

CALIFORNIA DEPARTMENT OF FISH AND GAME
SUMMARY OF THE CALIFORNIA LEAST TERN
SEASONS FOR 1979-83 (5 YEARS)

Introduction

In each of the five field seasons summarized herein, the California Department of Fish and Game (DFG) contracted with field biologists to conduct a survey of breeding colonies and a census of the California Least Tern (CLT). The contractors were required to identify management and protection needs of colonies before the arrival of breeding CLT in April; assist in posting, fencing, and enhancing known nesting sites; monitor the arrival, presence, and departure of colonies; identify emergency management and protection needs during the nesting season, and implement measures; conduct censuses of each colony to determine number of breeding adults, nests, and fledged young; participate in banding of chicks; and prepare a status report on each colony.

1979

This was the seventh year of an annual survey of CLT breeding colonies and a census of the population. An estimated 850 nesting pairs of the CLT used 30 colonies from San Diego County to Santa Barbara County. At least 650 fledglings were produced. No DFG study was conducted in the San Francisco Bay area. Those colonies with at least 50 pairs of breeding birds were Lindbergh Field (108 pairs), FAA Island (100), Huntington State Beach (80), Venice Beach (80), North Island (62), and San Gabriel River (50). All others had fewer than 40 pairs.

In San Diego County, a minimum 456 pairs of nesting CLT were observed. A minimum 264 young were fledged. Sixteen colonies were used, a net increase of one from 1978. The largest colonies were those at Lindbergh Field, FAA Island, and North Island. Only three colonies failed to fledge any young at all. One of these, the Whispering Palms Sewage Plant, was in an odd location, being five miles inland, and had only a single nest. Predation was a major factor in the lack of notable success of the CLT in San Diego County. Chicks were lost to unknown causes at six colonies at least. Potential predators such as the Western Gull, Common Raven, Loggerhead Shrike, American Kestrel, Red-shouldered Hawk, Burrowing Owl, Raccoon, and Domestic Cat were observed at or near one or more of these colonies, and it is suspected that CLT chicks were lost to some of these animals. At other colonies, human disturbance in the form of off-road vehicles (ORV's), walking of dogs, dumping of dredge spoil, driving of military vehicles, and riding of bicycles and motorcycles contributed to low CLT colony success. In at least four colonies, high tides flooded all or a portion of the nesting sites. Predator control and fencing was done at eight sites, but the fences were vandalized at several colonies. At least eight CLT chicks were trapped in tar at Lindbergh Field.

In Orange County, the CLT nested at five sites. A minimum 126 pairs fledged 96 young. The largest colony was at Huntington State Beach. CLT nested for the first time on NASA Island at Seal Beach Naval Weapons Center in Anaheim Bay. Unfortunately, this colony was abandoned before any chicks were observed, possibly due to predation. Two different sites at Bolsa Chica were used. Unknown predators, possibly including the Red Fox, as well as an observed American Kestrel, affected these sites. At Upper Newport Bay, predation on CLT eggs by California Ground Squirrels and on CLT adults by Burrowing Owls was noted. No particular human disturbances were noted at any Orange County sites.

In Los Angeles County, three CLT colonies were in existence. All enjoyed good nesting success. The largest was the Venice Beach site. Some predation by a Striped Skunk occurred at San Gabriel River.

The CLT used six sites in Ventura and Santa Barbara counties. The largest colony was at Purisima Point-South (a minimum 25 pairs). All colonies enjoyed moderate or good nesting success, except at Mugu Lagoon. It was believed that Red Fox predation caused abandonment at Mugu. ORV activity destroyed nests at Santa Maria River and Ormond Beach.

1980

Thirty-six colonies were known to be used by the CLT from San Diego County north to Alameda County. A minimum 900 breeding pairs produced a minimum 745 fledglings. The largest colonies were at Venice Beach (150 pairs), FAA Island (120), North Island (98), Lindbergh Field (71), and Huntington State Beach (70).

In San Diego County, a minimum 530 pairs produced a minimum 350 fledglings at 17 colonies. The largest colony was at FAA Island, which produced at least 200 fledglings. Three colonies fledged no young. The "D" Street colony failed because of human disturbance, which also probably caused the colony abandonment at Lindbergh Field. Avian predation on CLT eggs or young was apparent at both Santa Margarita River sites, as well as at North Island and the Saltworks. Mammalian predators were implicated at North Island and at Agua Hedionda. CLT nests were flooded at four colonies.

In Orange County, the CLT nested at six sites. The largest was Huntington State Beach, which produced 85 fledglings. Some nest predation late in the season was probably caused by Common Crows or cats. NASA Island in Anaheim Bay was used for the second year. Thirty-nine mammals of four species were removed from the vicinity of NASA Island. The Bolsa Chica-South colony was abandoned, possibly due to mammalian predator activity. Few birds nested at Upper Newport Bay. A new site, designated Surfside, had but 2 pairs.

In Los Angeles County, the CLT used four sites. Only two of these, Venice Beach and Los Cerritos Lagoon, produced fledged young. Flooding destroyed the colony at Playa del Rey, and a cat probably forced the abandonment of the San Gabriel River site. Although there was some loss of chicks to a dog at the Venice Beach colony, this site produced a minimum 240 fledglings. The Los Cerritos site was used for the first time by CLT. Only six fledglings were produced there, probably because of continuing human disturbance and a mammalian predator.

Ventura, Santa Barbara, and San Luis Obispo counties had six CLT colonies. A new colony was at Oso Flaco Lake in San Luis Obispo County. Although ORV activity was heavy at times in the dunes around this site, no major disturbance of CLT nesting was noted. The largest colony was at Purisima Point-South, with a minimum 25 pairs fledging at least 18 young. No particular predation problems were noted at colonies other than Mugu Lagoon, at which Red Fox activity caused an almost complete CLT nesting failure. No birds nested at Ormond Beach.

In Alameda County, the Alameda Naval Air Station had at least 77 breeding pairs during the height of the season. However, only an estimated eight fledglings left this colony. Regular predation by American Kestrels may have caused the ultimate abandonment of the colony. Some adult CLT may have re-nested at Bair Island in San Mateo County. At Coyote Hills Regional Park in Alameda County, twelve pairs fledged at least three young. This site had not been used in previous years. Regular human activity along a levee next to this colony kept adult birds away from nests for extended periods, which may have reduced nest success.

At Bair Island, 38 pairs of the CLT fledged at least 13 young.

1981

Thirty nesting colonies of the CLT and a minimum 975 breeding pairs were located from San Diego County north to Alameda County. A minimum 826 fledglings were produced. Predation, human disturbance, and flooding continued to be major factors depressing fledging success. The largest sites were Venice Beach (140 pairs), Huntington Beach (105), Chula Vista Wildlife Reserve (95), North Island (61), and Bolsa Chica (North and South) (50).

In San Diego County, only 427 pairs of CLT were found. Two new sites were used, but seven sites inhabited in the previous three years were not used. Five sites suffered from significant predation. The largest colony was Chula Vista Wildlife Reserve. A Western Meadowlark was observed preying on CLT eggs at Santa Margarita-North. CLT were found shot at FAA Island and at Dairy Mart Ponds. Intense and prolonged hot weather may have contributed to nest abandonment and chick mortality. Some would-be scientist marked nests and moved eggs among nests at Batiquitos Lagoon. A new site at Encinitas in a vacant lot away from the coast had nine pairs of CLT and fledged at least six young. No birds nested at Lindbergh Field, probably due to the oiling of the oval nesting areas. This had been one of the largest colonies in the county in previous years.

In Orange County, three colonies (with Bolsa Chica North and South counted as one) with a minimum 195 nesting pairs fledged at least 208 young. The largest colony was Huntington Beach. Little predation occurred at this site, but a group of crows pursued young terns on one occasion late in the season. Avian predators, including at least one American Kestrel, took a number of chicks at Bolsa Chica. At NASA Island on Anaheim Bay, eggs were lost to an unknown predator and a Loggerhead Shrike took at least one chick. No birds nested at Upper Newport Bay.

Five colonies existed in Los Angeles County. The largest, as usual, was Venice Beach. No birds were fledged at Los Cerritos or Playa del Rey, due to high predation. New colonies were at Costa del Sol and Terminal Island (although CLT had nested at the latter site in 1977). At Costa del Sol, two nests were flooded by a water truck and a nest was run over by a motorcycle. Other nests persisted, despite adjacent construction activities which involved heavy earth-moving equipment and dust-laden air. Finally, a fence was built around the colony. At Terminal Island, at least three different nesting areas were apparent. The Reeves Field area was abandoned after kestrel predation.

In Ventura and Santa Barbara counties, CLT used four colonies. The largest colony was Purisima Point-South, with an estimated 30 pairs and 12 fledged young. The Santa Clara River colony was more successful, with 25 pairs and 25 fledged young. No birds nested at Point Mugu (formerly called Mugu Lagoon) or Ormand Beach, nor at Oso Flaco Lake in San Luis Obispo County. At Point Mugu, the U.S. Navy had installed an electric fence to protect CLT from Red Fox predation. The fence did not operate properly at all times, but it appeared to keep foxes away. However, CLT showed no interest in nesting. ORV's constantly used Ormand Beach. Abnormally hot weather probably killed chicks at Purisima Point-South and at Santa Maria River.

At Alameda Naval Air Station in Alameda County, a minimum 70 pairs produced at least 103 fledged young. The use of shelters probably reduced loss of chicks from exposure, and an electric fence kept cats out. At least four fledglings were killed by aircraft. Kestrel trapping and removal was initiated before CLT arrived, which reduced predation on chicks. No CLT nested at Coyote Hills.

At Bair Island in San Mateo County, a minimum 17 pairs fledged an estimated 29 young. No predation was observed in this colony. CLT joined with birds from the nearby Caspian Tern colony to mob gulls, harriers, and human observers.

1982

The breeding population of CLT was estimated to contain a minimum 1,015 pairs at 32 sites. A minimum 469 fledglings were produced, which is a smaller number than in any of the previous three years. It was speculated that a food shortage could have been a problem, but no conclusive evidence exists. Predation, disturbance by humans, and flooding were major identified problems.

In San Diego County, a minimum 418 pairs of CLT produced at least 204 young. The largest of 15 colonies were at Santa Margarita River-North (100 pairs), Chula Vista Wildlife Reserve (78), North Island (65), and North Fiesta Island (55). Birds attempted to nest at FAA Island for about a month, but nightly egg taking by Western Gulls resulted in colony abandonment. Several factors such as late spring arrival of CLT, late nesting, more single egg nests, and more chicks dead for unknown reasons, suggested that food shortages might have depressed nesting success. Predator control was conducted at the three largest colonies. At least 12 colonies were affected by predators such as the Red-tailed Hawk, Western Gull, American Kestrel, Loggerhead Shrike, Burrowing Owl, and Domestic Cat. Human disturbance was evident at Batiquitos Lagoon and Borderfield State Park.

Orange County had four colonies, with a minimum 180 pairs of CLT fledging 127 young. The largest colonies were Huntington Beach (85 pairs) and Bolsa Chica-North (70). No nesting occurred at Upper Newport Bay. A shortage of food, or interruption in the food supply, early in the season may have caused the lower mean clutch sizes and increased number of abandoned egg clutches in both Orange and Los Angeles counties. A high level of avian predation on the Huntington Beach colony was probably caused by shrikes, kestrels, crows, and gulls. At NASA Island, at least 16 nests were destroyed by a mammal, probably a skunk.

In Los Angeles County, three colonies produced 77 fledged young from a minimum 228 pairs. Venice Beach had 150 pairs and Terminal Island had 60 pairs. The latter site was a new dredge-spoil, which did not exist in 1981. A single kestrel had the potential to decimate the Venice Beach colony, until it disappeared after taking an estimated 100 CLT chicks.

Six colonies were present in Ventura and Santa Barbara counties. No known nesting occurred at Oso Flaco Lake in San Luis Obispo County, although territorial birds were present. The largest colonies were Santa Clara River and Purisima Point (formerly called Purisima Point-South), with 17 and 15 pairs respectively. CLT used the Point Mugu and Ormand Beach sites this year, with 12 and 7 pairs respectively. The electric fence at Point Mugu did not work well again, and Red Foxes were able to enter the colony. No young were fledged from this colony. ORV's at Ormand Beach continually travelled through the colony, and no young were produced. ORV's destroyed nests at Guadalupe Dunes (formerly called Santa Maria River), and predation was suspected but not documented.

In Alameda County, a minimum 70 pairs nested at the Alameda Naval Air Station. However, no chicks survived to fledge, due to initial American Kestrel predation and later cat predation. The cat was able to gain entry to the colony when the electric fence failed to hold its charge. CLT responded to the predation by abandoning the colony. As many as 31 pairs may have renested at Bair Island in San Mateo County. At least 6 pairs of CLT, possibly including renesters from the naval air station, nested at Oakland Airport in Alameda County. Nesting had not occurred at the airport for some years. At least 10 chicks successfully fledged. Seven skunks and two cats were trapped and removed from the airport during the nesting period.

At Bair Island, at least 50 pairs of CLT were present, making the colony the largest ever recorded at the site.

1983

A minimum 1,196 pairs at 32 sites produced at least 887 fledged young. This latter number is almost twice the number of young produced in 1982. Colonies were distributed from San Diego County north to Contra Costa County. The largest colonies were Venice Beach (a minimum 140 pairs), Santa Margarita-North (134), Bolsa Chica-North (110), Santa Margarita-South (93), Huntington State Beach (85), FAA Island (80), Terminal Island (75), Chula Vista Wildlife Reserve (75), North Fiesta Island (65), North Island (60), Borderfield (60), and Oakland Airport (56). Despite the encouraging increase in the number of breeding pairs and the greatly increased production of young, several colonies were seriously affected by predators.

In San Diego County, a minimum 565 pairs of CLT fledged at least 274 young. The largest of 13 colonies were Santa Margarita-North, Santa Margarita-South, FAA Island, Chula Vista Wildlife Reserve, North Fiesta Island, North Island, and Borderfield. The North Fiesta Island nesting effort failed completely, due to avian predation and to many chicks being killed by ants. Most of the adult CLT which abandoned this site renested at FAA Island. Less human disturbance was anticipated at FAA Island, since the aviation monitoring equipment has been automated. A few CLT nested at the Encinitas vacant lot site used previously in 1981. This site is well away from the coast, not in sight of water, and is subject to ORV and human pedestrian traffic. The Chula Vista Wildlife Reserve had the potential for a good production of young, but predation by Burrowing Owls and automobile traffic resulted in only 8-10 young being fledged. No CLT nested at the Saltworks or Los Penasquitos Lagoon. The three Camp Pendleton colonies (Aliso Creek and the two Santa Margarita River sites) fledged 190 young from a minimum 237 pairs.

In Orange County, five colonies had a minimum 233 pairs of CLT. An estimated 109 young were fledged. The largest colonies were Bolsa Chica-North and Huntington State Beach. A few birds nested at Upper Newport Bay, the first attempt since 1980. Low fledgling counts at Huntington were indirect evidence of heavy avian predation. There also was a high level of nest abandonment. Kestrels took many chicks at Bolsa Chica-North. Three kestrels were trapped and removed. A rattlesnake found under a shelter tile at Bolsa Chica had eaten at least one CLT chick. Only four pairs of CLT nested at Anaheim Bay.

Los Angeles County had three colonies, the two largest of which were Venice Beach and Terminal Island. The 1982 nesting area at Terminal Island did not exist in 1983. Birds used the Reeves Field and Ferry Street areas. The Venice Beach colony, the largest in the state in terms of nesting pairs, suffered from excessive predation by cats. An estimated 75 chicks were taken.

Ventura and Santa Barbara counties had seven colonies of CLT. The Santa Ynez River site, located on a river bar one-half mile upstream from the mouth, was a new colony. The largest colony in the two counties was Point Mugu, with 22 pairs fledging 15 young. CLT used a new area at Mugu, preferring a sandspit east of the estuary opening. At Ormand Beach, City of Oxnard police began keeping ORV's from the beach after early June. The Santa Clara River site was virtually abandoned in late June. No cause was determined.

In Alameda County, the Alameda Naval Air Station colony had a disappointing season. It was believed that most adult CLT preferred the Oakland Airport site. Very little courtship occurred at the naval air station. One young was fledged from three pairs. At Oakland, even though at least 56 pairs nested, only 6-9 young fledged. It was suspected that mammalian predators took many chicks.

At Bair Island in San Mateo County, an estimated 22 pairs fledged no known young. Chicks disappeared from the colony, but no evidence of predation was found.

A new nesting area was found at Port Chicago near Suisun Bay in Contra Costa County. This was the northernmost nesting site of the CLT. The colony consisted of 5-6 pairs. The colony probably also existed in 1982. After the 1983 season, it was learned that CLT probably nested during the season at the Pacific Gas and Electric plant near Pittsburg, a few miles east of the Port Chicago site.

Summary

In the five seasons described herein, some trends in the CLT population were apparent. The number of nesting pairs steadily grew from 850 in 1979 to 1,196 in 1983. With the exception of 1982, in which a food shortage was suspected, the minimum number of fledged young steadily grew from 650 in 1979 to 887 in 1983. The number of colonies remained fairly constant at around 32. No more than three colonies in any year had more than 100 pairs. Only Venice Beach and Huntington State Beach were consistently attracting breeding birds and producing fledglings in relatively large numbers, although Santa Margarita-North and Terminal Island had the potential as good sites. Predation was the major problem in most San Diego County colonies, and was a significant problem in all large and moderate-sized colonies throughout the breeding range of the CLT. The major predators were American Kestrels, Burrowing Owls, Loggerhead Shrikes, Red Foxes, and Domestic Cats. Protection of colonies from human activities such as ORV use was a continual activity in each season.

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