

State of California
THE RESOURCES AGENCY
Department of Fish and Game

CALIFORNIA LEAST TERN BANDING PROJECT, 1977^{1/}

by

Dorothy D. Rypka

ABSTRACT

California least tern (*Sterna albifrons browni*) chicks were banded in breeding colonies in California in 1977 as part of ongoing, annual banding studies on this endangered bird. Banders entered colonies late in the breeding season and marked pre-flying stage chicks with standard, numbered leg bands and with leg band color-markings. From June 2 to August 8, 1977, 297 chicks were banded at 12 colony sites from Santa Barbara County to San Diego County, bringing to 1,222 the total number of least terns banded in California since 1954. Sightings of marked, flying young away from their nest sites during the remainder of the nesting season yielded information on post-nesting dispersal and feeding areas. Band number data were recorded for three birds banded in 1976, and 1 bird banded in 1971. Sightings were made of other least terns banded in previous years.

^{1/} Nongame Wildlife Investigations Job Final Report, Project E-1-1, Job V-2.12 (January, 1978).

RECOMMENDATIONS

Based on this study, the Department recommends that:

1. Banding and color-marking of least tern chicks continue annually in order to provide information regarding the birds' habits and habitat requirements.
2. Only plastic colored bands be used to mark chicks because numbers on accompanying metal bands can be successfully read in the field by means of a telescope and should not be covered by colored tape. U. S. Fish and Wildlife Service numbered metal bands should be placed on a chick's leg right side up so that band numbers can be more easily read with a telescope.
3. Only colors other than white be used for bands as it is almost impossible to see a white band on a tern chick.
4. A full-time person begin working as early in the season as possible to complete the intended censusing/banding details so that a uniform procedure can be followed throughout the entire breeding season.

INTRODUCTION

The California least tern (*Sterna albifrons browni*) banding project, an integral part of the fifth annual California least tern breeding census (Atwood et al., 1977), was conducted under the supervision of the California Least Tern Recovery Team, through use of Endangered Species Banding Permit PRT 8-201-B-C issued to Dr. Charles T. Collins. In 1977, banding of chicks was separated from the actual censusing of the colonies, allowing for greater and more effective coverage by both census-takers and banders.

Banding and color-marking is part of the continuing effort to obtain basic information regarding the breeding biology and pre-and post-breeding movements of the least tern. Data obtained through this program aid in the effective management and continued protection of the subspecies.

Between 1954 and 1972, 508 least terns were banded in California (Massey, 1973; Collins, pers. comm.). From 1973 to 1976, 417 least terns were banded (Table 1).

PURPOSE

The need for specific information regarding the least tern's breeding requirements and its inter-colony movements is intensified as the birds' nesting habitat is reduced in the face of increasing pressure from an ever-burgeoning urban society. The purposes of the banding project are long-range. Besides answering fundamental questions about life history and determining local post-breeding movements of the current year's hatch, banding will eventually supply documentation of inter-colony pre- and post-breeding movements by adults.

METHODS

Chicks were banded between June 2 and August 8, 1977. Banding was done only at those colonies that were relatively stable and where reasonable numbers of birds could be banded.

All the colonies in the Los Angeles region were visited. Banding was not attempted at Venice Beach (Los Angeles County), because of its nearness to the public and to its very precarious location, nor at San Gabriel River (Los Angeles County), due to a continued disturbance that was probably animal-related. The Upper Newport Bay colony (Orange County) was apparently a re-nesting attempt by birds from the San Gabriel site; no attempt at banding was made there. The Santa Margarita River site (San Diego County) was visited three times between June 2 and June 24 only.

In the San Diego area, the only colonies not visited at some point during the nesting season were North Island (Mission Bay) where Paul Jorgensen reported a predation problem and recommended that the colony be disturbed as little as possible, and the San Diego International Airport colony where, because of the necessity of being accompanied by airport personnel, insufficient time would have been available to band any significant number of birds.

Table 1. Least Tern Bandings 1973-1976^{1/}

COLONY SITE	1973 ^{2/}	1974	1975	1976 ^{3/}
<u>Ventura Co.</u>				
Mugu Lagoon			5	
<u>Los Angeles Co.</u>				
Terminal Island			5	44 (15-yellow) (+1 adult)
San Gabriel River	7	35	11	59 (34-black)
<u>Orange Co.</u>				
Huntington Harbor	29 (19-black)			
Huntington Beach State Park	4 (4-white)			
<u>San Diego Co.</u>				
Santa Margarita River	50 (22-yellow)	9		
Batiquitos Lagoon				7
San Elijo Lagoon				5
Los Penasquitos Lagoon				12
Mission Bay	2 (1-dk. green)			29
San Diego Int'l Airport				28
Sweetwater River				12
South San Diego Bay Saltworks				61
Tijuana River Estuary				2
TOTALS	92 (46 color-marked)	44	21	259 (+1 adult) (49 color-marked)

1/ Unless otherwise indicated, all birds were banded as pre-flying stage chicks.

2/ Metal bands placed on left leg of all chicks banded. Colors in parentheses indicate color of band placed on right leg.

3/ Colors indicate color of band placed on chick. Location unknown.

Banders involved: 1973, K. Bender; 1974, C. Collins, B. Massey;
1975, B. Massey; 1976, B. Massey, E. Copper.

Chicks were banded on one leg with a U. S. Fish and Wildlife Service (USFWS) numbered metal band. Color-marking was employed to identify the colony of origin. The following two methods were used to color-mark the birds: a colored plastic band was placed on the leg opposite the metal band, or colored tape was wrapped over the metal band.

RESULTS

Two hundred and ninety-seven least tern chicks were banded at 12 colony sites (Table 2).

Banded, fledged young were seen at several sites. As in previous years, Harbor Lake (Los Angeles County) was a major post-breeding gathering area for the Terminal Island birds (Los Angeles County). On August 14, 1977, thirteen color-banded immatures were seen at Harbor Lake, where their habit of roosting on a boathouse roof and float made observations quite easy.

Immature birds color-marked with yellow at Terminal Island were also seen at other sites. One immature was seen at the San Gabriel River colony site. At least two other color-banded immatures were seen at Bolsa Chica (Orange County) on August 1, and at least one immature was seen at Venice Beach. Yellow color-marked birds were seen at both Venice Beach and Bolsa Chica on other occasions.

An immature bird banded at Ormond Beach (Ventura County) was seen at Mugu Lagoon on July 28 (J. Atwood, pers. comm.).

Because of the limited number of birds color-marked in the San Diego area, the possibility of finding fledged color-marked birds was somewhat limited. The only color-banded birds seen away from nesting sites were up to four young from the FAA colony (Mission Bay) seen in the Flood Control Channel of the San Diego River in the first two weeks of August.

Several birds banded in previous years were observed. Band numbers from three first-year birds (banded in 1976) were obtained at Harbor Lake by Jon Atwood, by painstaking reading of the numbers on the metal bands with a telescope. These individuals had been banded at Santa Margarita River, San Gabriel River and Terminal Island. The records indicate that the bird banded at San Gabriel River had originally been color-banded; subsequently the plastic band had been lost as it was not present at the time the band number was read.

Another first-year bird seen at Venice Beach still carried a black plastic color band as well as its USFWS metal band, indicating its having been hatched at the San Gabriel River site in 1976. A fifth first-year bird, originally banded at San Gabriel River, was seen and the band number read at Bolsa Chica. It also had lost a plastic colored band subsequent to leaving the nesting colony. Details on these returns will be published elsewhere.

One adult was recaptured at Terminal Island on June 8, 1977. It had been originally banded as a chick in June, 1971, at Sunset Aquatic Park, a site not used for nesting by the terns for several years. Another banded adult was seen feeding chicks at the Huntington Beach State site; however, the substrate there is fine, loose sand arranged in small hillocks, which sufficiently obscured the band and prevented the reading of the band number.

Table 2. Summary of Least Tern Banding, 1977

COLONY SITE	Number Banded With USFWS Band	Number Color-Banded	Color
Santa Maria River (1 visit- 8-08-77)	3 (left leg)	3	Red tape
Ormond Beach (1 visit-7-08-77)	3		
Mugu Lagoon (2 visits-7-18-77 & 8-08-77)	4 (3 left leg) (1 right leg)	2 (1 left leg) (1 right leg)	Green tape
Terminal Island (12 visits-6-08 to 8-03-77)	113 (87 right leg) (12 left leg)	90 (85-tape) (5-bands)	Yellow tape and bands
Huntington Beach State Park (4 visits-7-06 to 8-02-77)	35 (left leg)	24	Red bands
Santa Margarita River (3 visits- 6-02 to 6-24-77)	5 (left leg)	3	Green tape
Batiquitos Lagoon (1 visit-6-29-77)	4		
U. S. Naval Training Center (1 visit- 7-05-77)	3		
Mission Bay: FAA Island (2 visits- 6-21 & 7-07-77)	73 (left leg)	26	Green bands
Sweetwater River (2 visits-7-06 & 7-21-77)	6		
South San Diego Bay Saltworks (3 visits-6-17 to 7-06-77)	40 (left leg)	14	White bands
Tijuana River Estuary (2 visits- 6-29 & 7-12-77)	8		
TOTALS	297	162 (54.5% of total were color-marked)	

On May 12, 1977, two banded birds were seen in the roosting flock at Belmont Shore beach, Long Beach; neither was color-banded. Because of the loose sand substrate and the birds' habit of coming in just at dusk and leaving at dawn when visibility is limited, band number information was impossible to obtain.

DISCUSSION

The basic life history information obtained this year graphically demonstrated that banding in conjunction with color-marking is vital to the continuing effort to provide effective protection for the least tern.

Information acquired this year from sightings of birds banded in previous years has proved to be extremely important. The data document the inter-colony movements not only of first-year birds but of at least one older adult. Although movements of first-year birds between colonies are apparently random and may have no effect on site specificity, the adult trapped at Terminal Island suggests that if one site is unsuitable for nesting, the birds are flexible enough to move to another area. This is further suggested by the report in 1976 of an incubating female trapped at Terminal Island; this individual had been banded as a nestling at Huntington Harbor in Orange County in 1973 (Jurek, 1976).

Knowledge of post-breeding movements was also increased this year through banding. Movement of the Terminal Island birds to Harbor Lake is now well documented; it is interesting to note that these birds apparently do not roost at Harbor Lake overnight (J. Atwood, pers. comm.). The large number of birds color-marked at Terminal Island made the documentation of their movements quite easy. Newly fledged chicks from this colony were seen at locations both north and south of the nesting colony, indicating extensive post-breeding movement.

There are advantages and disadvantages to both color-mark methods used in this study. The plastic bands, unless closed around the chick's leg with acetone, are loose and may come off. Experience in 1976 has shown that some bands (yellow) will not fuse close even though acetone is applied. The Scotch Brand plastic tape that was wrapped around the metal band was easily applied and could be readily seen. The durability of either color-marking method is unknown. Of all the birds color-banded in previous years, only one returning bird has been subsequently encountered still wearing the plastic color-band. It is also doubtful that the tape will remain on the metal bands until the birds return next year. However, since very positive results were obtained this year by reading the numbers on USFWS bands, it is recommended that only plastic color-bands be used until some method can be devised which will result in greater reliability of color markings.

ACKNOWLEDGMENTS

Many people assisted in this project. I am especially grateful to Elizabeth Copper who banded at the San Diego colonies and provided the data for those sites. Others who helped and/or contributed observations from other areas were as follows:

Ventura County: Jon Atwood.

Los Angeles County: Jon Atwood, Charles Collins, Doug Hay, Barbara Massey, Julie Nagata.

Orange County: Jon Atwood, Kristen Bender, Barbara Massey, Tom Miller.

San Diego County: Paul Jorgensen, George McCleary.

LITERATURE CITED

- Atwood, J. L., P. D. Jorgensen, R. M. Jurek, T. D. Manolis. 1977. California least tern census and nesting survey, 1977. Calif. Dept. of Fish & Game, Nongame Wildl. Investigations, Job Final Report, Project E-1-1, Job V-2.11, 6 pp. plus appendices.
- Jurek, R. M. (ed.) 1976. California least tern census and nesting survey, 1976. Calif. Least Tern Recovery Team, 5 pp. plus append.
- Massey, B. W. 1973. Recoveries of California least terns. Western Bird Bander, 48(3):46-47.