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United States Department of the Interior  
Fish and Wildlife Service  
Region 1

CALIFORNIA LEAST TERN  
CENSUS AND NESTING SURVEY, 1975<sup>1/</sup>

by

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ABSTRACT

Approximately 600 pairs of least terns nested in California in 1975. Eighteen nesting sites were found; three of these were not known from previous years. The season was extremely long, starting earlier and ending later than has been previously recorded. Overall success was high, as judged by numbers of fledglings.

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## RECOMMENDATIONS

Based on the survey herein reported, it is recommended that:

- 1) Nesting surveys be continued over a 10-year period. Survey work should be conducted by two biologists, one based in the San Diego area to check colonies in San Diego County, the other in the Los Angeles area to check colonies from San Francisco Bay to Orange County. Survey period should begin May 15 and be open-ended in case the season is unusually long, as in 1975. Where possible, nesting sites should be checked once a week throughout the season, to keep abreast of problems as they arise and to measure nesting success.
- 2) Special watch over colonies vulnerable to human disturbance, particularly those in the Mission Bay area, be mounted during Memorial Day weekend and Independence Day weekend.
- 3) All known nesting sites be checked by March each year to ascertain management measures needed before the terns arrive on breeding grounds. Arrangements should be made for predator removal where needed. Clearing of vegetation at nest sites should be done between late March and April 10, or as determined by the recovery team.
- 4) Temporary fences be erected or other deterrents employed at sites where needed, and such areas be posted with appropriate signs.
- 5) In planning for development of new nesting sites, Seal Beach National Wildlife Refuge, Bolsa Chica Ecological Reserve, and Buena Vista Lagoon be considered high priority areas.
- 6) Mitigation be arranged for the Terminal Island and San Gabriel River sites, where anticipated land use changes will prevent continued nesting on these construction sites.
- 7) Efforts be continued to document current nesting status of California least terns in Baja California, Mexico, including surveys. Establish communication with Mexican authorities and arrange for protection of breeding colonies in Mexico where needed.
- 8) A program of least tern research, including banding, be outlined, such research to be carried out in conjunction with annual surveys.
- 9) The above recommendations be incorporated in the California Least Tern Recovery Plan.

## INTRODUCTION

The third annual breeding census of the California least tern was part of a continuing program to observe and protect this endangered species. This year the survey was conducted under the auspices of the California Least Tern Recovery Team appointed in 1974 by the U. S. Fish and Wildlife Service.

Our knowledge of the least tern has increased rapidly since the first attempt at a nesting survey in 1970 (Craig 1971). In addition to a basic study of the breeding biology (Massey 1974), there is now a bibliography (Wilbur 1974) and a statewide census for the past two breeding seasons (Bender 1974a, 1974b).

In June 1975 an independent study group traveled down the west coast of Baja California, Mexico, in search of least tern nesting colonies. The search was successful. A nesting colony was found at the estero south of Ensenada, and observations strongly suggest that nesting also occurred at Bahía de San Quintín and in the lagoons around Guerrero Negro. A report has been submitted to the Recovery Team with the recommendation that a more comprehensive survey of Baja California breeding sites be conducted in 1976. It is heartening to know that there is a reservoir of this subspecies in Mexico.

## PURPOSE

The aims of this study were the same as those of 1973 and 1974: To determine as accurately as possible the number of breeding pairs, number of nesting attempts, and general success as measured by the number of fledglings. In addition, the study was undertaken to document problems at nesting sites and to make recommendations for future action to assure the success of the breeding population of least terns in California.

## METHODS

I visited all of the known nesting sites between Playa del Rey in Los Angeles and Border Field State Park south of Imperial Beach in early June. Most sites were visited again in late June, and all in mid-July. Primary purpose of the first visit was to count nesting pairs, and, wherever possible, to make an actual nest count. The second trip was conducted during the renesting period, at which time the success of the first wave of nesting was measured. On the last round, in July, fledglings were counted and breeding success gauged. This last survey was the most difficult task. Counts are best done in early morning or just before dusk, when the fledglings are most likely to be on the nesting grounds. In some places no counts were possible because the birds all left as soon as the young were able to fly. This happened at several Mission Bay colonies.

Two colonies in Los Angeles County were visited many more than three times to keep abreast of the rhythm of the breeding season--to note when the first wave of hatching occurred, when renesting began, when the last eggs were laid,

and when the last chicks fledged. During a three-month period, the San Gabriel River site was visited 30 times, the Terminal Island site 10 times.

At the end of the season, I entered each nesting area, checking for signs of predation, abandoned chicks or eggs, and any other clues that might indicate nesting difficulties during the season.

The colonies north of Mugu Lagoon were not checked by me. Reports at these colonies submitted by various individuals have been incorporated into this document.

## RESULTS

An estimated 600 pairs of least terns nested in California in 1975 at 18 sites, most of them already known from previous years (Table I and Appendix). All Mission Bay colonies are included as one site. Several new sites were documented, two in Ventura County (Point Mugu and the mouth of the Santa Clara River) and one in Los Angeles County (Terminal Island, Los Angeles Harbor). In addition, at San Elijo Lagoon in San Diego County a small colony was found on the salt flats at the east end, marking the first time in several years that nesting has been recorded at this lagoon. In Mission Bay a small group nested successfully for the first time in the overflow parking lot at Sea World.

Nesting began early. The first eggs were laid around May 15 and the first wave of hatching began on June 5. The season also lasted far longer than usual; this may be the longest nesting season documented. At the San Gabriel River and Terminal Island sites, chicks were still hatching in the second week of August. The new colony at Mugu Lagoon started late, and 10 well-developed chicks were in evidence on August 24.

Nesting success, as measured by the number of fledglings, was high. At least five colonies produced fledglings at a ratio greater than one young per nesting pair. Several small colonies, notably Huntington Beach State Park and Agua Hedionda Lagoon, had very poor fledgling success. The San Diego Airport site, a major colony, was plagued by predation.

## DISCUSSION

The total number of nesting pairs was in the same range this year as in 1973 and 1974. The census needs to be done over a 10-year period before a population trend can be firmly established, but it is heartening to know that in the 3-year period of the survey the numbers have been stable. The initial goal of the California Least Tern Recovery Team is to maintain the range and numbers of nesting pairs at the 1973 level.

Fledgling success appeared to be high in 1975. The extremely long season was undoubtedly a factor in this success. When the first eggs are laid so early, there is ample time for renesting if the first brood of chicks is lost. The adults still have enough biological drive to carry through an entire courtship and incubation period. In a late starting season, the eggs of second nestings are often abandoned.

TABLE I  
CALIFORNIA LEAST TERN BREEDING COLONIES  
AND NESTING DATA, 1975

<u>Site</u>	<u>No. Pairs</u>	<u>No. Nests</u>	<u>Estimated Degree of Nesting Success</u>
Alameda County			
Bay Farm Island-Utah Fill	11	11	Unknown
Oakland Airport	3	3	Unknown
San Mateo County			
Bair Island	14	14	Unknown
Ventura County			
Santa Clara River mouth	1	1	Good
Mugu Lagoon	20	20	Unknown
Los Angeles County			
Playa del Rey	17	23	Good
Terminal Island	24	40	Good
San Gabriel River	40	55	Good
Orange County			
Huntington Beach State Park	8	13	Poor
San Diego County			
Santa Margarita River	150	182	Good
Agua Hedionda Lagoon	9	9	Poor
Batiquitos Lagoon	9	9	Good
San Elijo Lagoon	7	7	Unknown
Los Penasquitos Lagoon	10	10	Good
Mission Bay (eight sites combined)	112	117	Unknown
San Diego Bay -			
San Diego Municipal Airport	110	117	Unknown
Sweetwater River	10	10	Fair
South San Diego Bay (Salt-works)	45	62	Unknown
Totals	600	703	

The fledglings stayed around longer than usual at sites where breeding was still in progress. At the San Gabriel River and Terminal Island sites it was possible to observe them closely. Two ages could be distinguished, those just fledged and those that had undergone post-juvenal molt. After molting, the brown plumage tones are replaced by gray, and the change in appearance is helpful in sorting out products of first and second nestings. This proved useful in estimating fledging success in a colony.

Successful nesting appeared to be independent of size of the colony. The largest, Santa Margarita River, and smallest, Santa Clara River mouth, were both successful. At least one big colony suffered predation of major proportions. This, the San Diego Municipal Airport site, was the second largest, and appeared to be ideally situated. It was completely protected from human disturbance and the food supply was abundant and close by. However, it became a prime target for predation on chicks. A large colony is probably more subject to predation than a small one, simply because of the volume of food it offers to a predator. Least terns do not have as great a capacity as larger tern species to defend the colony against an aerial predator. This may be an important factor in their frequent occurrence in very small nesting groups. It is thus of vital importance to protect every colony, however small, not just the big ones where nesting success may not be as high as one might expect from sheer numbers.

There is much still to be learned about least terns. A program of research is being outlined by the recovery team. The program will include banding and will be carried out in conjunction with the yearly survey.

#### ACKNOWLEDGEMENTS

As in previous years, many people provided assistance and information for this survey. I am especially grateful to Michael Evans, whose knowledge of the colonies in San Diego made the survey there go smoothly; to Shirley Wells for special assistance at Terminal Island and Harbor Lake; to Charles Collins for watching over the end-of-season nestlings at San Gabriel River; and to Kristen Bender for providing much valuable information from previous surveys. The following people were all instrumental in various ways in making the survey possible:

San Francisco Bay area	-- Robert Gill, Ron Jurek, Walter Smith
Ventura, Santa Barbara and San Luis Obispo Counties	-- Sanford Wilbur, Robert Fordice, Robert Baker, Ed Navojosky, Jim Lidberg, Kent Smith
Los Angeles and Orange Counties	-- Kristen Bender, Charles Collins, Jack Hiehle, DeeDee Rypka, Shirley Wells, Gene Wilson
San Diego County	-- Michael Evans, Alice Fries, George McCleary, Harold McKinnie, Robert Prather, Frank Todd, John Tomkins

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APPENDIX  
Nesting Sites Used by Least Terns in 1975

Bay Farm Island

Two colonies were found on June 26 by Department personnel. Eleven pairs were nesting on the "Utah Fill" and 3 at Oakland Airport at the northwest end of the runway (Figure 1). Chicks had hatched at both places. There was no follow-up visit, so success cannot be estimated.

Bair Island

On July 2 the island was visited by Department personnel, and 14 nests were counted. No chicks were seen. There was no follow-up visit.

Mugu Lagoon

In 1973 and 1974 least terns were seen at Mugu Lagoon, but they did not nest. A check in June was negative, but on August 6 a colony was found (Baker) at the northwest end of the beach (Figure 2). Fourteen nests were counted. On August 24 I visited the colony and saw 6 fledglings and 10 well-developed chicks, as well as 5 nests with eggs (3 nests abandoned but 2 still being attended). Twenty-two adults were seen in air at once. At such a late date, an accurate nest count was not possible, but judging from the fledglings, nesting probably began around July 1, and on August 6 renesting was in progress. At least 20 pairs were using the site. Nesting was on the beach, in a restricted area that is completely protected against human disturbance. The colony probably did well, but better documentation is needed next year.

Santa Clara River Mouth

This is the first year nesting has been documented. One nest was located on June 24 (Wilbur) and there were 10 adults present. Two chicks were seen there later. On July 27 a fledgling was observed being fed by its parents (Navojosky). It appears that even one isolated nest can be successful.

Playa del Rey

Seventeen nests were counted on June 9, and hatching began shortly thereafter. A second wave of 9 nests was in progress on June 23. On July 10 there were 3 birds still incubating eggs, several small chicks being fed, and 10 fledglings on the breeding grounds. These last nests were apparently unsuccessful because on July 23 only 2 adults and 1 fledgling were present. I walked through the area and found 1 dead adult (intact) and 2 dead chicks (very young). After exploring the surroundings I found 36 birds loafing on the State Beach at Marina del Rey just north of the channel entrance. These birds were presumably the major part of the nesting colony from Playa del Rey.

Hazards at this site included equestrians and motorcyclists; recent tracks of horses and motorcycles were found on the area July 23. A male American kestrel was seen once, and it brought the entire colony up after him in alarm. The area should be heavily posted next spring, with signs at every access to the salt flat. A watch should also be mounted on the two big holiday weekends.



### Terminal Island

In 1973 and 1974 least terns were courting on the ground, but were prevented from nesting by landfill and grading operations. The Los Angeles Harbor Department has jurisdiction over the area, and its cooperation was enlisted in late 1974 by the Recovery Team to good effect. This year 24 pairs (minimum) nested relatively undisturbed (Figure 3). The area is fenced and gated but has long been used by local fishermen, and it is not practical to keep them out. The site was posted with Endangered Species signs and was patrolled frequently. A moderate amount of disturbance occurred on weekend afternoons, especially on the holidays. It would be advisable next year to post the central area where the terns nested, and add a log barrier to prevent cars from driving through the colony. The site is slated for a liquid natural gas terminus. Efforts are now in progress for incorporation of a least tern nesting site into development plans for this area.

The total number of nests, including renesting attempts, was about 40. In late July a group of adults and fledglings was reported at Harbor Lake, a freshwater pond a few miles inland (Wells). The birds were thought to be from the Terminal Island colony, and this was verified later when a chick banded at the Terminal Island site was seen as a fledgling at Harbor Lake. On August 2, 75 least terns were using Harbor Lake, 20 of them juveniles. A check on the Terminal Island colony immediately afterwards yielded a count of 25 adults (2 still incubating eggs), 10 fledglings and 7 chicks. Thus, by the end of the season, at least 35 young fledged from this colony, a very high success rate for an estimated 24 pairs of nesting birds.

### San Gabriel River

Construction of a shopping center on this site was scheduled to begin June 1. The developers had tried to prevent nesting on the construction site by draping crop protection netting over a network of posts, but the birds nested around and even on the nets. The development company postponed construction and cooperated with agencies by assisting in the protection of the colony. First nests were noted, on May 19, and by June 8 there were at least 40 nests in several clusters. Most nests were in the north end of the construction area, where the first phase of construction was scheduled. Twelve nests were widely scattered at the south end near the San Gabriel River Channel.

The first eggs were lost to an unknown predator, several clutches vanished and several others were punctured. Thereafter, no more egg predation took place. The first wave of hatching occurred around mid-June. Fledglings were seen at the site by early July, their numbers increasing until July 13, when 25 were counted. By that date there were 12 new nests, presumably second attempts. The last egg was laid July 19 and the last chick hatched August 9. Apparently none of the chicks that hatched after August 1 survived. The last fledgling in the colony was airborne on August 19 (Collins). In all, 42 young fledged from here, perhaps more. There were about 40 pairs of nesting birds.

The site was reasonably undisturbed during the nesting season. The developer had dug a trench along Pacific Coast Highway that effectively deterred

motorcycle entrance. The developer also posted the area, and pedestrian traffic was minimal. A male kestrel was seen regularly overhead, and it may have been preying on the chicks.

By the 1976 season, half the area occupied by the colony will be unusable. Mitigation must be arranged for this important colony.

#### Huntington Beach State Park

Eight pairs were nesting in the sanctuary on June 11. A month later there was evidence of early nesting failure; 5 new nests were found--presumably these were second nesting attempts. Only 3 fledglings were seen in July. I walked through the sanctuary at the end of the season and found 3 abandoned nests and the remains of an adult. Possible predators are the feral cats in the maintenance area next to the sanctuary. This colony was one of the least successful in 1975.

#### Santa Margarita River, Camp Pendleton

An estimated 150 nests were active on June 6, and hatchlings were already in evidence. This is a conservative figure. A colony larger than 50 pairs is impossible to census accurately unless the nests are marked and very close watch is kept. As in previous years, nesting was on the beach (in two separate places), on the salt flats, and on the LORAC site (10 nests). Protection by Camp Pendleton Marine Base was good, as it has been since 1971, with the vulnerable beach sites fenced and posted.

A second nesting was apparent on July 7, with 32 birds incubating eggs. On that date, 110 fledglings were counted, and many chicks were still on the ground. On July 30 only 2 nests were still unhatched, and there were 50 more fledglings. A walk-through on that date disclosed very little evidence of predation and no sign of egg abandonment. A few dead small chicks were found; apparently they had been abandoned.

In all, at least 160 juveniles fledged from the colony.

#### Agua Hedionda Lagoon

The nesting areas on the salt flats at the east end of the lagoon were checked only twice, June 12 and July 14. On the first visit, there were 7 nests and 2 more pairs were courting. On July 14, 4 adults and 1 fledgling comprised the entire population. Since 14-18 eggs were laid, this was a very poor result.

The surrounding salt flats are easily accessible and clearly overrun by motorcycles. More effective protection is needed at this site in the form of fencing, posting and patrolling.

#### Batiquitos Lagoon

The water level was high this spring and all nesting was confined to one sand-spit jutting into the lagoon from the far northeast side. Nine pairs were incubating eggs on June 12. No birds were nesting at the west end where large colonies nested in 1973 and 1974 and where the terns have traditionally loafed and fished. On July 14, 35 adults and juveniles were fishing in the west end

of the lagoon, and on the nesting area 5 adults and 2 fledglings were loafing. There were no signs of predation nor abandoned eggs on the sandspit, nor were there signs of recent motorcycle use at the site.

Two visits were not enough to gauge nesting success here. The adults and juveniles seen fishing on July 14 may have been from other colonies, as was the case at nearby Buena Vista Lagoon on the same day.

#### San Elijo Lagoon

One nest with 2 newly hatched chicks was found at the far east end on June 12 (Figure 4). On July 6, 31 least terns were reported fishing in the lagoon near the railroad tracks (Fries). A late colony of 6 nests was found on July 14. About 30 birds, including many juveniles, were fishing in the lagoon on that day. Nine days later, the chicks had all hatched at the nest site, and 38 birds were using the west end of the lagoon (Fries).

This was the first year since 1970 that least terns have nested at San Elijo. The site seems well secluded and the only serious threat to nesting success might be mosquito control operations--a large caterpillar tractor was spraying diesel oil through the cattails around the nesting area while I was there in June.

#### Los Penasquitos Lagoon

This site was on a salt flat bounded on the north by the main tidal channel, and on all other sides by dense, tick-ridden Salicornia. The site was difficult to census. Best access for censusing was along the railroad right-of-way or from the east through the Salicornia flats. On my first visit on June 6, 7 birds were present, but only 2 nests could be seen from the tracks. On June 24, 17 birds and probably 10 nests were recorded (Hiehle). On July 14 I walked out onto the salt flat and counted 19 adults and 6 fledglings. One bird was still incubating eggs. There were no small chicks.

The site is well protected but availability of fish may be a limiting factor.

#### Mission Bay

Eight sites were used for nesting; all but one were occupied last year. The new one was the overflow parking lot at Sea World, where nests were discovered just before Memorial Day weekend. There were 10 nests in the first wave of egg laying and 3 additional nests late in June. The colony was cordoned off, posted, and well protected by Sea World personnel, but hazards from visitors were great. One adult least tern and the eggs it was incubating were crushed by a vehicle, several small chicks were run over, one clutch disappeared, and some of the signs were stolen. Protection of the colony was difficult on the July 4 weekend, and Sea World personnel were kept busy protecting wandering chicks in addition to their other duties. On July 14, I saw 10 chicks close to fledging or recently fledged, a very good success rate for so exposed a colony.

The Beacon Island colony had 19 nests, and hatching had just begun on June 6. There were 5 new nests on July 4. The cloverleaf site, the north area site next to Route 405, and the site in Quivera Basin each had 20 nests. Small colonies were found at north Fiesta Island (6 nests), the mud flats (12 nests), and the west area near Route 405 (5 nests). Locations of these sites are shown in Figure 1A of the 1974 survey report (Bender 1974b). There was no nesting in the two fenced sanctuaries available this year.

In all, 112 nests were counted in the first wave, and renesting was minimal. The success of these colonies is unknown. I checked them three times during the season. At my last visit in mid-July there were still birds incubating eggs at Beacon Island and at the cloverleaf, but other sites were already deserted. The fledglings did not stay around, and I did not find their haunts, so no counts of flying young were made.

Protection of the Mission Bay sites remains inadequate but is difficult to implement. Except for the Beacon Island site, all Mission Bay colonies are subject to human disturbance, and efforts at site surveillance and patrolling need to be increased.

#### San Diego Bay - San Diego Municipal Airport

The colony numbered 110 nests (minimum). Ten of these were next to the main runway; the rest were on the surcharge area west of the terminal building. On June 16, conditions appeared normal in the colony, but on July 16 there was disturbing evidence of serious predation on the surcharge area. A small group of 12 adults and 8 fledglings at the southeast end, a few young chicks and 4 nests in the egg stage comprised the entire colony. A walk through the site disclosed remains of 28 chicks, all over 10 days of age. There were 26 sets of wings, and 2 sets of feathers only. Most of the remains were in the bottom of a shallow drainage ditch that runs north-south almost the length of the site. Possible predators at this colony were feral cats and a kestrel. The site is well protected from human disturbance, but predation is a major problem and the colony must be closely watched next year.

Before the 1975 nesting season, the Marine Recruit Training Depot adjacent to the airport established a fenced, posted and graded nesting site in an effort to attract nesting least terns. A colony did not nest at the site this year, however.

#### San Diego Bay - Sweetwater River (D Street fill)

This small colony of 10 nests was much harassed by motorcyclists, pedestrians and dogs. Yet, on July 15 I saw 16 adults and 5 fledglings roosting on the sand at the west end. Two nests were still being attended in the center of the fill.

#### San Diego Bay - South San Diego Bay (Salt Works)

On June 17, this colony consisted of an estimated 45 pairs. The birds were nesting on pond dikes closer to the bay than in the past few years. A second nesting was evident in mid-July when 9 clutches of eggs and 3 broods of hatchlings were recorded. No assessment of success was possible here. The

terns nest on dikes and can not be seen from any reasonable distance to be counted. I could not find a loafing area where adults and fledglings congregate.

#### Observations at Other Areas

Several additional sites in San Diego County were checked for colonies, but no nesting was found. There was apparently no nesting at Border Field State Park (Tijuana River) nor at San Diego Stadium, where limited nesting had occurred in recent years. At Coronado Cays in south San Diego Bay, where nesting occurred in 1974, a group of 7 birds was reported in early July, and there may have been a small, late nesting colony here. I saw no birds there on June 16. A check in early June of the Navy Receiver Station at the south end of Silver Strand revealed a lack of suitable least tern nesting habitat.

No nesting colonies were found between the mouth of the Santa Clara River, Ventura County, and Morro Bay, San Luis Obispo County, but there is evidence that nesting did occur along this stretch of coastline in 1975. In San Luis Obispo County, least terns have been reported using the freshwater Dune Lakes in the Pismo Dunes for the past few summers. In 1975, as many as 60 adult and immature least terns were in this area. On July 22, 10 adults and 10 immature birds were present on the White Lake Sand Spit; the adults were bringing food to the young on the ground (Lidberg). In early August a pair of adults was observed feeding an immature tern on the ground adjacent to Oso Flaco Lake. It is not certain whether the Dune Lakes region is a post-nesting season feeding area, or if there was a nesting colony in the vicinity. The Pismo Dunes should be carefully checked for nesting least terns in 1976.

A small colony of least terns nested at the mouth of Santa Ynez River, Santa Barbara County, in 1971 (Bender 1974a). Nesting may have taken place again in this area in 1975. On two on-site inspections in late July 1975, Fordice reported a large flock of terns one half mile upstream from the river mouth. At least 5 immature birds were being fed on the ground. Indications are that a colony of 10 to 15 pairs might have nested in this area. This area is part of Vandenberg Air Force Base.

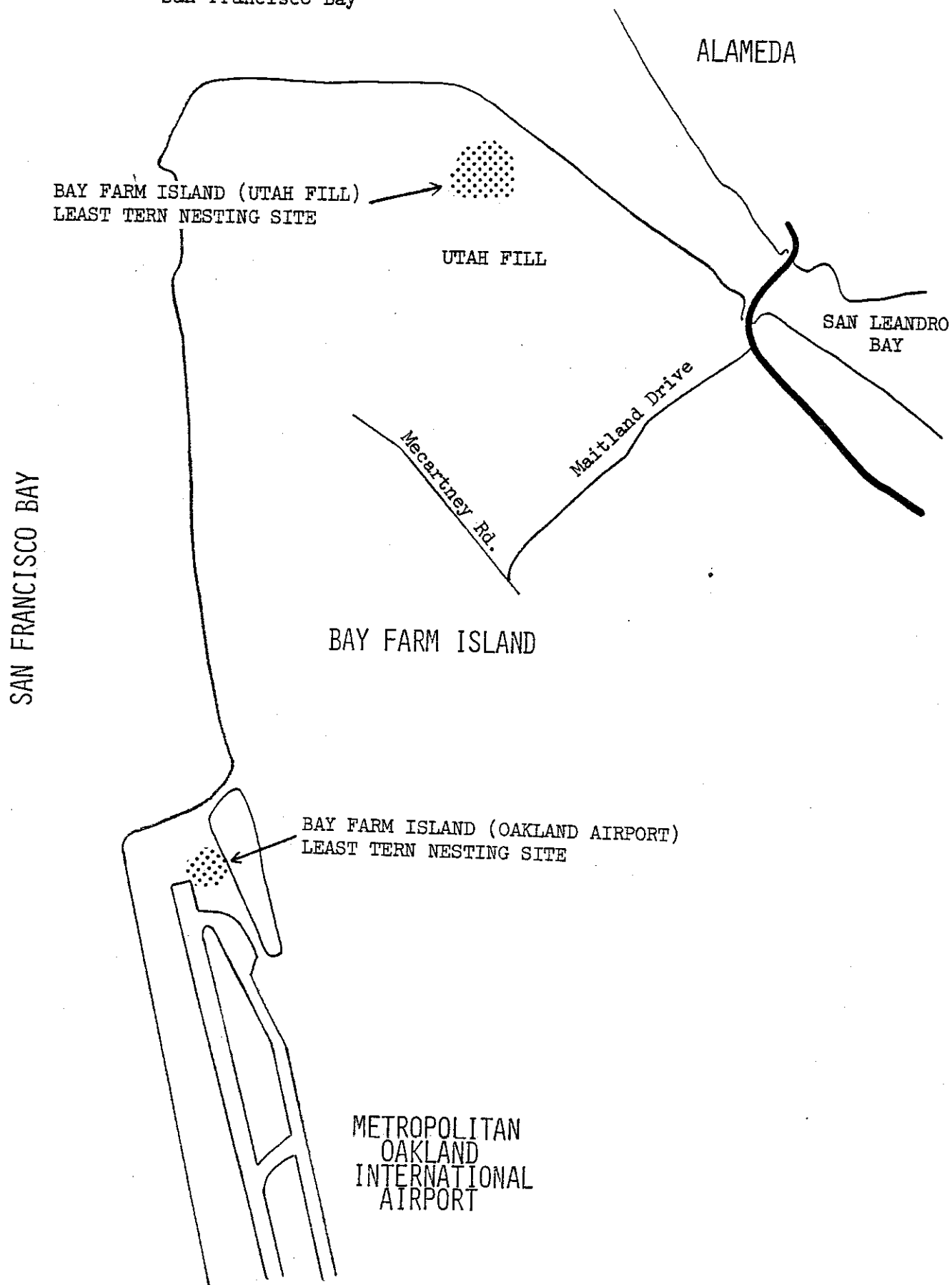
Several lakes and lagoons were important to least terns this season as fishing and loafing areas after the juveniles were airborne. These sites, while not nesting areas, are used by the birds during the period after nesting and before migration. All such sites are important in the annual cycle of this species, and may be critical to the survival of these birds.

- 1) Harbor Lake, Los Angeles, Los Angeles County. Least terns have fed and loafed at this fresh water lake in previous years. This year they were present from mid-July to early September. Many were from the Terminal Island colony, as previously noted. By the end of the season, others were mingling with them, and these may have been from other local colonies or were migratory birds from colonies farther north.
- 2) Buena Vista Lagoon, Oceanside, San Diego County. Least terns once nested here but in recent years there has been no suitable nesting habitat. It now serves as a post-season fishing and loafing area. Sometimes birds are here throughout the season, but there are always some present at the

end of the nesting season. This year on July 14, 35 least terns, including 6 juveniles, were fishing in the lagoon.

- 3) Lake Val Sereno, 2 miles inland from San Elijo Lagoon, San Diego County. Twelve least terns were fishing here on July 23 (Fries).
- 4) San Dieguito Lagoon, Del Mar, San Diego County. Least terns have been found here each summer in recent years. After the 1973 nesting season, Bender (1974a) reported that an after-nesting aggregation of at least 100 adults and young fed at this lagoon for a month. In 1975, 16 adults and 16 immature least terns were reported here on August 10 (Evans). This lagoon is a rich feeding area for least terns and could support a breeding colony if a suitable nesting site would be developed. A small colony successfully bred here in 1969 (Craig 1970) and an unsuccessful nesting attempt was recorded in 1973 (Bender 1974a).

Figure 1. Least tern nesting sites used in 1975 on Bay Farm Island  
San Francisco Bay



MUGU LAGOON  
LEAST TERN NESTING SITE

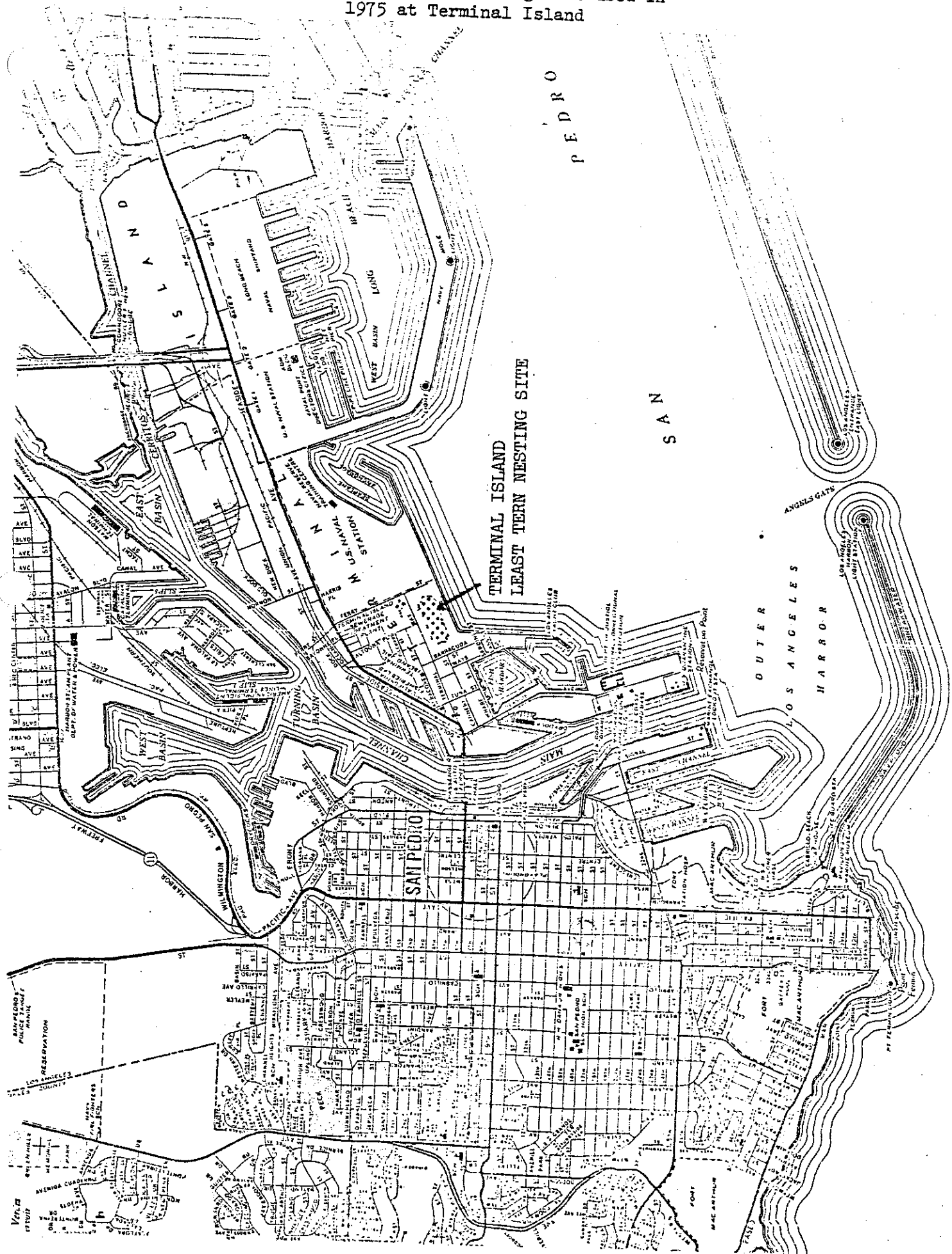
PUNTA COUNTY GAME RESERVE

MUGU GAME RESERVE

0 1 MILE



Figure 3. Least tern nesting site used in 1975 at Terminal Island



SAN ELIJO LAGOON  
LEAST TERN NESTING SITE