composting and Soil Amendment Facility property, which processes yard waste and food scraps into compost (Figure 1).

Figure 1. Ormond Beach Property Owners



Survey Area

The survey area is 2 miles in length and runs southeast along the coast covering approximately 200 acres. WSP nest in the dunes along the entire beach, and CLT have nested at the north and south extremes of the beach. The survey area varies in width from 100' by Ormond Lagoon on the north end to over 1000' wide at the south end in the location of the salt pan. The northern end of the survey area begins at the boundary line between City of Port Hueneme and City of Oxnard. The beach in this area is relatively flat and backed by Ormond Lagoon that drains

runoff from Oxnard and Port Hueneme. The foredunes have formed a 4-10' tall dune ridge that begins just south of the lagoon and extends along the entire length of the beach to the south. The beach seaward of the dune ridge is flat and varies from 50'-100' wide and has been extending over the past several years (Figure 2).

Figure 2. Survey Area



Facilities and Beach Access

There are two public entrances to Ormond Beach and one non-public access used illegally by trespassers on TNC property. One of the public access points is via Arnold Road on the south end. The road terminates in a parking lot near the beach and is the most popular access to Ormond Beach. A full time docent, Walter Fuller, lives in a trailer in the parking lot provided by the City of Oxnard. Mr. Fuller is present most of the time and greets the public, collects metrics on visitors and hands out literature and educational material. He contacts local authorities in emergencies. The parking lot has portable toilets and trash cans maintained by the Oxnard Parks and Recreation Department. The parking lot has a gate that is closed by Mr. Fuller between dusk and dawn. A locked storage container on site holds fencing materials, predator exclosures, signs and docent materials. The other main public access to Ormond Beach is via Hueneme Beach on the north end. Hueneme Beach is a popular recreational beach with several pay parking lots. Beach goers access Ormond Beach by walking south from Hueneme. The beach is also accessed illegally by trespassers who walk through The Nature Conservancy property and then cross nesting habitat to access the beach. Trespassing activities continue despite no trespassing signs and a chain-link fence and gate at the back of the nesting area. Black mesh fencing extends from the chain-link fence and encircles most of the nesting grounds. There are homeless encampments on the north end of the beach near the Ormond lagoon on City of Oxnard and City of Port Hueneme properties and also on the former Halaco property.

NRG has made available the use of a private parking lot adjacent to their property for use by Ventura Audubon to access the north nesting area. There is also a locked container in this parking lot that holds fencing materials, supplies and predator exclosures for use by Ventura Audubon for nest monitoring activities on the north end of Ormond Beach.

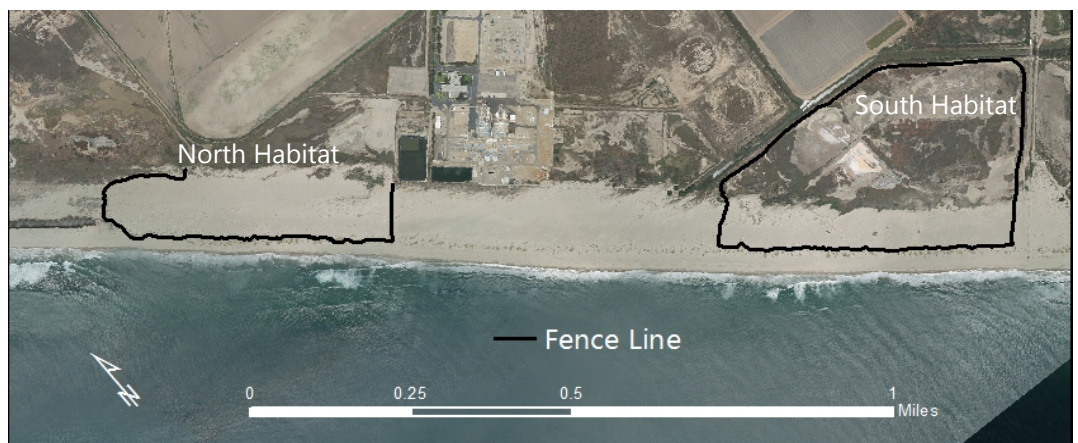
Recovery Program

Ventura Audubon sponsors a Shorebird Recovery Program that addresses the causes identified by the USFWS recovery plan that have contributed to the decline and listing of the WSP and CLT. Specifically, disturbance to nesting habitat by providing habitat fencing, protecting nests from depredation, conducting public outreach, working with students majoring in conservation at CSUCI and conducting a volunteer naturalist program. Ventura Audubon oversees data collection on nesting birds which provides metrics on species recovery for the state and federal agencies, and guides and informs all aspects of the Shorebird Recovery Program.

Nesting Habitat Fencing

Two areas of nesting habitat are protected with semi-permanent fencing (Figure 3). Fences have been used by Ventura Audubon since 2006. However, nesting patterns have shifted somewhat over time so nests occur outside of the habitat fences in some areas. Nesting areas are enclosed with either 4' or 5' wide black mesh Cintoflex-C fencing attached to metal T-posts (Photo 1). On the south end 7,300 linear feet encloses 70 acres on all sides and is referred to as the "south habitat". On the north end 4,000 linear feet enclose 30 acres on 3 sides, this is referred to as the "north habitat". The habitat fence locations were chosen based on nesting clusters documented starting in 2002-2008. Since the late 2000's the fence lines have not changed significantly. The mesh openings are 1.75" square through which birds and small animals easily move in and out. The T-posts are planted every 10-20'. The fence is intended as a visual demarcation of the nesting area, rather than a predator exclusion fence. It provides a physical barrier that is challenging, although not impossible, for humans to cross. The bottom of the fencing is not buried, so natural openings occur depending on the topography of the beach. Larger mammals including sea lions, elephant seals and coyote are known to have crossed under the fence. The material is UV resistant, so it weathers well in the beach environment. The fence is semi-permanent, but is left in place year-round because the beach area is remote and not monitored outside of nesting season. Our experience has shown that the nesting habitat boundary is easier to enforce when enclosed by a year-round fence. In past years' vagrants have readily inhabited the nesting area if it is easily accessible and we have found that they are unlikely to comply with closures to areas they are accustomed to accessing. Vandalism to the fence is an ongoing problem.

Figure 3. Nesting Habitat Fence Boundary in 2016



Symbolic fencing

Symbolic fencing was used for the nests established outside of the black mesh habitat fences. Symbolic fencing consisted of wood stakes hammered into the sand in a circle around the nest and strung with polypropylene rope ([Photo 2](#)). Ideally the radius of the circle is equal to or greater than the flushing distance of the brooding adult, however some birds flush at a distance of 200'. This is impractical for symbolic fencing so the perimeters were made as large as possible. Seasonal closure signs in both English and Spanish were affixed to posts, as well as Audubon "Share the Shore" signs created by school children ([Appendix D- 1](#)). Sometimes WSP established nests inside the black mesh fence, but so close to the edge that beach goers flushed the brooding adult. This occurred repeatedly in the south habitat in 2016, so an 1800' line of symbolic fencing was erected in the area with the most nests that paralleled the habitat fence, essentially extending the fence boundary seaward by 100-150'. This also provided protection to chicks that hatched from south habitat nests.

Predator Exclosures for WSP

A 2'X2' square wire mesh cage design was used ([Photo 3](#)). Exclosures were made of galvanized wire with 2"X3" openings. In the beginning of the season exclosures were only placed on nests outside of the habitat fences to protect nests from humans, vehicles and dogs. However, predation became a problem in May resulting in the loss of several nests. So thereafter exclosures were placed on all nests. The exclosures were anchored to the ground with 6-inch landscape staples. Following placement of the exclosure adults were observed to ensure that they returned to brooding, which happened in all cases. Symbolic fencing was used in combination with predator exclosures on nests outside of habitat fences. Throughout the season 3-5 decoy exclosures (not on a nest) were left in both fenced areas to attempt to confuse predators.

Methods

Population Abundance

In order to thoroughly cover the entire 200-acre survey area the beach was divided into 3 areas that were surveyed once weekly on different days. These areas were the tide line in front of the dune ridge from the Mugu boundary line to Hueneme Beach, the south nesting habitat fence, salt pan and dunes in front of the power plant and the north nesting habitat fence. Areas were covered on sequential days when possible and count totals for the week were summed from the 3 areas.

A total of 26 nest surveys were conducted from March 15 through September 9. Monitoring in the dunes was conducted by walking wandering transects, the tideline was walked at the top of the wrack line. The entire beach was covered a minimum of once per week and nests were rechecked between 1-3 times per week. Nest re-checks were done from a distance when possible in order to minimize nest disturbance and to avoid attracting predators to the nest. All WSP observed were recorded by age and gender. Numbers of CLT adults and juveniles were recorded once weekly in a single effort.

Breeding Activity

Nest Fate

When a nest was found, it was approached to collect GPS coordinates. The date found and number of eggs was recorded. For WSP, the sex of brooding adult WSP was noted. Because of the presence of ravens, if an adult WSP was observed from a distance brooding a nest that had previously been marked it was not approached again. CLT

nests were marked with a numbered tongue depressor or a <6" long piece of driftwood or other natural beach debris and placed no closer than 4 feet seaward from the nest. WSP nests that did not have exclosures were not marked. Instead an observation point 100-200' away from the nest was identified and that location was marked with a waypoint. Detailed notes were taken on nearby nest landmarks for re-sighting. If no adult was observed brooding from a distance, the nest was approached to check for the presence of eggs. Each nest was followed until hatching or failure. Once a nest no longer contained eggs, a 2-meter area around the nest was examined for eggshell fragments, egg yolk, tracks of birds or predators or any other disturbance. Next, the nest scrape was examined for prints and shell fragments. Nest hatching was determined by locating a pip shell (1-4 mm) within the hatched nest, by observing displaying behaviors of adults, noting whether footprints in the nest were from plovers or terns, or other animals, and locating chicks when possible (Mabee 1997). Any nest that had at least one egg determined to have hatched was categorized as successful. If eggs remained in the nest for more than the expected gestation time after discovery (28 days for WSP, 21 days for CLT) and no adult was observed nearby it was tested for continued brooding by placing an egg on end and rechecking within 3-7 days to see if an adult was in attendance. For tern nests, eggs were determined to have hatched if eggs were gone, adult fecal matter was present, no egg shells or yolk were in the scrape, no other animal tracks near scrape, and chicks have been seen in the colony. If eggs remained in the same position and no fresh plover/tern footprints could be found in the nest, the eggs were collected. All eggs, as well as any dead WSP/CLT, were submitted to the Western Foundation of Vertebrate Zoology (WVZ) for analysis of incubation stage and for archive. Nests that had eggs disappear before the end of the full gestation period were determined to have failed. Nests that were brooded for the full gestation period but did not have pip shells, chicks sighted or adults nearby behaving defensively were categorized as unknown outcome.

Nest Initiation

Nest initiation was calculated for nests confirmed to have hatched by subtracting the expected gestation period for the species from the first observed survey date in which no eggs remained in the nest. For nests determined to have failed, nest initiation was estimated to be the first date the nest was observed.

Breeding Adults

Western Snowy Plover

Breeding adults are calculated from the single survey that yielded the highest number of breeding adults, derived by attributing a male and female pair to each active nest and 1 breeding male to each clutch with at least 1 chick. This method is used because without a banding program at Ormond Beach individual birds cannot be tracked, so it is not possible to know how many birds actually re-nest. This method is essentially a window count for breeding adults and assumes that all the breeding adults captured on the count are representative of the entire nesting population. This method errs on the side of capturing the minimum breeding population and not over estimating reproducing WSP.

California Least Tern

This year there was no second wave of nesting and few nest failures. Therefore, the method used to calculate breeding birds was Method II as described in Marschalek 2010.

Banded Birds

During weekly surveys birds were examined for leg bands through binoculars. All band combinations were seen on WSPs and reported to Frances Bidstrup at the Point Blue Bird Observatory. CLTs were also monitored for bands and/or transmitters.

Chick and Fledgling Observations

Western snowy plover:

All chick sightings were recorded with a GPS waypoint collected as close as possible to locations where chicks were either directly observed or reported by docents. Once a nest hatched chicks were looked for each week and where possible tracked until fledging. Fledglings were determined to be from Ormond Beach if they had been spotted for several weeks in the same area prior to reaching fledge age and if they were accompanied by a guarding adult. Hatch year chicks that did not meet these criteria were assumed to be from other beaches.

California least tern:

The number of pre-fledgling (chick) and fledgling CLT were recorded once per week. When possible CLT chicks were associated with nest numbers. The general location of older chicks and fledglings was recorded to aid future fence placement. The number of fledglings were calculated by adding the daytime counts of fledglings every 3 weeks after the first fledgling observation (method 3WD from the CA Department of Fish and Wildlife report spreadsheet).

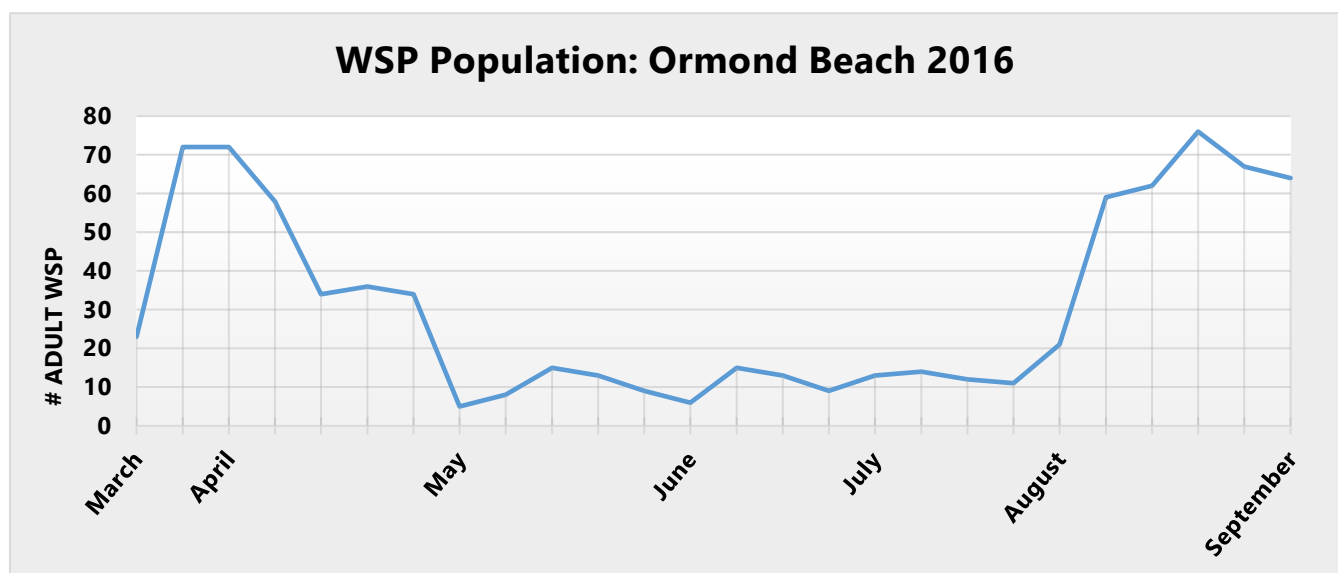
Results

Western Snowy Plover Breeding Outcome

Adult Population Abundance and Pair Estimate

Population abundance was between 60 to 70 during the first and last months of the season, corresponding to migration times. After the first week of April the population numbers dropped weekly reaching the lowest numbers between mid-May and late July fluctuating between 5-15 individuals. The breeding window survey was conducted on May 20 which was week 10 of the season. On the window count Ormond Beach had a total of 11 males, 4 females and 3 chicks and 1 fledgling (Figure 4). For detailed population counts, see [Appendix B- 1](#).

Figure 4. WSP Population Counts



Banded WSP: An adult male with the band combination yr:br was observed for the first time on the January 19 winter window survey. It was re-sighted in March, April, June and August. At all times it was seen above the high tide line in front of the south habitat or in the salt pan. The same bird was also reported on the south side of the Point Mugu fence on Ormond East Beach in the early part of the year. This bird fledged from Fort Ord in 2015. Another male with the combination an:ny and a female nr:gb were both sighted near Ormond Lagoon, both fledged from Vandenberg Airforce Base in 2015. In August nr:gb was seen again in the same location by the lagoon, and in September in front of the south habitat fences. In August a bird with the band combo oo:ba that fledged from Marina State Beach in 2013 was seen in front of the south habitat fences. A WSP with a single white band was observed near Ormond Lagoon. This bird likely fledged from Humboldt County, but lost its other bands. See [Appendix B-2](#) for band details.

Pair Estimate

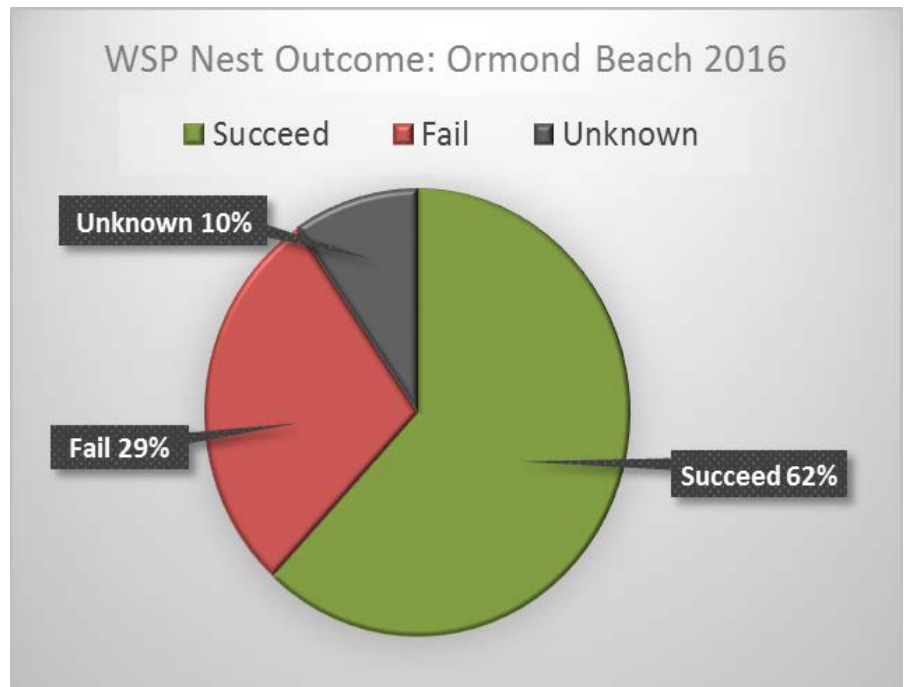
The estimated number of breeding WSP adults was 16 individuals, which occurred on April 20, 2016 survey. On this date there were 8 active nests, with no clutches on the beach. This was the survey with the highest number of calculated breeding birds between number of nests and active clutches on the beach.

Nest Fates and Locations

This year 21 nesting attempts were identified, with 13 nests successfully hatching, 2 had unknown outcomes and 6 failed (Figure 5):

Failed Nests: Of the 6 nests that failed none of them were protected by predator exclosures. Two nests were predated by ravens, as evidenced by raven tracks, broken egg shells and egg contents within the nest scrape. These nests were discovered already predated. Three nests had all eggs disappear within 2 weeks of being established, and within 1 week of each other. Two of these nests were in the south habitat, the 3rd in the salt pan. There were no signs of broken eggs or disturbance in the nest scrape. Because eggs disappeared pre-term and there were no wind events at the time to cause abandonment or to blow away or bury the eggs, a predator other than a raven that takes eggs without disturbing the nest is suspected. One nest was buried in a wind event that had 30mph winds and 40mph gusts. The wind event occurred 4 days after the nest was discovered with 2 eggs. Three eggs were unburied from the scrape location a week later. The eggs were submitted to the WFVZ and were determined to have not been incubated.

Figure 5. Out of the 21 nests discovered, 13 nests hatched (62%), 6 nests failed (29%) and 2 nests (10%) had unknown outcomes.



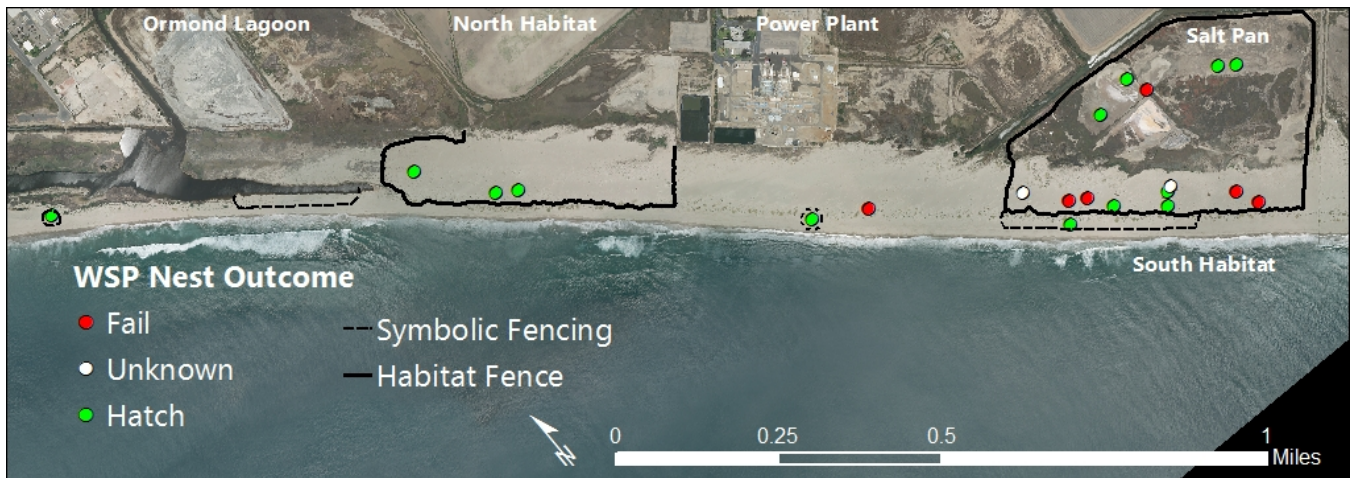
Unknown Outcome: The 2 nests with unknown outcomes also had no predator enclosure, yet they were brooded full term. Eggs were discovered gone when expected, but no evidence of hatching could be found, nor where chicks ever sighted nor any defending adults nearby the nest location.

Hatched Nests: Out of the 13 successful nests, the first 2 hatched at the end of April during the same strong wind event. Both nests had predator enclosures because they were located outside of the habitat fences. One nest was found with a partially buried dead chick in the nest scrape and one unhatched egg. The remaining chick was located nearby and was followed until fledging. The other nest was discovered with the entire clutch blown out of the nest scrape and pushed against the inside edge of the enclosure. The female was attempting to brood the clutch against the wires, including one newly hatched chick. One egg from this nest did not hatch. Two other nests had one egg that did not hatch. All of the unhatched eggs had no embryonic development. For detailed nest notes see [Appendix B- 3](#).

Nest Locations

Nests were dispersed over the entire 2-mile length of Ormond Beach (Figure 6). Seventeen nests were established inside habitat fences and 4 nests were outside:

Figure 6. WSP nest locations on Ormond Beach



Nests outside Habitat Fences: One nest was established on the far north end of Ormond Beach, about ¼ mile from the Hueneme City boundary. It was the furthest north nest ever documented on Ormond Beach. The nest was established over 100 feet back from the tide line in a flat area without dunes. Cover was provided by trash and arundo debris, deposited after the lagoon was artificially breached by the Ventura County Watershed Protection District on March 3rd. It was also in an area near homeless encampments and resulting foot traffic. However, the brooding bird was tolerant and had a flushing distance of approximately 30'. This nest was protected with a predator enclosure and a circle of symbolic fencing. Because of the close flushing distance, the symbolic fencing was established far enough away that the bird wasn't flushed by beach activity. It successfully hatched. Another nest was established just back of the tideline in front of the power plant. This location was remote and did not have a lot of beach activity. This nest was protected with a predator enclosure and a small circle of symbolic fencing, and it also successfully hatched. Another nest was established about the same time and just 500 feet south, but inside the dune ridge. This nest failed. It was discovered already predated by ravens. The fourth nest was established outside of the south Cintoflex habitat fence at the toe of the dune ridge, but behind symbolic fencing. It is likely that this was a re-nesting attempt by the pair from the first nest of the season that

failed due to a wind event. The same pair stayed around the area after the nest failed. The new nest was located less than 200 feet away and established less than 2 weeks after the first nest failed, and behind the same symbolic fence set up for the failed nest. This nest was protected with a predator enclosure and successfully hatched.

Nesting Chronology

The majority of nesting activity occurred during the first half of the season, with 18 out of 21 nests being established before June 15. During this period there were two waves of nesting activity. The first wave began in April, with the exception of the first nest that failed in March. The first wave lasted through early May. The second wave of nesting starting in mid-May and lasted through early-June. The first wave was the largest (11 vs. 7 nests, respectively) with the highest number of breeding adults occurring on the April 20th survey. There were just 3 nests during the last half of the season (after June 15) (Figure 7a). Most nests that failed did so during the last week of the first wave of nesting (5 out of 9). Only one nest failed in the second wave, this nest was located in the unfenced area between the north and south habitat fences and was depredated by a raven. All 3 nests established in the second half of the season succeeded (Figure 7b).

Figure 7a. WSP number of active nests on each survey date

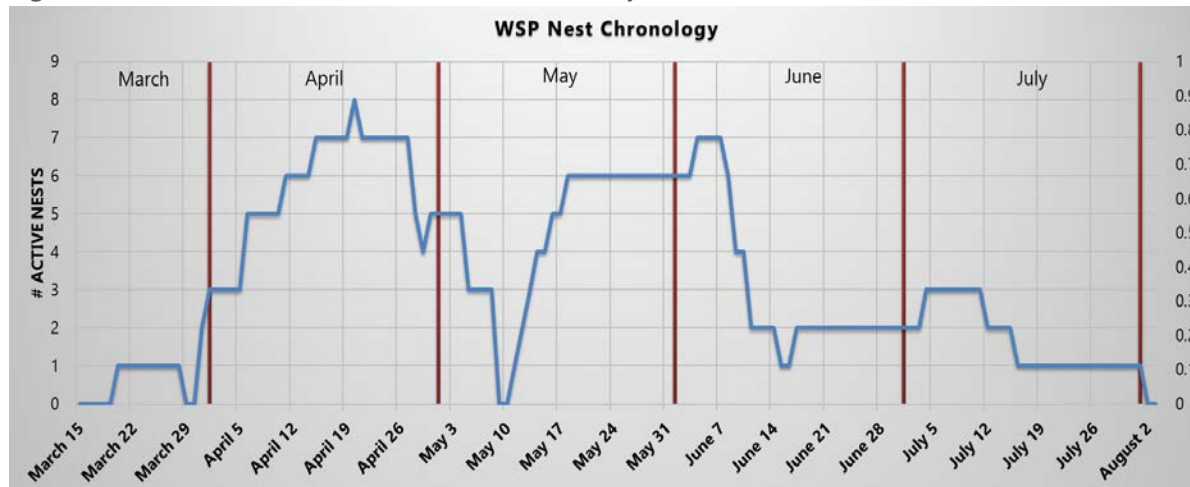
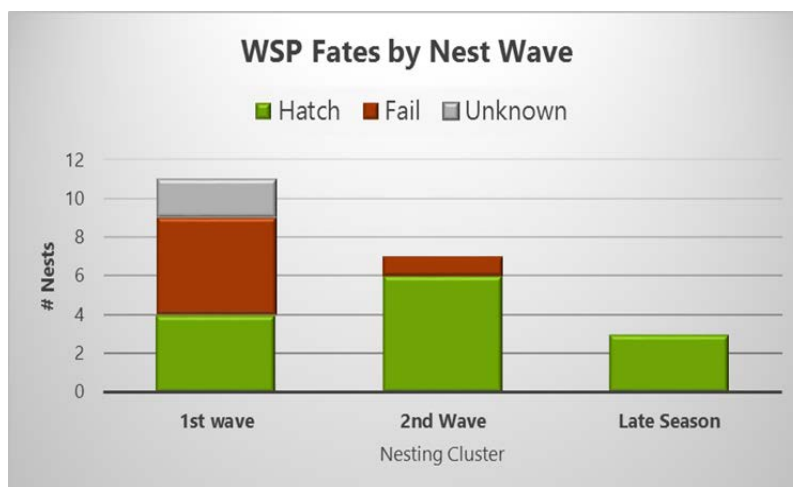


Figure 7b. Nest outcome by nesting wave: Wave 1=April, Wave 2=Early May-mid-June, Late Season=mid-June through August.



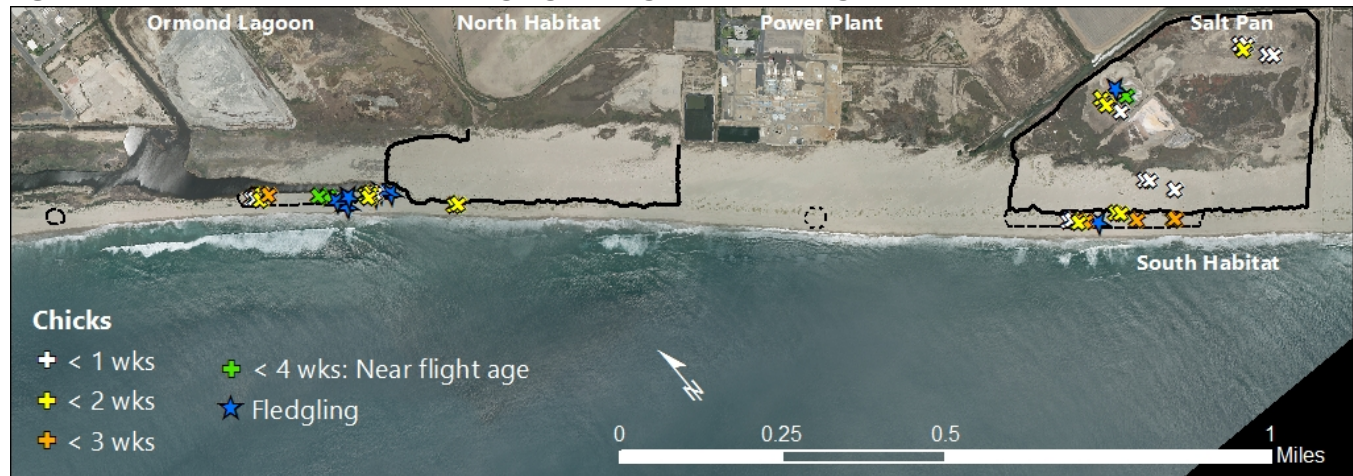
Chicks and Fledglings

A total of 57 eggs are known to have been produced this season, of those 35 hatched successfully. At least 8 of those chicks survived to fledgling age (23%). Three additional chicks were sighted that were within days of flight and most likely survived to fledge. The most successful location for chicks was the area adjacent to Ormond Lagoon. There were 4 nests near Ormond Lagoon, 3 inside the north habitat and 1 near Hueneme Beach. All four clutches moved to the lagoon area within the first day or two of hatching and stayed in the vicinity until fledging. Each clutch successfully fledged chicks; one nest fledged all 3 chicks, two nests fledged 2 out of 3 chicks and the 4th nest fledged the only chick that hatched in the clutch. In the south habitat chicks were sighted on the beach, inside the habitat fences and in the salt pan. But a smaller proportion were known to reach fledge age. Out of the 4 nests known to have hatched in the south habitat, just one is documented to have produced a single fledgling. Out of 4 nests that hatched in the salt pan, one chick from 2 nests reached either fledgling age or was observed within days from fledging (Table 1). Overall, chicks were never sighted in locations that did not have either symbolic or habitat fencing (Figure 8).

Table 1. WSP Fledgling Success – known fledglings from Ormond Beach nests

	Lagoon/North Habitat	Power Plant	South Habitat	Salt Pan
nests hatched	4	1	4	4
# nests that fledged chicks	4	0	1	2
Nest Fledge Rate	100%	0%	25%	50%

Figure 8. Location of WSP chicks and fledglings throughout the nesting season



Nest Protection Outcome

Predator exclosures were used on 11 nests and all of these nests succeeded. Out of the 10 nests that did not have exclosures, 2 hatched and 2 had unknown outcomes. Of the nests that hatched, 1 was located under a bush, essentially a natural predator exclosure. The other one was an undiscovered nest found as 2 chicks, just days old. This nest was one of the first of the season and was located in the salt pan.

Four nests were established outside of habitat fences and all but one was fitted with a predator exclosure and symbolic fencing. The only nest that did not hatch is the one that did not have a predator exclosure or any fencing, however it was discovered already predated by ravens (Table 2).

Table 2. Nest outcome for nests with and without predator exclosures, unknown outcome nests not included in table

Outcome	Exclosure	No Exclosure	No exclosure, Under Bush
hatch	11	1	1
fail	0	6	0
Success Rate	100%	14%	100%

California Least Tern Breeding Outcome

Adult Population Abundance and Pair Estimation

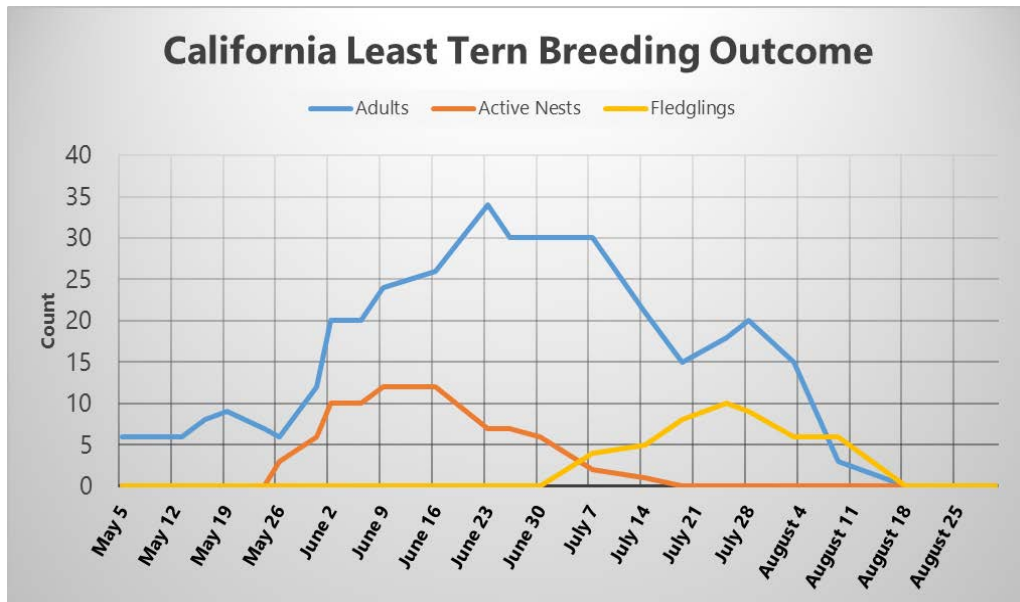
California least terns were observed flying over the north end of Ormond Beach from May 5 and the last CLT were seen on the August 9th survey. The population varied from a low of 6 individuals to a maximum 34. The population peaked from June 23 to July 7 (Figure 9).

Pair Estimation: Only a single wave of nesting occurred and nest numbers reached a maximum on the June 9 and 16 surveys, and decreased thereafter. Therefore, the total number of pairs were estimated per Method II (Marschalek, 2010) and are calculated as follows:

$$\text{Total Pairs} = \text{total nests} - (\text{\#unsuccessful nests prior to 20 June} + \text{\#broods lost prior to 20 June})$$

$$18 = 18 - (0+0)$$

Figure 9. CLT season chronology; adult population counts, active nests and fledglings



Nest Fates and Locations

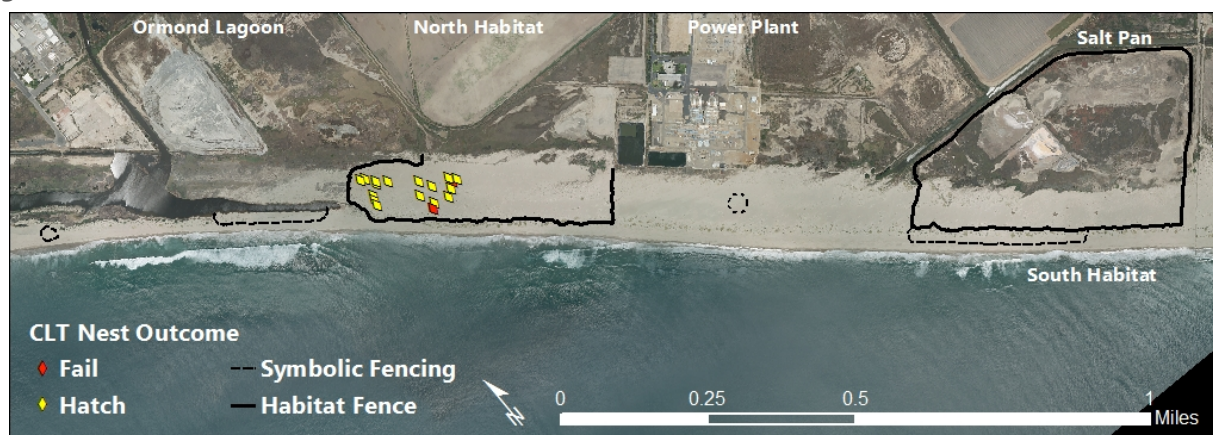
A total of 18 nests were located, out of those 16 were determined to have hatched based on the presence of various combinations of pip shells, feces, chicks and defending adults (Figure 10). The first nests were found on May 26. Two nests failed due to abandonment. One nest with a single egg had no embryonic development, so it was either infertile or abandoned soon after being laid. The other nest that failed was abandoned late term, both eggs in this nest had late stage embryos. This nest was in an area that was frequently crossed by trespassers with a bike, the trail went very close to the nest. One nest was marked by a large stick in the sand, presumably by one of these trespassers (Photo 4). One adult CLT was found dead, it appeared to be egg bound (Photo 5). It was submitted to the WFWZ for assessment.

Figure 10. Out of 18 CLT nests, 16 hatched and 2 were abandoned



Nest Locations: All California least tern breeding activity occurred on the north end of Ormond Beach by Ormond Lagoon where the adults foraged for fish in the lagoon and in nearshore waters. All nesting occurred inside the northern end of the north habitat fence (Figure 11). Occasionally a CLT was observed flying over the south habitat or foraging in the canal adjacent to the salt pan. However, at no time were CLT observed to land in the south habitat or show any interest in the area.

Figure 11. Location of CLT nests on Ormond Beach



Nesting Chronology

The first CLT were seen landing in the nesting area on May 24. The first nest was found on May 26 and the total number of nests initiated were 18. The peak of nesting activity occurred between June 9th to June 16th with a total of 12 active nests with a single wave of nesting activity. (Figure 9)

Chicks and Fledglings

Chicks were re-sighted when possible and associated with nests. However, all chicks moved away from nests soon after hatching and there was notable chick movement within the colony. Only 3 nests were discovered with chicks

still in them, and these were newly hatched. Older chicks were found, but too far away from known nests to be able to associate them with the nest of origin. Several pre-flight chicks were observed outside of the habitat fences close to the lagoon, so these chicks managed to move some distance, exiting the nesting area by going under or through the mesh habitat fencing. Fledglings gathered on the beach berm to the north of the habitat fences, which is also the direction of chick movement. A total of 14 CLT are calculated to have fledged. One fledgling was found dead, but cause of death could not be determined due to the condition of the carcass (Photo 6).

For detailed CLT season chronology see [Figure B-4](#).

Predators

Many predators of WSP and CLT were observed during surveys. Eleven avian predators were observed. Several non-avian predators were present, primarily evident from tracks. The exception to this were coyotes, which was observed the south nesting habitat within the fences, and a rattle snake adjacent to the salt pan.

American Crow (<i>Corvus brachyrhynchos</i>)	Northern Harrier (<i>Circus cyaneus</i>)
Common Raven (<i>Corvus corax</i>)	Red-tailed Hawk (<i>Buteo jamaicensis</i>)
Great Blue Heron (<i>Ardea herodias</i>)	Loggerhead Shrike (<i>Lanius ludovicianus</i>)
Great Egret (<i>Ardea alba</i>)	Turkey Vulture (<i>Cathartes aura</i>)
Snowy Egret (<i>Egretta thula</i>)	Western Gull (<i>Larus occidentalis</i>)
American Kestrel (<i>Falco sparverius</i>)	Peregrine Falcon (<i>Falco peregrinus</i>)
Coyote (<i>Canis latrans</i>)	Opossum (<i>Didelphis virginiana</i>)
Raccoon (<i>Procyon lotor</i>)	Rattle Snake (<i>Crotalus atrox</i>)
California Ground Squirrel (<i>Otospermophilus beecheyi</i>)	

Ravens were observed periodically throughout the season and are known to have depredated 2 WSP nests. Three other WSP nests were depredated by an unknown predator that left no tracks and took the eggs without leaving any traces. Crows were only seen on the far north of Ormond Beach near Hueneme Beach and on several occasions the brooding WSP on the nest on that end of the beach was observed to be flushed by a crow landing nearby. This nest had a predator exclosure and successfully hatched. A kestrel was seen hunting in front of the power plant near the only WSP nest known to have hatched in that location. The kestrel caught a horned lark in the dunes adjacent to this nest. The nest also had a predator exclosure and successfully hatched.

In early July there was a high tide that caused inundation of tide water into the salt pan. Thereafter a large flock of mostly western gulls regularly gathered in the salt pan, at times there were as many as 100 gulls. At the same time the last WSP nest of the season was active in the same area and at times the gull flock was adjacent to the area where the nest was located. The nest had a predator exclosure and it successfully hatched. However, the chicks were never sighted. It is uncertain whether the gulls had any impacts on the chick survival, but it is a cause for concern.

No CLT nests were depredated in 2016. One CLT chick was found dead, but because of the condition of the carcass when it was found, it is uncertain whether it had been depredated or not.

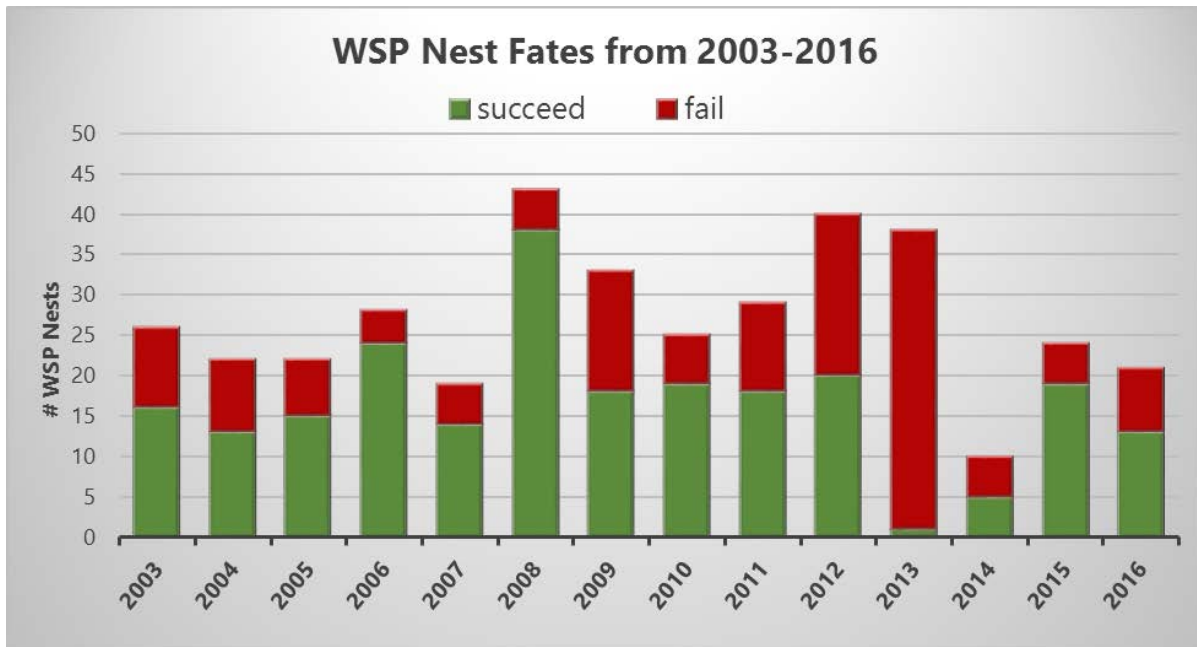
Discussion

Nesting Outcome and Trends

Western Snowy Plover

The number of nesting attempts in 2016 was less than in 2015, as well as the percent of nests that hatched. This year had one of the lower number of WSP nesting attempts. However, this outcome is still an improvement over the 2 years previous to 2015. In 2013 there was heavy loss of nests to predators, with only one out of 37 nests hatching. The following year in 2014 had the lowest number of nesting attempts ever documented at Ormond Beach, it appears to have been a refractory year still impacted by nest losses of 2013. (Figure 12).

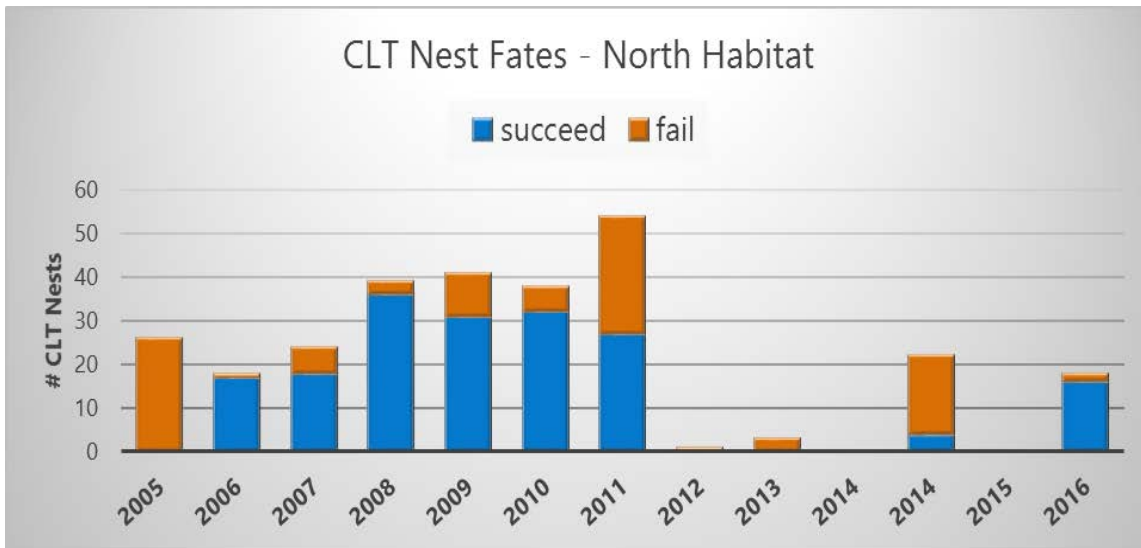
Figure 12. Comparison of WSP nest fates on Ormond from 2003-2016. Unknown nest outcomes not included.



California Least Tern

The nesting season of 2016 was the most successful at Ormond Beach for CLT since 2011. Despite this, nest numbers are still very low compared to the years previous to this. (Figure 13)

Figure 13. Comparison of nesting success in the north habitat from 2005-2016. Unknown outcome nests not included



Impacts to Nesting Success

Predation

In the beginning of 2016 the strategy for predator exclosure use on WSP nests was to use exclosures only on nests outside of habitat fences to protect them from human activities. Based on the experience in 2015, when ravens apparently targeted predator exclosures and harassed brooding WSP into nest abandonment, the initial strategy was to allow nests inside habitat fences to rely on the natural cryptic behaviors of brooding WSP instead of risking drawing attention to nests with the exclosures. However, this year predators were more successful at finding and depredating unprotected nests. Ravens did not harass nests in predator exclosures, at least not into abandonment, however they did succeed in depredating 2 nests before they were found during nest surveys. The other predator that took eggs without disturbing nests may have been a northern harrier. Biologists at Pt Mugu have reported similar nests losses and in 2014 captured video of a northern harrier depredating a nest and leaving no traces. Northern harriers were a common sight in the area all spring. Following the wave of nest losses on the south end of Ormond Beach predator exclosures were used on all nests the remainder of the season and each nest successfully hatched. Pt. Mugu has a year-round predator management program that removes ravens, which undoubtedly benefits Ormond Beach. Also, individuals that learn to target predator exclosures are likely removed, so turn-over of raven individuals is probably higher and new individuals have less time to associate predator exclosures with nests.

Two nests were located under bushes this year, essentially within a natural predator exclosure. One nest was possibly a re-nesting attempt by birds that lost their nest to a predator. In this case the nest was located in the salt pan in the open and the eggs disappeared within 2 weeks of being established. A new nest was established

180 feet away a week later. The other nest that was similarly located under a bush was in the north habitat. This was the first known nest of the season in that location, although it may have been a re-nesting attempt as well as nest scraping was observed in this area for a month before this nest was located.

This year predation was not an issue for CLT's in the north habitat and they were able to successfully hatch 89% of nests and fledge young this year. This high hatch rate hasn't happened in 6 years, the last successful year being 2010. In the past 5 years' ravens have been the most challenging predator. It is uncertain why this year has been different. It may be that even the north end of Ormond Beach has benefited from the Pt Mugu predator management program, even though this area is a mile away.

Shifting nest patterns

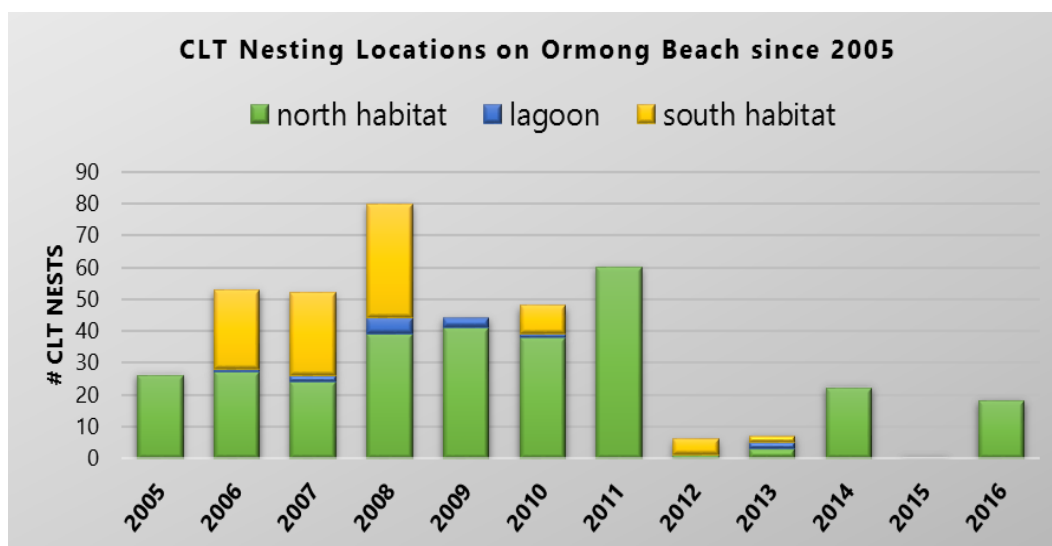
In 2016 WSP nested in greater numbers in the south habitat and in fewer numbers in the other areas of the beach compared to 2015 (Table 3). In the spring there were several wind events that built dunes in new locations or increased the size of existing dunes, and scoured out existing dunes in other locations. The overall height of the dune ridge appears to have increased, which is a trend that has been happening for the past 10 years. In addition, king tides combined with large surf caused erosion of the wave slope during the spring. In July a king tide combined with a surf event caused several blow-outs along the entire length of dune ridge and inundated much of the south habitat with tide water, further modifying the shape of the beach. WSP seek flat areas to nest away from tall dunes, so this re-shaping of the beach may be the reason for shifting patterns. The entire southern end of the north habitat fence has been un-used for nesting for 3 years, and a new area south of the power plant has had nesting for the past couple years. The latter was the sight of breeding behavior (nest scraping and courtship) most of the spring, although only 2 nests were found. This area had no fencing and therefore had greater disturbance from foot traffic, which may account for the low number of nests. Nest success has been lower there and chicks have never been re-sighted from nests that hatch in this location, so they either are not surviving or moving to other parts of the beach. By June this year the area had been abandoned entirely by courting WSP. Adding fencing to these areas may provide the protection they need to increase nest numbers as well as nest and chick success.

Table 3. Comparison of # of WSP nests established in different areas of Ormond Beach

	Ormond Lagoon	North	Power Plant	Salt Pan	South
2015	2	5	6	3	8
2016	1	3	2	5	10

CLT nesting patterns have varied considerably since detailed nest location data has been collected beginning in 2005. They have nested most consistently and in the largest numbers in the north habitat. The numbers of nesting attempts have dropped considerably since 2011. This year nests were only attempted in the north habitat and nests numbers were low compared to the earlier years, although they were higher than all years since 2011 (Figure 14). Ormond Lagoon and the North Habitat

Figure 14. Comparison of CLT nesting attempts in all locations of Ormond Beach from 2005-2016



The lagoon area was the most productive part of Ormond Beach in regard to WSP chicks. In all years since 2003 (except last year, 2015) there has been a CLT colony in the habitat fencing immediately adjacent to the lagoon. In some years there has been both CLT and WSP nests next to the lagoon. Although there were no WSP nests found near the lagoon this year, the WSP clutches gravitated to this area from all the nests in the area. The furthest nest was 1/3 mile away. At least one pair was observed making scrapes in this location, although a nest was never found. Eight of the 11 chicks that fledged were located in this area and 3 clutches fledged more than one chick ([Appendix B- 3](#)). Symbolic fencing was erected at the end of May parallel to the southern end of the lagoon for 1400' where the dunes are relatively flat. Compliance by the public was good and WSP chicks were often seen inside the fenced area, along with many other species of birds. Symbolic fencing may have given extra protection to allow more chicks to reach fledge age, especially from beach goers who bring dogs to the edge of the water to play. This activity was observed in 2014, which motivated the installation of the symbolic fence this year.

The challenge in this location this year was a gap between the symbolic fencing on the southern tip of the lagoon and the end of the black mesh Cintoflex fencing that surrounds the north habitat. This location was a throughway for beach goers, several of which live in homeless encampments on the beach. Foot traffic moved through this area to reach the TNC property behind the dunes. So not only were broods of WSP and CLT disturbed and moved around, but nesting CLT in the colony were also disturbed. In addition to foot traffic around the edge of the habitat, individuals cut through the habitat fence bringing a bike. They walked between the beach in the front and the TNC property in the back. The path went through the middle of the nesting area introducing even greater disturbance. This disturbance appeared to have occurred if not daily, at least every few days, and more regularly than nest surveys. This is very likely to have contributed to the scattering of CLT chicks away from nests and even

out of the habitat fencing onto the unprotected beach. This traffic may also have been responsible for abandonment of the 2 nests that failed, as tracks went closely by both nests (Figure A-1). The two abandoned eggs in this nest had reached full development and were close to hatching. In the beginning of the season the fence in the back was reconfigured to try to prevent this trespassing which has been a problem for the past 10 years. However, trespassers easily found ways over or through the fence. In the future fencing higher than the current 4' may help reduce trespassing.

Ormond Ordinance: Dogs, Horses and other Human Caused Disturbance

Off leash dogs have been an ongoing problem on Ormond Beach. Despite a leash law ordinance and outreach efforts to educate the public about the impacts of dogs on nesting shorebirds, many dog owners have not complied. This is a particular problem for WSP clutches and CLT fledglings that move to the tide line to forage and to learn to fly. Because all areas of Ormond Beach are remote and difficult for law enforcement to access, enforcement has been difficult and in most cases simply not possible. Other threats to nesting success have been horses on the beach. In September of 2015 a group of 31 horses conducted a beach ride, accessing the beach from Arnold Rd. There have also been incidences of off road vehicles entering the beach and remote controlled cars and drones being operated at the tideline. All of these activities pose risks to nesting birds are a violation of the Endangered Species Act, but they have been ongoing occurrences as long as nesting data has been collected at Ormond Beach. Without the presence of regular enforcement entities these activities have continued with little reaction and any intervention was further hampered by lack of clarity regarding what if any regulations these activities violated and which agency had jurisdiction. The Oxnard City Council recognized this area warranted better protection and in June 2016 it passed an ordinance restricting these activities. The ordinance went into effect on July 7, 2016. Beginning in June an intense public outreach campaign was carried out by and continued through the end of August. The most visible effect of the ordinance has been a large decrease in the number of dogs on the beach. Although the ordinance passed after most breeding activity had finished for the season, it coincided with the start of fall migration. From the beginning large groups of shorebirds could be seen foraging and roosting at the tideline, something that rarely happened before the ordinance. Enforcement will be an ongoing challenge, but moving forward the ordinance will provide the clarity needed to better protect all shorebirds on Ormond Beach. For full text of the ordinance see [Appendix E](#).

Agromin

Agromin filed for a major modification to its conditional use permit (Case No. PL 13-0101). The County of Ventura Resource Management Agency determined an Environmental Impact Report (EIR) will need to be completed. In response to a request to contribute to an EIR scoping meeting, Ventura Audubon submitted a comment letter to the county ([Appendix F](#)).

Recommendations and Objectives for 2017 Nesting Season

1. Disturbance to nests and chicks

Issue: Nests and chicks outside of habitat fences at the toe of the dune ridge are vulnerable to beach activity, and this may account for losses of younger chicks.

Solution: Provide better protection for foraging chicks and nests seaward of the dune ridge by move the black mesh Cintoflex fences to enclose the foredunes and part of the dune toe. Modification of the fence line has been incorporated into a Coastal Development Permit that is going to be submitted to the CA Coastal Commission this fall. Maps of proposed fencing have also submitted to the City of Oxnard for approval.

Issue: WSP have attempted to establish nests in an area with no habitat fences, just south of the power plan at the dune ridge. Breeding birds are vulnerable to foot traffic in this location and abandoned all nesting attempts in late spring.

Solution: Consider using the same post and cable symbolic fencing used by Ca State Parks. This will have lower visibility to predators, is more durable than wooden stakes and string, harder to vandalize and easier to move around.

Issue: Ormond Lagoon is an area that attracts the young of both WSP and CLT, as well as other breeding shorebirds. It has also been a nesting location in past years. This location needs better protection. The north habitat also has frequent trespasser cross direction through nesting areas and this has been an ongoing problem for many years.

Solution: Erect fencing in front of the Ormond lagoon and link the area with the north habitat fences to prevent foot traffic in-between the lagoon and the north habitat. Map plans have been submitted as part of the Coastal Development Permit and to the City of Oxnard for approval. Increase the height of mesh fencing behind the nesting area.

2. Public Education

Issue: Many beach goers are unaware that there are federally listed nesting birds on the beach and that their activities can cause stress and reduced reproductive success. Nor do they have understanding of the VAS Shorebird Recovery efforts.

Solution: Continue to recruit, train and deploy volunteers from the community to greet visitors at Arnold Rd on weekend days during the summer. Re-brand this program to update and freshen its image and appeal. Change the name of the program to "Beach Stewardship" and instead of "Docents" volunteers will be recruited as "Volunteer Naturalists".

3. Predation

Issue: Predators are ever present and will continue to be so. Use of predator exclosures has both helped and hurt in past experience.

Solution: Use predator exclosures case by case, based on the nature of predators and nest locations. Next spring in particular assess the presence and aggressiveness of ravens and northern harriers. Deploy trail cameras on nests that are within the habitat fences to try to determine which predators are approaching nests. Also deploy a camera on a decoy exclosure to determine if exclosures are attracting attention, and if so by which predators.

Issue: Large numbers of gulls (100+) flock in the salt pan when water is present. This is a concern because WSP nest in the same areas where gulls gather. The salt pan is in close proximity to Agromin, which attracts gulls, and possibly other predators.

Solution: Use trail cameras on nests in the salt pan and the south habitat to determine if predators are approaching nests, and if so what type.

4. Ormond Ordinance Compliance

Issue: There is limited enforcement resources available to ensure compliance with the ordinance.

Solution: Ventura Audubon will seek to expand the Beach Stewardship program in order to have a greater presence on the beach throughout nesting season and to reach more of the public. Seek funding for a summer intern and volunteer coordinator. Conduct a media campaign at the beginning of nesting season including a press release and newspaper articles to get the word out about nesting season.

5. Understanding Nesting Patterns

Nesting numbers of WSP are much lower on Ormond Beach compared to Ormond East, the beach immediately adjacent to Ormond Beach on the Navy Base side of the fence. A better understanding of what drives nesting patterns could be used to improve nesting success on Ormond Beach by informing protection efforts.

Issue: In the past there has been a "Nest Shadow" in front of the power plant, where almost no nesting attempts were made for 9 years pre-2012. However, since 2012 WSP have been attempting to nest in this location in low numbers. Also of concern is that chicks have never been sighted more than a day or two after the nests have hatched.

Solution: Protect the new nesting area in front of the power plant with post and cable symbolic fencing. Obtain night time light measurements to determine how brightly the dunes are lit at night. Work with NRG to investigate changes to lighting practices over time. Assess the same data for the Mandalay power plant to determine if the cause for the nest shadow in this location is similar or due to other causes.

Acknowledgements

I would like to thank the 'Steward of Ormond Beach' Walter Fuller, my field assistants Jessica Ventrone and Vince Kinsch, fellow WSP/CLT biologists Debra Barringer and Danielle Glen and Ventura Audubon President Bruce Schoppe. Thanks to the City of Oxnard, The Nature Conservancy and the California Coastal Conservancy for your support throughout the year in so many ways. A huge thanks to the Oxnard City Council for recognizing that Ormond Beach needed better protection and doing something about it by passing the ordinance. Thank you to all the Oxnard City staff who worked hard to make the ordinance happen. Thanks also to the Western Foundation of Vertebrate Zoology for egg data analysis. Last but not least, I thank the many outreach volunteers who greeted beach visitors at the Arnold Rd entrance on summer weekends.

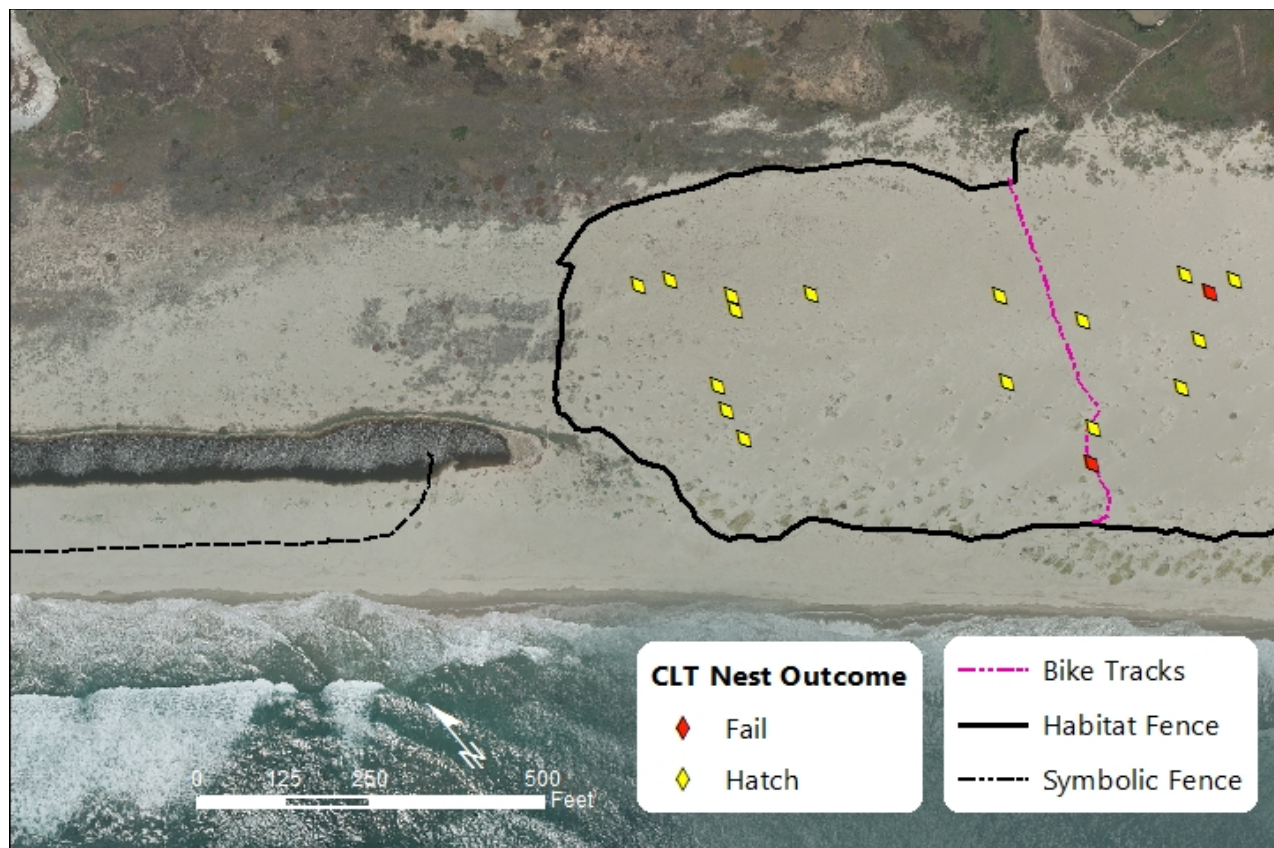
Funding for our program was provided by NRG and the National Audubon Society. NRG has kindly made available access to their private contractor's parking lot which provides us safe and secure access to the north end nesting area, as well as a storage container in the same parking lot for our north end supplies.

Finally, thank you to the Ventura USFWS office for your support and guidance as we navigate the complex landscape of Ormond Beach.

In memory of Reed Smith, my mentor and friend.

Appendix A: Supplemental Maps

Figure A-1. Fence configuration and path of trespassing tracks through CLT nesting area



Appendix B: Tables

Appendix B- 1. WSP population data and survey dates

Survey Week	Month	week ending	Total: adults	Total: all ages	males	females	Unknown	Chicks	Juveniles
week 1	March	3/20	23	23			23	0	0
week 2		3/27	72	72	45	27		0	0
week 3	April	4/3	72	72	43	29		0	0
week 4		4/10	58	58	35	23		0	0
week 5		4/17	34	34	16	18		0	0
week 6*		4/24	36	36	24	12		0	0
week 7		5/1	34	38	22	12		4	0
week 8	May	5/8	5	6	2	3		1	0
week 9		5/15	8	10	5	3		2	0
week 10		5/22	15	18	11	4		3	0
week 11		5/29	13	15	8	6		2	0
week 12		6/5	9	14	10	9		3	2
week 13*	June	6/12	6	8	9	6		1	1
week 14		6/19	15	22	11	7		7	0
week 15		6/26	13	20	10	3		10	1
week 16		7/3	9	10	6	3		5	0
week 17	July	7/10	13	11	10	2	1	3	2
week 18		7/17	14	17	7	5	2	0	3
week 19		7/24	12	21	6	4	2	3	6
week 20		7/31	11	13	6	5		2	0
week 21	August	8/7	21	24	4	5	12	2	1
week 22		8/14	59	63	4		55	0	4
week 23		8/21	62	63	1		61	0	1
week 24		8/28	76	76			76	0	0
week 25		9/4	67	67			67	0	0
week 26	Sept	9/11	64	64			64	0	0
spring window									
* peak nesting activity									

Juveniles are hatch year WSP, some juveniles are from other beaches

Appendix B- 2. WSP Banded Bird Data

Date	Band Combo	Sex	Year Banded	Age (yr)	Fledging Beach	Behavior	Additional Info
1/19/2016	yr: br	male	2015	1	Fort Ord	foraging	above high tide line in front of south fence: also reported at Mugu same day
3/11/2016	yr: br	male	2015	1	Fort Ord	foraging	above high tide line in front of south fence
3/24/2016	yr: br	male	2015	1	Fort Ord	foraging	above high tide line in front of south fence
4/13/2016	yr: br	male	2015	1	Fort Ord	foraging	above high tide line in front of south fence
4/16/2016	yr: br	male	2015	1	Fort Ord	foraging	above high tide line in front of south fence
4/29/2016	nr: gb	female	2015	1	Vandenburg	foraging	near Ormond Lagoon, with a male
5/16/2016	an: ny	male	2015	1	Vandenburg	foraging	near Ormond Lagoon, alone
6/1/2016	yr: br	male	2015	1	Fort Ord	foraging	foraging in Ormond salt pan, moving around with a group of 5 WSP
6/6/2016	an: ny	male	2015	1	Vandenburg	foraging	near Ormond Lagoon
	nr: gb	female	2015	1	Vandenburg	foraging	near Ormond Lagoon
8/9/16	oo: ba	?	2013	3	Marina State Beach, Monterey County	roosting	above high tide line in front of south fence
	nr: gb	female	2015	1	Vandenburg	roosting	foraging on north end of Ormond near lagoon
8/30/2016	yr: br	male	2015	2	Fort Ord	roosting	roosting above high tide line in front of south fence
	x: w	?	?	?	from Humboldt County, unknown what year, probably lost its other bands	foraging	foraging on north end of Ormond near lagoon
9/9/2016	nr: gb	female	2015	1	Vandenburg	roosting	roosting above high tide line in front of south fence
winter window							

Western Snowy Plover and California Least Tern, Ormond Beach 2016

Appendix B- 3. Detailed WSP nest outcome data

Nest #	Location	calc initiation	Fate Date	#Eggs Laid	#Eggs Hatched	Outcome	Reason for failure	Comments	Fledge	# fledglings	WFVZ Egg Report
16OB01	south	3/20/2016	3/29/2016	3	0	fail	wind				3 eggs - no development
16OB02	power plant	3/30/2016	4/29/2016	3	2	hatch	succeed				1 egg - no development
16OB03	lagoon	3/31/2016	4/29/2016	3	1	hatch	succeed	one dead chick and one unhatched egg in nest scrape	yes	1	1 egg - no development 1 chick - dead in nest
16OB04	south	4/6/2016	4/25/2016	3	unknown	unknown	unknown				
16OB05	south	4/6/2016	5/5/2016	3	unknown	unknown	unknown				
16OB06	south	4/11/2016	5/9/2016	3	3	hatch	succeed		yes	1	
16OB07	power plant	4/15/2016	4/21/2016	1	1	fail	predated	at least one, eggs found predated			
16OB08	south	4/30/2016	5/9/2016	3	0	fail	unknown				
16OB09	south	4/25/2016	5/5/2016	3	0	fail	unknown				
16OB10	salt pan	4/20/2016	5/9/2016	3	0	fail	unknown				
16OB11	salt pan	3/31/2016	4/28/2016	2	2	hatch	succeed	2 chicks seen, undiscovered nest			
16OB12	north	5/12/2016	6/9/2016	3	3	hatch	succeed	nest was in a bush	yes	2	
16OB13	salt pan	5/13/2016	6/10/2016	3	3	hatch	succeed	nest was in a bush	yes	1	
16OB14	south	5/16/2016	6/14/2016	3	2	hatch	succeed				1 egg - no development
16OB15	north	5/14/2016	6/11/2016	3	3	hatch	succeed		yes	3	
16OB16	south	5/11/2016	6/8/2016	3	3	hatch	succeed				
16OB17	salt pan	5/18/2016	6/15/2016	3	3	hatch	succeed			1	
16OB18	south	6/4/2016	6/11/2016	1	1	fail	predated	at least one, eggs found predated			
16OB19	south	6/14/2016	7/12/2016	3	3	hatch	succeed	nearly an undiscovered nest, discovered hatching			
16OB20	salt pan	7/4/2016	8/1/2016	2	2	hatch	succeed			2	
16OB21	north	6/17/2016	7/15/2016	3	3	hatch	succeed				

Western Snowy Plover and California Least Tern, Ormond Beach 2016

Figure B-4. CLT Nest Data

date	# Adults	# Fledglings	# chicks off nests	Predator Sightings	Nest #																	
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
5-May-16	6																					
13-May-16	6																					
16-May-16	8																					
19-May-16	9																					
24-May-16	7																					
26-May-16	6				2E	1E	1E															
31-May-16	12			American Crow, Western Gull	2E	2E	2E	2E	1E	2E												
2-Jun-16	20			Great Blue Heron, Western Gull	2E	2E	2E	2E	1E	2E	2E	2E	2E	1E								
6-Jun-16	20			Common Raven, Western Gull	2E	2E	2E	2E	1E	2E	2E	2E	2E	1E								
9-Jun-16	24			American Crow, Ultralights											2E	2E						
16-Jun-16	26			Western Gull	2H	2E	2E							1E	2E		2E					
23-Jun-16	34		1 C	Helicopter		2H	2H	2H	1H	2H	2H	2H	2H	1E	2H	2E	1H/1C	2E	2E	2E	1E	
26-Jun-16	30		3CF	Raccoon tracks																		2E
30-Jun-16	30		2 PF 5CF													2E		2E	2E	2E	2E	2E
7-Jul-16	30	4FY	2C	Helicopter, Domestic Dogs										1E		2H		2C	2E	2H	2E	2H
14-Jul-16	21	5FO	2C 1CF 1PF											1E				2C		2E		
19-Jul-16	15	3FY 5FO																				
25-Jul-16	18	3FY 7FO	3PF																		2E	
28-Jul-16	20	9FO												1A							2A	
4-Aug-16	15	6FO																				
9-Aug-16	3	6 FO		Peregrin Falcon																		
18-Aug-16	0																					
24-Aug-16	0																					
30-Aug-16	0																					
C = downy chick																						
POE= Put On End																						
CF = chick feathered																						
E = egg																						
NV = non-viable																						
FY = fledge young																						
FO = fledge old																						

Appendix C: Photographs

Photo 1. Habitat Fencing



Photo 2. Symbolic Fencing



Photo 3. Predator Exclosure



Photo 4. CLT nest marked with a large stick by a trespasser in nesting habitat, bike tracks are to the left of the eggs



Western Snowy Plover and California Least Tern, Ormond Beach 2016

Photo 5. Dead CLT adult found by lagoon on June 28, 2016 by Ormond Lagoon



Photo 6. Dead CLT fledgling found on June 25, 2016



Appendix D: Nesting Area Signs

Appendix D- 1. "Symbolic Fence Closed" sign in English and Spanish, and Audubon "Share the Shore"



Appendix E: Ormond Beach Ordinance

CITY COUNCIL OF THE CITY OF OXNARD ORDINANCE NO. 2906

ORDINANCE OF THE CITY OF OXNARD, CALIFORNIA, ADDING ARTICLE XVIII TO CHAPTER 7 OF THE CITY CODE PERTAINING TO REGULATIONS AT ORMOND BEACH

.....

WHEREAS, the City of Oxnard recognizes the importance of Ormond Beach as a unique and sensitive habitat, supporting numerous plant and wildlife species and enjoyed by the public; and

WHEREAS, the California State Coastal Conservancy has long recognized Ormond Beach as an area of biological significance and high habitat restoration potential and has secured 266- acres in the area for purposes of habitat restoration; and

WHEREAS, The Nature Conservancy has acquired 277-acres in the area to conserve and restore habitat and facilitate public access; and

WHEREAS, Ormond Beach contains a diverse set of habitats including sandy beaches, coastal lagoons and estuaries, foredune and backdune areas, brackish and seasonal freshwater marshes, freshwater drainages, grasslands and transitional uplands; and

WHEREAS, Ormond Beach is considered by wetland experts to be the most important wetland restoration opportunity in southern California as it is one of the few areas with an intact dune to transition zone to marsh system; and

WHEREAS, Ormond Beach hosts over 200 migratory bird species and more shorebird species are known to use Ormond Beach than any other site in Ventura County; and

WHEREAS, Ormond Beach encompasses a federally designated critical habitat for the western snowy plover, a federally listed threatened species; and

WHEREAS, Ormond Beach is also home to multiple other special status wildlife and plant species including the California least tern, Belding's savannah sparrow, light-footed clapper rail, tidewater goby and salt marsh bird's beak; and

WHEREAS, Ormond Beach is a designated Audubon Important Bird Area or "IBA" which is indicative of its global importance to wildlife conservation efforts as a unique and essential bird habitat; and

WHEREAS, the City Council considered the 2009 California Coastal Conservancy's Ormond Beach Wetlands Restoration Feasibility Study and adopted GOAL CD-22 (Environmentally sound Ormond Beach wetlands with appropriate public access) and implementing Policy CD-22.2 (Develop an Ormond Beach Visitor Access) within the 2030 General Plan; and

WHEREAS, the 2030 General Plan includes GOAL ER-4 (Protected, restored, and enhanced sensitive habitat areas) and six implementing policies that are relevant to the proposed ordinance; and

WHEREAS, the Oxnard Local Coastal Program (LCP) is a certified LCP that requires and enables the City of Oxnard to enforce the Coastal Act, LCP, Land Use Plan (LUP), and Chapter 17, Coastal Zoning, of the City Code in the designated Coastal Zone that includes a significant portion of the Ormond Beach area; and

WHEREAS, the Coastal Act Section 30240(a) states, "Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas"; and

WHEREAS, the Oxnard Coastal LUP identifies the Ormond Beach wetlands as an environmentally sensitive habitat area (ESHA) with nesting and feeding areas for a variety of birds and mammals, and that Ormond Beach has low dunes that provide nesting sites for a number of species; and

WHEREAS, LUP Policy 6 notes that a resource protection ordinance was created for the LUP-designated Resource Protection areas providing that “Scientific, educational and light recreational uses shall be conditionally permitted uses in all sensitive habitat areas...Permitted uses shall not be allowed to significantly disrupt habitat values;” and

WHEREAS, most of the area within the Ormond Beach coastal zone is designated Resource Protection, the remaining areas are intended to be reclassified in the current update of the LCP, consistent with policies and designations enacted in the 2030 General Plan; and

WHEREAS, City Code Section 17-23(B), Conditional Uses, in the Resource Protection (RP) Sub-Zone allows “(2) Formal ongoing light recreation activities” and that development within the RP Sub-Zone shall be consistent with LUP Policy 6 and Section 30240 of the Coastal Act; and

WHEREAS, the City interprets the LUP and Section 17-23(B) as to allow informal passive recreation, such as walking on the beach within the RP-designated Coastal Zone areas, so long as the activity is consistent with LUP Policy 6 and Section 30240(a) of the Coastal Act; and

WHEREAS, a significant number of people visit Ormond Beach throughout the year and some activities of beach visitors may cause unintentional negative affects to the unique and special wildlife, plants and habitat at Ormond Beach; and

WHEREAS, the Unites States Fish and Wildlife Service “USFWS” has found, for example, that the disturbance of nesting or brooding snowy plovers or “flushing” by humans and domestic

WHEREAS, the 2030 General Plan includes GOAL ER-4 (Protected, restored, and enhanced sensitive habitat areas) and six implementing policies that are relevant to the proposed ordinance; and

WHEREAS, the Oxnard Local Coastal Program (LCP) is a certified LCP that requires and enables the City of Oxnard to enforce the Coastal Act, LCP, Land Use Plan (LUP), and Chapter 17, Coastal Zoning, of the City Code in the designated Coastal Zone that includes a significant portion of the Ormond Beach area; and

WHEREAS, the Coastal Act Section 30240(a) states, “Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas”; and

WHEREAS, the Oxnard Coastal LUP identifies the Ormond Beach wetlands as an environmentally sensitive habitat area (ESHA) with nesting and feeding areas for a variety of birds and mammals, and that Ormond Beach has low dunes that provide nesting sites for a number of species; and

WHEREAS, LUP Policy 6 notes that a resource protection ordinance was created for the LUP-designated Resource Protection areas providing that “Scientific, educational and light recreational uses shall be conditionally permitted uses in all sensitive habitat areas...Permitted uses shall not be allowed to significantly disrupt habitat values;” and

WHEREAS, most of the area within the Ormond Beach coastal zone is designated Resource Protection, the remaining areas are intended to be reclassified in the current update of the LCP, consistent with policies and designations enacted in the 2030 General Plan; and

WHEREAS, City Code Section 17-23(B), Conditional Uses, in the Resource Protection (RP) Sub-Zone allows “(2) Formal ongoing light recreation activities” and that development within the RP Sub-Zone shall be consistent with LUP Policy 6 and Section 30240 of the Coastal Act; and

WHEREAS, the City interprets the LUP and Section 17-23(B) as to allow informal passive recreation, such as walking on the beach within the RP-designated Coastal Zone areas, so long as the activity is consistent with LUP Policy 6 and Section 30240(a) of the Coastal Act; and

WHEREAS, a significant number of people visit Ormond Beach throughout the year and some activities of beach visitors may cause unintentional negative affects to the unique and special wildlife, plants and habitat at Ormond Beach; and

WHEREAS, the United States Fish and Wildlife Service "USFWS" has found, for example, that the disturbance of nesting or brooding snowy plovers or "flushing" by humans and domestic animals is a major factor affecting nesting success and is one of the factors affecting the continued existence of the species; and

WHEREAS, numerous studies document how disturbance of nesting snowy plovers affects nesting success, including:

Lafferty 2001. Birds at a Southern California beach: seasonality, habitat use and disturbance by human activity. BIODIVERSITY AND CONSERVATION 10: 1949- 1962, 2001.

Lafferty 2001. Disturbance to wintering western snowy plovers. BIOLOGICAL CONSERVATION 101 (2001) 315-325.

Studies discussed in U.S. Fish and Wildlife Service 12 Month Finding on Petition to Delist Pacific Coast Population of Western Snowy Plover (71 Fed. Reg. 20607, April 21, 2006); and

WHEREAS, repeated flushing of incubating snowy plovers may result in reductions to nesting success and in reduced survivorship during winter; and

WHEREAS, campfires and camping near nests may also result in long-term disturbance and ultimately nest abandonment; and

WHEREAS, nests may also be lost directly to human activities such as stepping on nests and the use of motorized vehicles; and

WHEREAS, persons with dogs elicit stronger chances of nest flushing and dogs may deliberately chase plovers and trample nests; and

WHEREAS, a higher proportion of dogs than humans disturb snowy plovers, both leashed and unleashed; and

WHEREAS, every annual report detailing snowy plover nesting prepared by Ventura Audubon Society since 2003 has identified off-leash dogs as a problem at Ormond Beach; and

WHEREAS, more than 1,700 dogs visited Ormond Beach in 2015 and, despite laws and regulations to the contrary, many are allowed to run off leash; and

WHEREAS, despite signs and notifications of the leash law at Ormond Beach and public outreach and occasional citations, dog owners persist in disregarding the leash law and loose dogs have resulted in both nest and chick loss; and

WHEREAS, reducing the frequency of activities known to negatively affect snowy plovers, such as unleashed pets, can substantially reduce nest disturbance; and

WHEREAS, USFWS has documented other activities that can negatively impact snowy plovers, including pet interactions, motorized vehicles, horseback riding and falcon flying; and

WHEREAS, USFWS has also found that aerial activities such as kite flying, hang gliding and model airplanes can negatively impact snowy plovers; and

WHEREAS, Ormond Beach is located within the jurisdiction limits of the City of Oxnard; and

WHEREAS, the City of Oxnard wishes to enact nuisance regulations pursuant to Article XI, Section 7 of the California Constitution to protect the unique and sensitive plants, wildlife and habitat of Ormond Beach and promote the successful restoration of the Ormond Beach area while maintaining public access; and

WHEREAS, the City finds that enacting a nuisance regulation within Chapter 7 of the City Code is consistent with the Coastal Act and LUP and does not inhibit or significantly impact existing informal passive recreation, public access and use within the Coastal Zone.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF OXNARD DOES ORDAIN AS FOLLOWS:

Part 1. Article XVIII is hereby added to Chapter 7 of the Oxnard City Code to read as follows:

“ARTICLE XVIII. ORMOND BEACH REGULATIONS SEC. 7-300. PURPOSE AND SCOPE.

The purposes of this article are to protect and preserve the unique natural wildlife and other attributes of Ormond Beach for the public enjoyment of current and future generations.

SEC. 7-301. PROHIBITED ACTIVITIES.

The following activities are prohibited at Ormond Beach:

To bring, walk (whether leashed or unleashed), ride or release any domesticated animal including but not limited to cats, dogs, horses and pigs. This limitation shall not apply to a leashed dog being used as a service animal under the Americans with Disabilities Act.

To bring or release any non-domesticated or exotic animal. This prohibition shall not apply to the legally permitted release of rehabilitated wildlife, subject to the permission of the property owners.

To go within or interfere with any protected habitat area as designated by fencing, signage, or other method.

To alter or remove any sand dune, plants or vegetation unless the activity is carried out pursuant to a validly issued permit and applicable legal requirements.

To camp as defined below:

“Camp” means one or more of the following activities: pitching or occupying camp facilities; or the use of camp paraphernalia. These activities constitute camping when it reasonably appears, in considering all the circumstances, that the individual, in conducting these activities, is in fact using the area as a living accommodation, regardless of the intent of the individual or the nature of any other activities in which they may be engaging.

“Camp facilities” include, but are not limited to, tents, huts, temporary shelters, or other similar facilities.

“Camp paraphernalia” includes, but is not limited to, tarpaulins, cots, beds, mattresses, sleeping bags, hammocks, cookware, cooking equipment, kitchen utensils, or other similar equipment.

To make or kindle a fire for any purpose.

To operate any motorized vehicle. This prohibition shall include and apply to remotely operated vehicles such as airplanes, helicopters, cars and drones. This prohibition shall not apply to public safety vehicles (including Coast Guard vehicles), military aerial vehicles, or vehicles used as part of a permitted program or operation to protect natural resources.

To launch or fly a kite, kite board, or glider.

SEC. 7-302. VIOLATIONS.

A violation of this article is designated an infraction and may be enforced according to the provisions of section 1.10 of the city code.

A violation of any section of this article and any use or condition caused, or permitted to exist, in violation of any provision of this article shall be, and hereby is declared to be, a public nuisance.

SEC. 7-303. OTHER APPLICABLE LAWS.

This article shall not be interpreted or construed to permit any activities otherwise restricted by other applicable state or federal laws or regulations.”

Part 2. For purposes of this article “Ormond Beach” is defined as the area designated in Exhibit A attached hereto. Ormond Beach is located within the jurisdictional boundaries of the City of Oxnard.

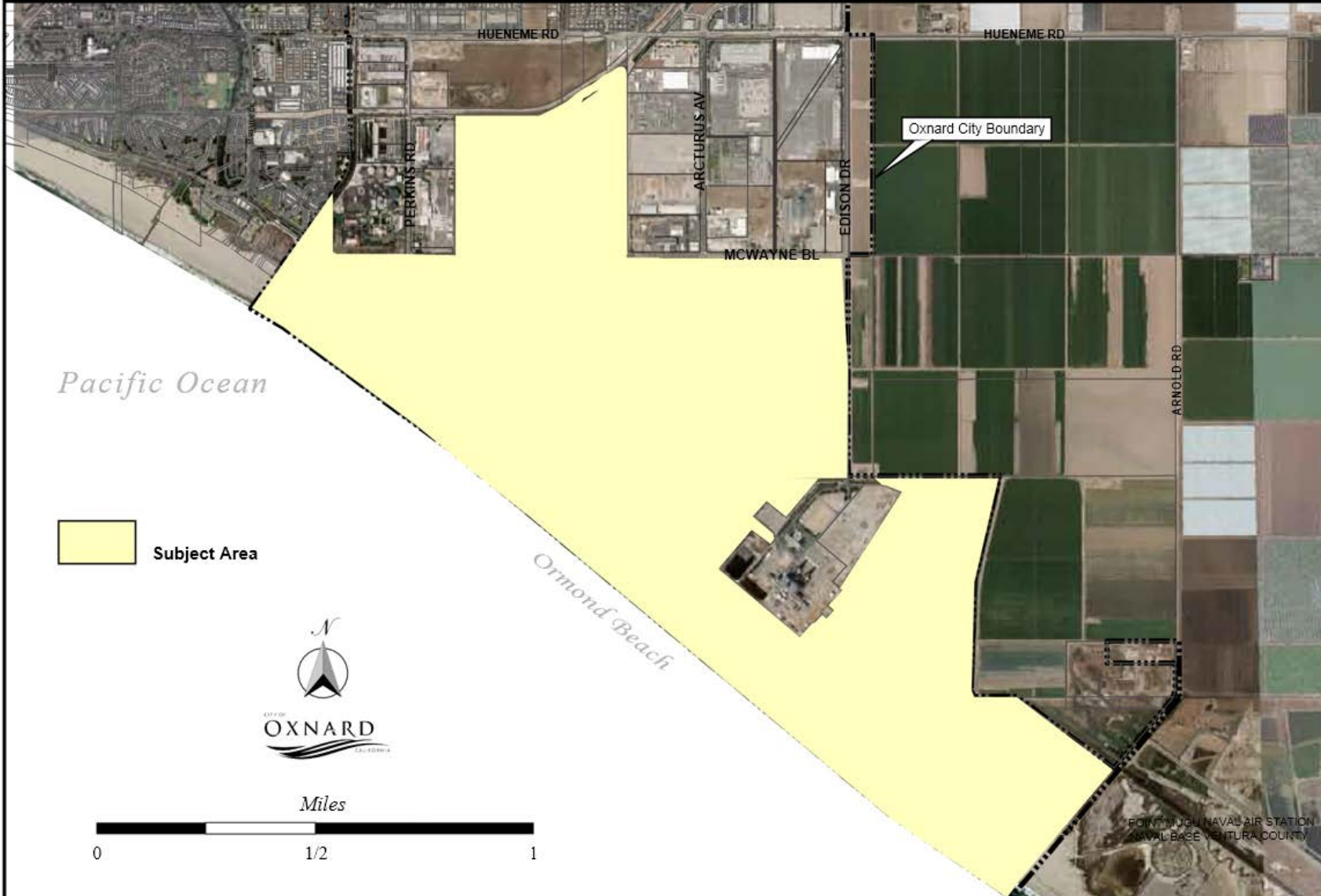
Part 3. If any section, subsection, sentence, clause, phrase, part or portion of this Ordinance is for any reason held to be invalid or unconstitutional by any court of competent jurisdiction, such decision will not affect the validity of the remaining portions of this Ordinance. The City Council declares that it would have adopted this Ordinance and each section, subsection, sentence, clause, phrase, part or portion thereof, irrespective of the fact that any one or more section, subsections, sentences, clauses, phrases, parts or portions be declared invalid or unconstitutional.

Part 4. The City Council determines and finds that this ordinance is exempt from the California Environmental Quality Act under section 15061(b)(3) because the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

Part 5. Pursuant to Government Code Section 36933(c)(1), the City Attorney was designated to prepare, and the City Clerk published, a summary of this ordinance, and a certified copy of the ordinance was posted in the Office of the City Clerk a minimum of five days before the City Council’s adoption of the ordinance.

Part 6. The City Clerk shall certify as to the adoption of this ordinance and shall cause the summary thereof to be published within fifteen calendar (15) days of the adoption and shall post a certified copy of this ordinance, including the vote for and against the same, in the office of the City Clerk, in accordance with Government Code Section 36933. Ordinance No. 2906 was first read on May 17, 2016, and finally adopted on June 7, 2016, to become effective thirty days thereafter.

EXHIBIT A



Appendix F: Comment Letter, Agromin EIR Scoping Meeting



November 15, 2016

Attn: Jennifer Welch
County of Ventura
Residential Permit Section
Interim Planning Manager
Planning Division
800 South Victoria Ave. L#1740
Ventura, CA 93009

RE: Agromin Composting and Soil Amendment Facility, Major Modification to Conditional Use Permit (CUP) 5001-1, Case Number PL13-0101.

Dear Ms. Welch:

This letter constitutes the comments of the Ventura Audubon Society, regarding issues that should be addressed in the Environmental Impact Report (EIR) required by the Planning Division for the proposed modification to the Agromin Conditional Use Permit (CUP).

As part of the Mugu wetlands, Ormond Beach is designated a globally Important Bird Area or "Global IBA". As such Ormond Beach is a conservation priority because it provides unique and essential bird habitat on the Pacific Flyway. Among many other species of endangered plants and animals, Ormond Beach offers critical breeding sites for both the federally threatened Western Snowy Plover (*Charadrius nivosus nivosus*) (WSP) and the endangered California Least Tern (*Sterna antillarum browni*) (CLT), as well as rich sources of food for migratory stopovers for many shorebird species. Other endangered birds that nest on Ormond Beach are the Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) and the light-footed clapper rail (*Rallus longirostris levipes*). Ventura Audubon conducts a Shorebird Recovery Program at Ormond Beach and as part of this effort we conduct nest monitoring to track nesting outcomes of WSP and CLT and we have detailed data spanning 2003-2016. We collaborate with land owners as well as federal and state agencies to protect nesting areas from disturbance and strive to improve the nesting success of both species.

We have reviewed the PL13-0101 Initial Study and believe it accurately describes the risks presented by gulls and corvids in the "Predatory Bird Issues"

section. The operations at Agromin attract scavenger birds, in particular gulls, that congregate in flocks near the Agromin facility. We concur with the Initial Study that deterrents proposed in the Applicant's Predatory Bird Management Plan (PBMP) may in fact increase impacts to nesting WSP in the salt pan. The Applicant's PBMP also failed to recognize that predator exclosures are used on nests, due to the efforts and expense of the Audubon Shorebird Recovery program; so, nests that have successfully hatched in area near Agromin property have done so due to Audubon's efforts, not due to a lack of predators. Furthermore, chicks that hatch in the salt pan area are unable to reach the distant dunes due to high vegetation and are unable to move away from large flocks of gulls or corvids attracted to the area during the 4 weeks it takes them to mature to an age when they can fly to a safer area. Chick mortality is a major concern and difficult to track without a banding program or daily monitoring. Trail cameras proposed in the PBMP would be of limited value.

We also agree with the Initial Study that impacts of other predators such as rodents, squirrels and coyotes need to be addressed. Again, the Applicant proposes to control predators on site and does not account for predators attracted to the area by operations, and then moving to adjacent areas and impacting sensitive nesting birds.

The EIR should also address impacts to nesting light-footed clapper rail (federally listed as endangered) and Belding's savannah sparrow (state-listed endangered) due to Agromin activities. These species also nest near the Agromin CUP boundary so rodent predation is a concern, but no mitigation is outlined.

The Initial Study sites nesting data from the year 2015. We have two additional years of data since then that show WSP continue to nest in the salt pan area adjacent to the CUP area. Our program also tracks chick survival to the extent possible. Our 2015 report is available and the 2016 year-end report will soon be released. We would be happy to share any of this information with the County.

Thank you for the opportunity to comment on this matter. Please do not hesitate to contact me at (805) 795-4115 if you have any questions.

Sincerely,



Cynthia Hartley
Vice President
Biologist/Shorebird Recovery Coordinator
Ventura Audubon Society
Federal Recovery Permit
#TE-181713-1

References

- Colwell, M. a., McAllister, S. E., Millett, C. B., Transou, A. N., Mullin, S. M., Nelson, Z. J., ... LeValley, R. R. (2007). Philopatry and Natal Dispersal of the Western Snowy Plover. *The Wilson Journal of Ornithology*, 119(3), 378–385. doi:10.1676/06-038.1
- Colwell, M., Hurley, S., Hall, J., & Dinsmore, S. (2007). Age-related survival and behavior of Snowy Plover chicks. *The Condor*, 109(3), 638–647. doi:10.1650/8236.1
- Dugan, J., Page, H., & Hubbard, D. (2009). A Potential Restoration Approach for Sandy Beaches Impacted by Oil Spill and Cleanup Activities. Final Report produced for the California Department of Fish and Game, Office of Spill Prevention and Response.
- Ellis, K. S., Cavitt, J. F., & Larsen, R. T. (n.d.) Nest Survival at Great Salt Lake , Utah Factors Influencing Snowy Plover (*Charadrius nivosus*) Utah, 38(1), 58–67.
- Federal Register. (1993). Determination of Threatened Status for the Coast Population of the Western Snowy Plover. Vol. 58, No. 42, pp. 12864-12874.
- 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.
- Fox-Fernandez, N., J. Kendrick, C. Wingert, and D. Vander Pluym. (2013). Western Snowy Plover (*Charadrius alexandrinus nivosus*) and California Least Tern (*Sternula antillarum browni*) Final Nesting Season Report for Ormond Beach, Ventura County, California. Prepared for Natural Resources Agency of the California Department of Fish and Game Wildlife Branch, Ventura, CA.
- 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). Sacramento, CA. 6 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.

- Lafferty, K., Goodman, D., & Sandoval, C. (2006). Restoration of Breeding by Snowy Plovers Following Protection from Disturbance. *Biodiversity & Conservation*, 15(7), 2217–2230.
<http://doi.org/10.1007/s10531-004-7180-5>
- Mabee, T.J., G.W. (1997). Using Eggshell Evidence to Determine Nest Fate of Shorebirds. *Wilson Bull.* 109(2) 307-313.
- 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. (2009). California Least Tern Breeding Survey, Ormond Beach, Ventura County 2009 Season. Prepared for the State of California Resources Agency of the Department of Fish and Game Wildlife Branch, San Diego, CA.
- U.S. Fish and Wildlife Service (USFWS). (1985. Revised Recovery Plan for the California Least Tern (*Sterna antillarum brownii*), original approval April 2, 1980. USFWS, Portland, Oregon. September 27.
- Webber, A. F., Heath, J. a., & Fischer, R. a. (2013). Human disturbance and stage-specific habitat requirements influence snowy plover site occupancy during the breeding season. *Ecology and Evolution*, 3(4), 853–863. doi:10.1002/ece3.511
- Wilson, C. a, & Colwell, M. a. (2010). Movements and fledging success of Snowy Plover (*Charadrius alexandrinus*) chicks movements and fledging success of Snowy Plover (*Charadrius alexandrinus*) chicks. *Waterbirds*, 33(3), 331–340. doi:10.1675/063.033.0309
- 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.