

**Interior Least Terns Nesting on Bureau of Land Management Lands**

**Roswell Resource Area, NM**

**1997**

Prepared for  
Bureau of Land Management, Roswell Resource District

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## Introduction

The interior subspecies of the Least Tern (LETE, *Sterna antillarum athalassos*) was listed as federally Endangered on May 28, 1985 and Endangered, Group 1 in New Mexico on May 21, 1976. It is ranked by the New Mexico Natural Heritage Program as S1B, meaning that it is critically imperiled as a breeder, and S2N, meaning that it is imperiled as a nonbreeder in New Mexico. In New Mexico, LETEs are known to breed only in the vicinity of Roswell near the lower Pecos River. The breeding population at the Bitter Lakes National Wildlife Refuge has been monitored for several years.

Interior Least Terns nest on bare or sparsely vegetated flats near rivers or, in eastern New Mexico, on playas. They forage for small fish in rivers or (in NM) sinkholes containing relatively clear water. The interior subspecies typically nests in small colonies. LETEs are reported to fly at least three kilometers from nesting colonies at Bitter Lakes National Wildlife Refuge to foraging areas (James Montgomerie, pers. comm.).

The purpose of this study was to survey for breeding LETEs in potential habitat on Bureau of Land Management (BLM) lands in the Roswell Resource Area, NM. In addition, we recorded other wetland-associated bird species observed at the study sites.

## Methods

Least Terns experience two nesting peaks in New Mexico, the first in late May-early June, and the second about a month later, in early July. The second peak probably consists of second attempts after failure or late first nests (Thompson et al. 1997). We therefore surveyed the priority areas (designated by BLM) during early June, at the same time that LETEs were nesting at Bitter Lakes NWR; and early July, in order to catch late nesters. Several areas were added by BLM after the first survey was completed (Appendix 1). These areas were surveyed only during the second survey period. Habitat at all areas was assessed.

There is a discrepancy in the names for the Ishee/Nakee Ishee Lakes between the 1:100,000 and the 1:24,000 maps. Here we use the names from the 1:24,000 maps (Diamond Mound and Basin Well quads), which identify the northern lakes as Ishee/Nakee Ishee and the southern two lakes as Flat and Jahie Lakes.

Surveys were conducted during the heat of the day (between the hours of 0930 and 1700), when terns would be required to cover eggs to protect them from overheating. In the 80-100+-degree heat present on these flats, terns must switch at nests at most every half-hour (Jim Montgomerie, pers. comm.). Each site was therefore scanned with binoculars for 1.0 to 1.5h to look for LETEs flying into nests or switching nest duty. Following

scanning, we walked the suitable nesting habitat to flush any terns that we could have missed during scans. On particularly large flats such as Grace Wells we did not scan before walking the suitable habitat, because the flats were so large that it would have been very difficult to detect terns. If suitable nesting habitat did not exist at a site, we searched the wetlands on foot in an attempt to flush terns.

Data were recorded on data sheets and locations of LETEs and LETE nests noted on topographic maps. We took GPS points at the two LETE nests. We also recorded other wetland-associated bird species and their numbers detected at the survey sites.

## Results

### Least Terns

Least Terns were detected at two of the eight sites surveyed (Table 1). One LETE flew over the North Pond at the Overflow Wetlands, toward the flooded area bordering the east bank of the Pecos River. It flew out of sight and did not return in 1.5h. After walking all suitable habitat, we concluded that it was not nesting at the site. During the second visit to this site, the area was scanned for 1.5h and then thoroughly covered on foot. No terns were detected.

At the Grace Well flats, we observed two pairs of adult LETEs, both with nests. We flushed the pair from the north nest and then retreated to observe one adult return to the area and settle on the nest. We detected the south nest when a flying tern landed and switched with a second tern that was sitting on the eggs. This pair was observed to switch twice during our first survey. When we returned in July, the nest sites were vacated. We searched the entire flat and the outlying vegetation but detected no fledglings. Thus, we do not know if these nests were successful.

No LETEs were detected at the south flats of the Overflow Wetlands, Chain Lakes, Presler Lake, Salt Lake, Ishee/Nakee Ishee Lake, or Flat Lake (Table 1).

**Table 1.** Sites surveyed for Least Terns in the BLM Roswell Resource Area, 1997.

| Location                    | Date    | # of Terns | Nesting? | GPS of Nest                            |
|-----------------------------|---------|------------|----------|--|
| Overflow Wetlands, N. Pond  | 6/7/97  | 1          | N        | NA                                     |
| Overflow Wetlands, N. Pond  | 7/11/97 | 0          | NA       | NA                                     |
| Overflow Wetlands, S. Flats | 6/7/97  | 0          | NA       | NA                                     |
| Overflow Wetlands, S. Flats | 7/11/97 | 0          | NA       | NA                                     |
| Chain Lakes                 | 6/8/97  | 0          | NA       | NA                                     |
| Chain Lakes                 | 7/11/97 | 0          | NA       | NA                                     |
| Grace Well                  |         |            |          | N3710153, E556583<br>N3710014, E556668 |

|                        |              |             |         |               |
|------------------------|--------------|-------------|---------|---------------|
|                        | 6/8/97       | 4 (2 pairs) | Y       |               |
| Grace Well             | 7/10/97      | 0           | NA      | Y (see above) |
| Presler Lake           | 7/12/97      | 0           | NA      | NA            |
| Salt Lake              | 7/12/97      | 0           | NA      | NA            |
| Ishee/Nakee Ishee Lake | 7/13/97      | 0           | NA      | NA            |
| Flat Lake              | 7/13/97      | 0           | NA      | NA            |
| TOTAL                  | June/July/97 | 5 terns     | 2 nests | (see above)   |

### Least Tern Nesting Habitat

Suitable LETE nesting habitat at the Overflow Wetland north pond area was not occupied by terns during either of our surveys. There appears to be foraging habitat at the Bottomless Lakes within two miles; therefore, future surveys may yield LETEs here.

The Overflow Wetlands southwest pond was flooded by recent rain, leaving no flats around the pond. The flats north and east of the hill were partially flooded, but some habitat was available along the edges. Upon our return in July, water levels were similar. These areas could provide more LETE nesting habitat when not flooded by rains. The observation of a single adult in flight between the two overflow wetland sites suggests that this foraging habitat was in use; thus, there may have been a nest in the outlying unsurveyed area.

At the Chain Lakes, two areas of the flats were flooded due to recent rains, but a substantial amount of suitable habitat remained. The flats in the area are normally dry (James Montgomery, pers. comm.), providing more nesting habitat than observed during our visits. LETEs should be able to forage in the lakes; this area therefore appears to provide suitable LETE habitat. It also provides good Snowy Plover (SNPL, *Charadrius alexandrinus nivosus*) habitat; nine adults and eight chicks comprising three broods were observed there.

The Grace Well flats provided suitable nesting habitat, as two pairs were nesting there. Four-wheeler tracks were observed about 200m from the nests. This area is not protected from four-wheel-drive traffic, which poses a significant threat to nesting terns.

Presler Lake was almost entirely dry, and this ephemeral lake is not expected to provide LETE foraging habitat. There was no bird activity at all on this lake. The nearest potential foraging habitat appears to be at least seven miles away at Deep Lake (although we are not aware of the prey base there). Thus, it is not surprising that terns were not detected at Presler Lake.

The north and east peripheral flats at Salt Lake offer good LETE nesting habitat, although a one-hour scan for nesting birds and a walk-through of the site revealed no terns. Again, Deep Lake, 11 miles away, is the nearest permanent lake, and suitable nesting flats are available closer than Salt Lake to Deep Lake.

The exposed salt flat at the southern edge of Ishee/Nakee Ishee Lake was the only suitable nesting habitat observed at this site. These salt lakes do not provide foraging opportunities and the Pecos River and associated wetlands such as the Prichard Lakes are over 12 miles away. We found three SNPL and one SNPL nest here.

Flat Lake contained flats on the south side of the lake. No LETEs were observed, but one SNPL nest was found. It is possible that the flats provide adequate habitat for the invertebrates that make up SNPL diets, but that this area does not qualify as LETE habitat due to the distance to good tern foraging habitat. We determined that Jahie Lake lacked suitable nesting habitat, and it was not surveyed.

### Snowy Plovers

The Western Snowy Plover is a species of concern both nationally and locally. The Pacific Coast population is designated as threatened, and only about 21,000 individuals inhabit the entire United States (Page et al. 1995). The salt lakes surveyed during this study provide good SNPL breeding habitat, and the SNPL was the most abundant species observed during these surveys. Without searching for evidence of SNPL breeding, we detected three broods of SNPL chicks at the Chain Lakes and one SNPL nest each at Ishee/Nakee Ishee and Flat Lakes.

### Other Bird Species

Eleven species other than LETE were observed during the surveys, for a total of 12 species (Table 2). The most numerous species was the Snowy Plover (72), followed by American Avocet (50) and Black-necked Stilt (44). The least abundant species were Long-billed Curlew (1) and Least Sandpiper (1, Table 2).

**Table 2.** Bird species and numbers detected at Least Tern survey sites in Roswell Resource Area, 1997. For areas surveyed twice, second surveys are shown in parentheses. \* Detected 9 adult SNPL, 8 chicks in 3 broods: 4,1, and 3 per brood. \*\* SNPL nest found.

| Species | Overflow<br>Wetland<br>N. Pond | Overflow<br>Wetland<br>S. Flats | Chain<br>Lakes | Grace<br>Well | Salt<br>Lake | Ishee/<br>Nakee<br>Ishee<br>Lake | Flat<br>Lakes | TOTAL |
|---------|--------------------------------|---------------------------------|----------------|---------------|--------------|----------------------------------|---------------|-------|
| AMAV    | 5(6)                           | 4(15)                           |                |               | 20           |                                  |               | 50    |
| AMWI    | 7                              |                                 |                |               |              |                                  |               | 7     |
| BASA    | 3                              |                                 |                |               |              |                                  |               | 3     |
| BNST    | 13(6)                          | 8(17)                           |                |               |              |                                  |               | 44    |
| KILL    | 2(3)                           | 3(13)                           | 2(2)           |               |              | 2                                |               | 27    |
| LBCU    |                                |                                 | (1)            |               |              |                                  |               | 1     |
| LETE    | 1                              |                                 |                | 4             |              |                                  |               | 5     |
| LESA    |                                |                                 |                |               |              | 1                                |               | 1     |
| NOSH    | 13                             |                                 |                |               |              |                                  |               | 13    |

|                |           |          |          |          |          |          |          |
|----------------|-----------|----------|----------|----------|----------|----------|----------|
| MALL           | 4         |          |          |          |          |          | 4        |
| SNEG           | (1)       | (2)      |          |          |          |          | 3        |
| SNPL           | 22(7)     | 1(13)    | 17*(4)   | 1        |          | 3**      | 4**      |
| Unid.          |           |          |          |          |          |          | 72       |
| Peeps          |           | 10       |          |          | 7        |          | 17       |
| <b>Total #</b> |           |          |          |          |          |          |          |
| <b>Species</b> | <b>10</b> | <b>5</b> | <b>3</b> | <b>2</b> | <b>1</b> | <b>3</b> | <b>1</b> |

AMAV=American Avocet, AMWI=American Wigeon, BASA=Baird's Sandpiper, BNST=Black-necked Stilt, KILL=Killdeer, LBCU=Long-billed Curlew, LETE=Least Tern, LESA=Least Sandpiper, NOSH=Northern Shoveler, MALL=Mallard, SNEG=Snowy Egret, SNPL=Snowy Plover

The site having the largest wetland species richness was the Overflow Wetland north pond, with 10 species, followed by the Overflow Wetland south flats, with five species. Ten of the 12 species detected during the surveys were present at the Overflow Wetlands. Other sites had few species, with from one to three per site. The total number of individuals counted was 247, with 179 seen in the two Overflow Wetland sites.

### Discussion and Recommendations

Our surveys revealed five LETEs, including one single bird and two pairs with nests. The individual tern was sighted at the north pond of the Overflow Wetlands, and the two pairs were both nesting at the Grace Well flats. At Bitter Lakes NWR, only three chicks fledged in 1997 (James Mongomerie, pers. comm.). Therefore, if these two nests fledged young, they would represent a significant contribution to the population of LETEs in the Roswell area.

Apparent nesting habitat existed at all sites surveyed; however, Presler Lake, Salt Lake, Ishee/Nakee Ishee Lake, and Flat Lake are all quite distant from good foraging habitat, and we would not expect to find LETE nesting at those lakes. At the Overflow Wetlands and Chain Lakes, suitable nesting and foraging habitat exists, although no nesting LETEs were detected at either site. Grace Well was the only site that provided suitable nesting and foraging habitat and was also occupied by nesting terns.

Other species are using the playa habitats surveyed during this study. Of greatest conservation interest are the Snowy Plovers nesting at Chain, Ishee/Nakee Ishee, and Flat Lakes, but other wetland species such as Baird's Sandpipers, American Avocets, and Black-necked Stilts are also using the playas. Snowy Plovers forage on invertebrates inhabiting salt and mud flats (Page et al. 1995), and are not dependent on fish populations, which probably explains their presence on less suitable LETE habitat.

### Research Recommendations

In light of the two nests detected at Grace Wells, all suitable LETE habitat within at least five km of good foraging habitat should be surveyed twice annually, in June and July,

during the first and second nesting cycles. There appear to be a number of playa lakes closer to the main river corridor than some of the ones we surveyed. Surveys of these sites, if access could be obtained, would greatly enhance understanding of LETE populations in the Roswell area. We also recommend that the less suitable sites surveyed in 1997 be surveyed once more before discontinuing surveys of those sites. Not only should nests be surveyed, but nesting success should also be monitored at all nests detected.

More research is necessary to ascertain why some flats or habitats are used by the terns and others that appear suitable are not. In particular, availability of flats for nesting, proximity to foraging habitat, quality of foraging habitat, predator impact, and human disturbance should be investigated at occupied versus unoccupied suitable habitat.

Habitat use by Snowy Plovers and other wetland species should also be investigated. SNPL nests should be monitored to ascertain reproductive success and impacts on nesting. These flats should also be surveyed annually for the presence of other wetland species and their breeding or migrating status determined.

#### **Management Recommendations**

1. Because LETEs tend to nest colonially, areas such as Grace Wells are likely to attract other terns and should be assiduously guarded against disturbance. Off-road vehicle use at Grace Wells should be strictly prohibited. This applies to the nonbreeding season as well as the breeding season, to avoid destruction of traditional nesting flats. Foot, cattle, and other traffic should also be excluded from the entire Grace Wells playa, including a buffer zone of 100m surrounding the perimeter of the flat. Other playas used by the terns should be similarly protected.

2. Because of the potential for cattle to disrupt nesting efforts, cattle should be excluded from all suitable nesting flats. If a playa contains some areas that are not suitable for nesting and others that are suitable, suitable areas could be fenced if well buffered, allowing cattle access to areas of the playa that do not contain good nesting habitat. However, if LETEs take up nesting on these partially protected playas, the entire playa and a substantial buffer zone should be well protected from cattle.

Because of the potential effect of cattle on water quality, good foraging habitat near suitable nesting habitat should also be protected from cattle. This is particularly true in areas such as Grace Wells, where terns are currently nesting.

3. Oil-well-wastewater sites, if not properly covered, can be hazardous to birds that mistake the oil for water and become mired in the oily wastes (Williams 1997). These sites can comprise ponds, pits, puddles, pools, and open tanks. Bird kills have been reported at such sites in southeastern New Mexico (Williams 1997). We recommend that such sites be investigated and remediation efforts be undertaken by oil and gas lessees.



4. Interior Least Terns traditionally nest on ephemeral sand bars in midwestern rivers. These bars are maintained by natural flooding events that scour emerging vegetation and create temporary flats used by terns for nesting. Flood control and irrigation along these rivers have reduced the dynamic river flows necessary to maintain LETE nesting habitats and contributed to the decline of the Interior Least Tern (Sidle and Harrison 1990). Likewise, water management practices along the Pecos River can potentially impact LETE habitat on the river. Flood control can result in saltcedar encroachment and inhibition of natural river meandering that creates nesting habitat. The implications of this issue may extend beyond the BLM's management sphere, but it is a potentially important management issue along the river.

5. The above recommendations for LETE generally apply to SNPLs. Playas on which the plovers nest should be protected from cattle, vehicles, and other impacts, and substantial buffer areas around the playas should be fenced.

In conclusion, Interior Least Terns are nesting on BLM lands in the Roswell Resource District. Continued surveys, monitoring, and research are prerequisites to ensuring the success of this species' nesting efforts on BLM land. The occupied sites and other suitable habitat need to be protected from human-associated disturbances that would impact nesting efforts or prevent additional pairs from colonizing.

In addition, other wetland-associated species, particularly the Snowy Plover, are nesting in these habitats. Further surveys and monitoring of these other species are necessary to allow proper management. The playas should be protected from disturbance that could impact nesting and migratory stopover by SNPLs and other wetland species.

#### Literature Cited

Page, G.W., J.S. Warriner, and P.W.C. Paton. 1995. Snowy Plover (*Charadrius alexandrinus*) In The Birds of North America, no. 154 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, DC

Sidle, J.G. and W.F. Harrison. 1990. Recovery plan for the interior population of the least tern (*Sterna antillarum*). US Fish and Wildlife Service, Twin Cities, Minnesota, 90 pp.

Thompson, B.C., J.A. Jackson, J. Burger, L.A. Hill, E.M. Kirsch, and J.L. Atwood. 1997. Least Tern (*Sterna antillarum*) In The Birds of North America, no. 290 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, DC

Williams, T. 1997. Oil-well waste pits are killing birds and other wildlife. Audubon 99: 24-31.

**Appendix 1.** Data sheets and maps of Least Tern survey sites on BLM lands in the Roswell Resource District, June and July, 1997.

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date June 7, 1997

Time 1415-1600

Observer J. Brown-Ellington  
J. Ellington

Location Overflow Wetlands - North Pond Area

Quad Name Bottomless Lakes County Chaves

Weather 80% CC, ~10 mph SE, 80-85°

Total No. of LETE Observed 1 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest? (Y/N) N

observations

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.) LETE flew over the North Pond area toward the flooded area near hill & then out of sight. Watched for ~1 1/2 hrs but did not return.

Additional Species Observed & Counts:

- BASA - 3
- AMWI - 7
- SNPL - 22
- NOSH - 13
- KILL - 2
- MALL - 4
- BNST - 13
- AMAV - 5

Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date 07-11-97

Time 1230-1430

Observer H. Smith

33104CS

Location Overflow Wetlands - North Pond Area

Quad Name Baltonest Laker County Chaves

Weather 94°, 10-15 mph (in gusts), clouds 60%

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest?(Y/N) N

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.) NA

Additional Species Observed & Counts:

· SNEG - 1

· KILL - 3

· BNST - 6

· AMAV - 6

· SNPL - 7

Comments:

I scanned the available habitat for 1.5 hrs with spotting scope and binoculars. I then walked the extent of these flats.

LETE survey site Overflow Wetlands - N. Pond

Quad Bottomless Lakes

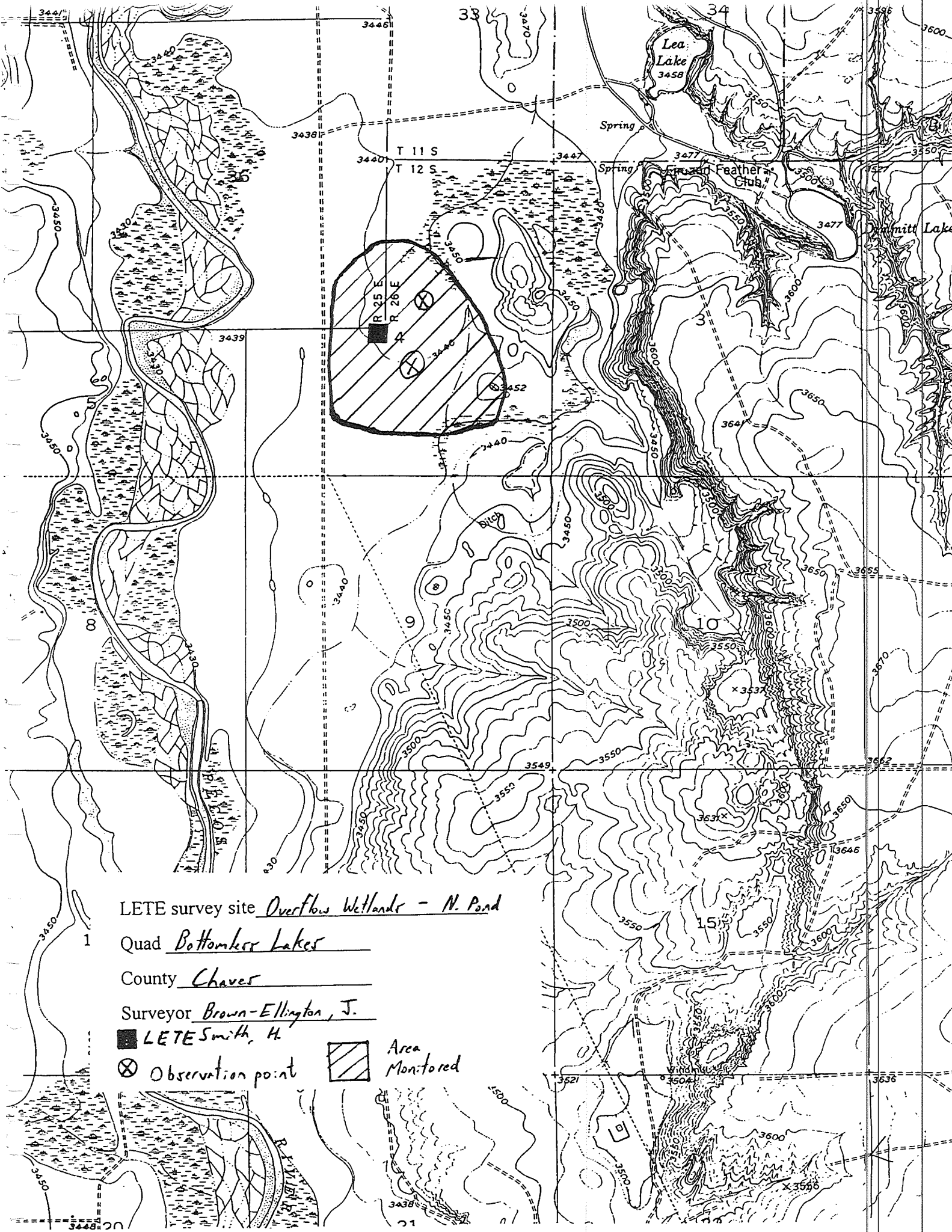
County Chaves

Surveyor Brown-Ellington, J.

■ LETE Smith, H.

⊗ Observation point

▨ Area Monitored



NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date June 7, 1997

Time 1115 - 1325

Observer J. Brown-Ellington  
J. Ellington

(S. Flats)  
Location Overflow Wetlands - from Southwest Pond area NE  
along sandflats to hill + flats\* to the immediate E + N of hill

Quad Name Bottomless Lakes County Chaves

Weather ~90% Cloud Cover, ~10mph SE, 75-80°+

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest? (Y/N) N

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.) N/A

reactions  
of  
terns

Additional Species Observed & Counts:

• SNPL - 1

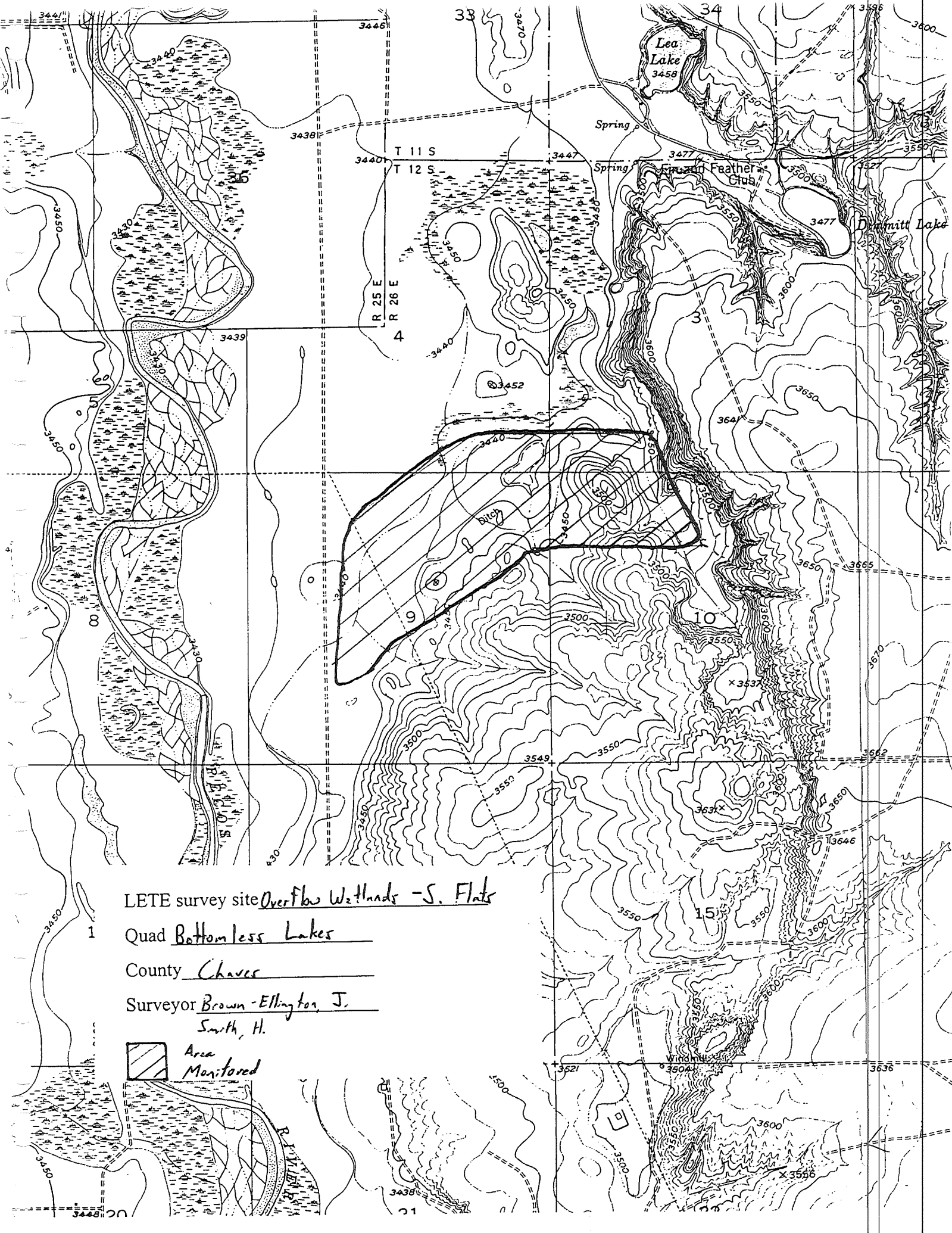
• AMAV - 4

• BNST - 8

• KILL - 3

Comments:

SW Pond was flooded from recent rain - no flats present  
around pond. \* flats to E + N of hill were partially flooded  
but habitat available along edges.



LETE survey site Overflow Wetlands - S. Flats

1 Quad Bottomless Lakes

County Chaves

Surveyor Brown - Ellington, J.

Smith, H.



Area  
Monitored

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date June 8, 1997

Time 1400 - 1530

Observer J. Brown-Elington  
J. Elington

Location "Chain Lakes Area" - just to North of River Rd. - directly adjacent to road <sup>flat is</sup>

Quad Name Bottomless Lakes/Komaache Spring/South Spring County Chaves

Weather 50% cc, 0-5 E, 90°

Total No. of LETE Observed 0 Breeding? (Y/N) -

No. of Pairs 0 GPS of Nest? (Y/N) -

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.) N/A

Additional Species Observed & Counts:

• SNPL - 9 Adults / 8 chicks

3 broods - 1 of 4 chx  
1 of 1 chx  
1 of 3 chx

• KILL - 2

Comments:

2 areas of the flats <sup>(on Eastern end)</sup> were flooded due to recent rain. Jim Madgery (of Bitter Lake NWR) says normally no H<sub>2</sub>O.



NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date 07-11-97

Time 1500-1645

Observer H. Smith

Location Chain Lakes Area

Quad Name Baltameter Lakes/Camanche Spring/South Spring County Chaves

Weather 90° gusty wind 10-15 mph, 60% cloud cover

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest?(Y/N) N

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.). N/A

Additional Species Observed & Counts:

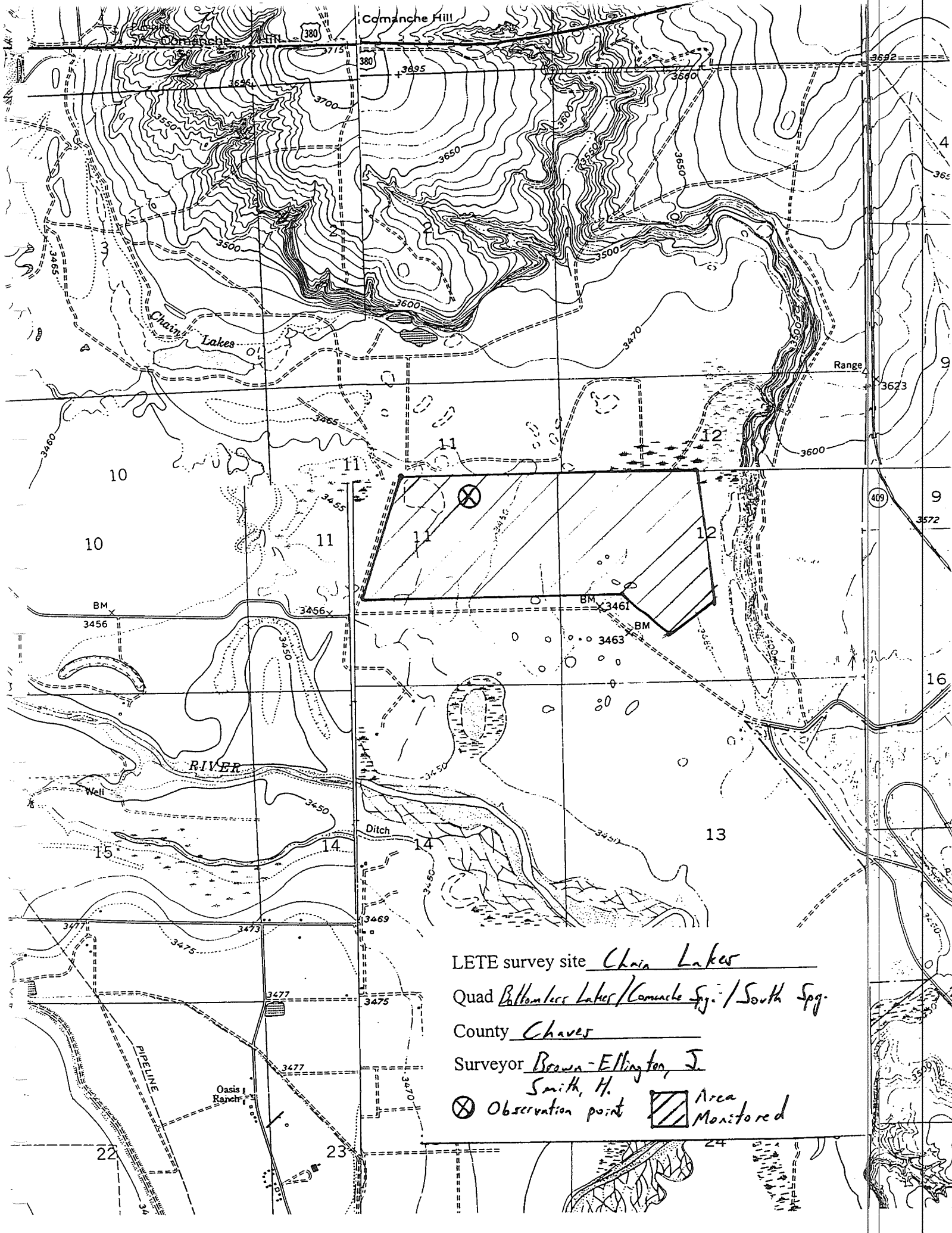
KILL-2

LBCU-1

SNPL-4

Comments:

Flats remained flooded on southeast edge, water was down from 6/8 visit, however. One hour was spent scanning the available nesting habitat. The remaining 45 minutes were spent walking through available habitat.



Comanche Hill

Chain Lakes

RIVER

PIPELINE

Oasis Ranch

LETE survey site Chain Lakes  
 Quad Bottomless Lakes/Comanche Spg./South Spg.  
 County Chaves  
 Surveyor Brown-Ellington, J  
Smith, H.  
 ⊗ Observation point    ▨ Area Monitored

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date June 8, 1997

Time 0930-1240

Observer J. Brown-Ellington  
J. Ellington

Location Grace Well Flats

Quad Name Melena County Chaves

Weather 5090 ft, 0-5 E 80°+ & clearing

Total No. of LETE Observed 4 Breeding? (Y/N) Y

No. of Pairs 2 GPS of Nest? (Y/N) See below ← by Hamilton

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.)

North Nest - flushed pair + then backed off + saw 1 tern return to area + settle on eggs

South Nest - saw 1 tern in air, it landed + then switched w/ a 2<sup>nd</sup> tern sitting on eggs - saw switch 2+ times

Additional Species Observed & Counts:

SNPL - 1

Comments:

• Keptel harassing south pair - south pair chased it off  
Nest GPS: taken 07-10-97

North nest UTM coordinates North: 3710153 East: 556583

South nest UTM coordinates North: 3710014 East: 556668

Map →

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date 07-10-97

Time 1540 - 1700

Observer H. Smith and J. Brown - Ellington

Location Grace Well

Quad Name Melona County Chavez

Weather w 15-20 mph sw, 90% cc, 92° F

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest?(Y/N) Y; nests found 6/8/97

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.) No nest info

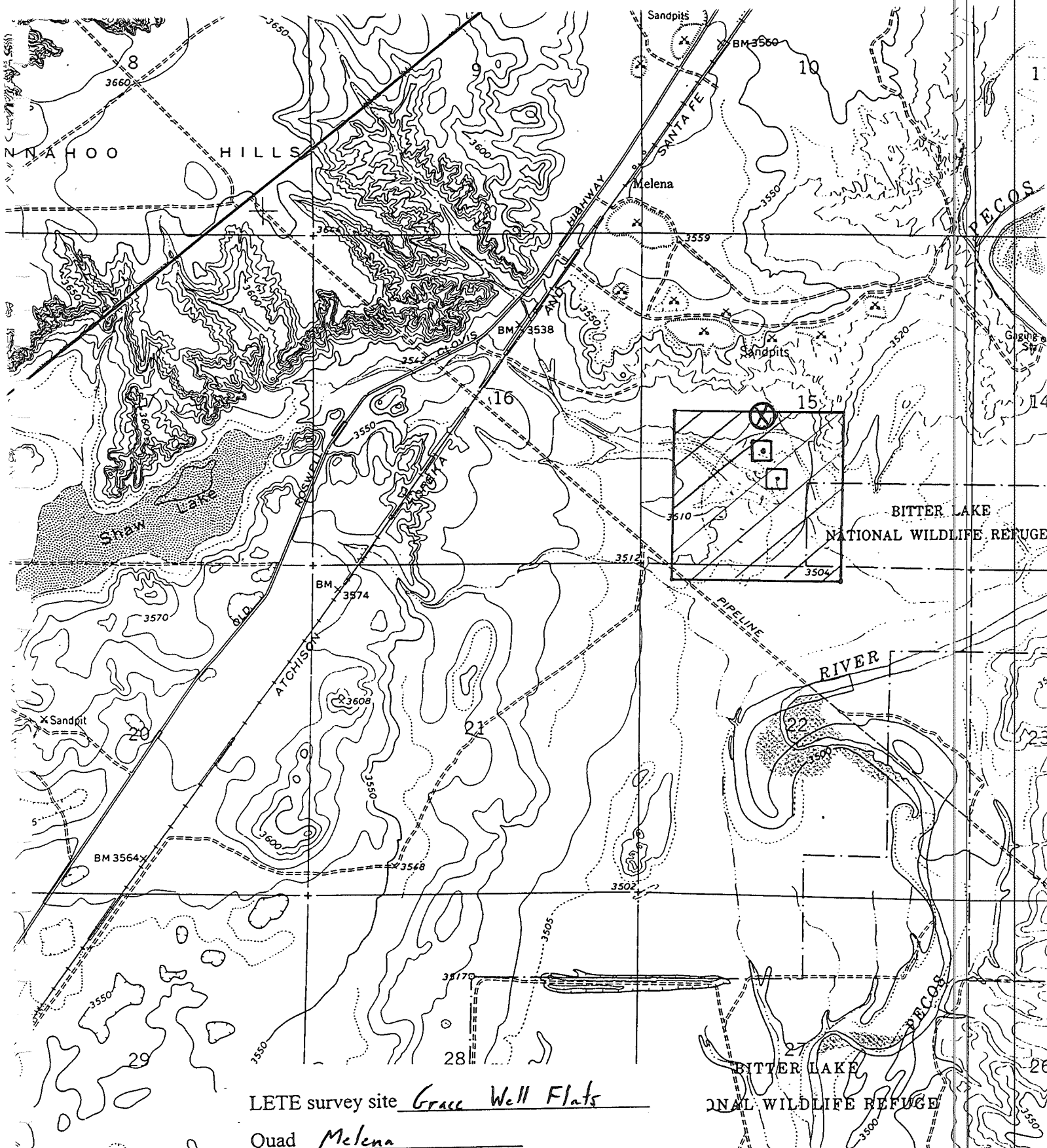
Additional Species Observed & Counts:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: Nest GPS

North f.k.# 6071022A 15 pts 1601 N 3710153 E 556583  
South 6071022B 15 pts 1616 N 3710014 E 556668

The nest sites were vacated. We walked the outlying vegetation, searching for fledglings.



LETE survey site Grace Well Flats

Quad Melona

County Chaves

Surveyor Brown-Ellington J.

Smith, H.

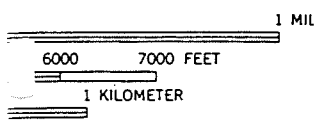
□ LETA nest

▨ Area Monitored

⊗ Observation Point

BITTER LAKE NATIONAL WILDLIFE REFUGE

INTERIOR-GEOLOGICAL SURVEY, RESTON, VIRGINIA-1982



ROAD CLASSIFICATION  
 Heavy-duty ————— Light-duty —————  
 Unimproved dirt - - - - -  
 U.S. Route 21

NEW MEXICO

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date 07-12-97

Time 1230-1430

Observer H. Smith

Location Prester Lake

Quad Name Prester Lake County Chaves

Weather 100°, 5% cloud, wind 0-5

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest?(Y/N) N

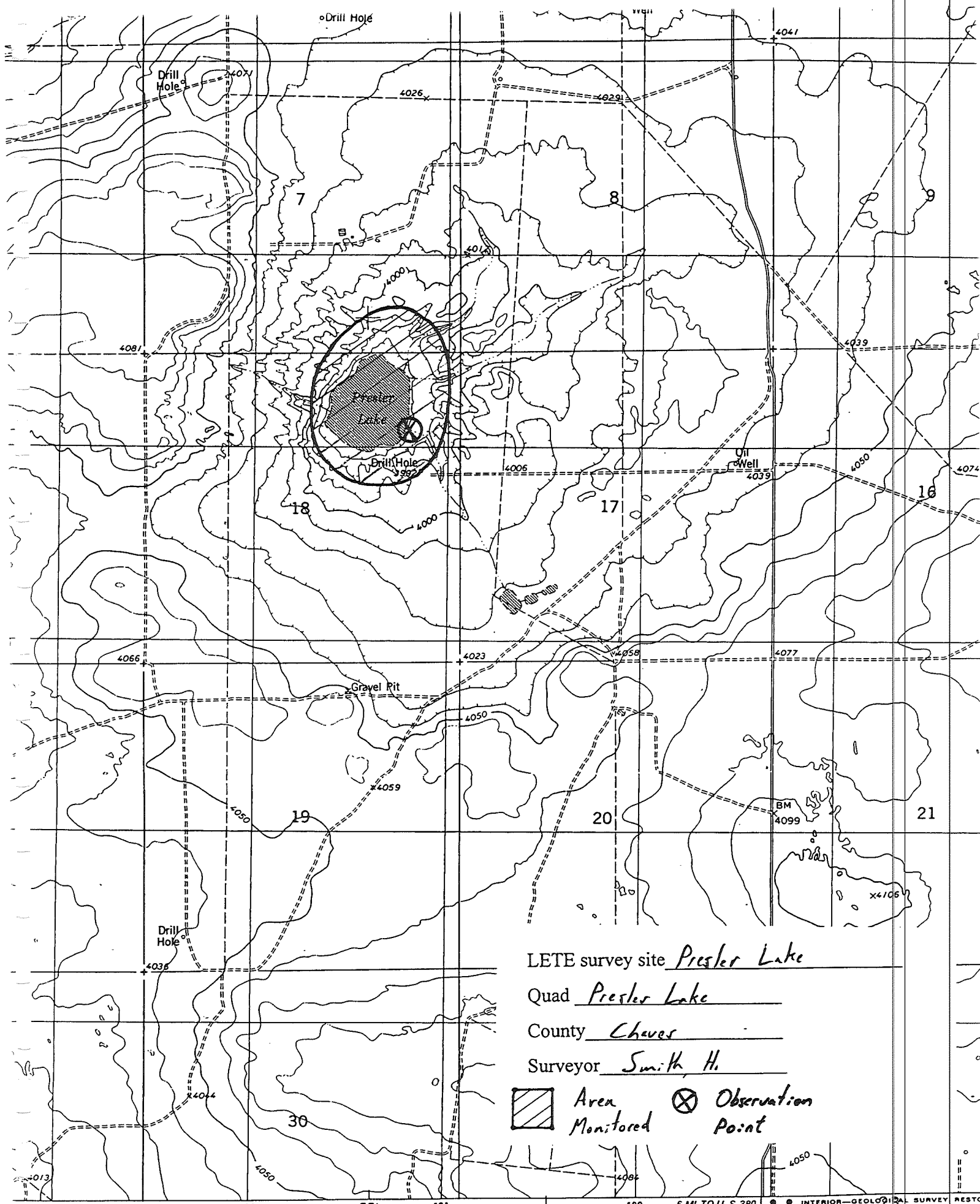
Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.) N/A

Additional Species Observed & Counts:



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Comments:

I scanned the lake bed (which was almost entirely dry) for 1.5 hrs. I then walked the flats from end to end. There was no bird activity at all on this lake.



LETE survey site Presler Lake  
 Quad Presler Lake  
 County Chever  
 Surveyor Smith, H.

 Area Monitored       Observation Point

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date 07-12-97

Time 0930 - 1115

Observer H. Smith

Location Salt Lake

Quad Name Curlew Lake County Chaves

Weather 0% cloud, 98°, wind 0-5

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest?(Y/N) N

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.) N/A

Additional Species Observed & Counts:

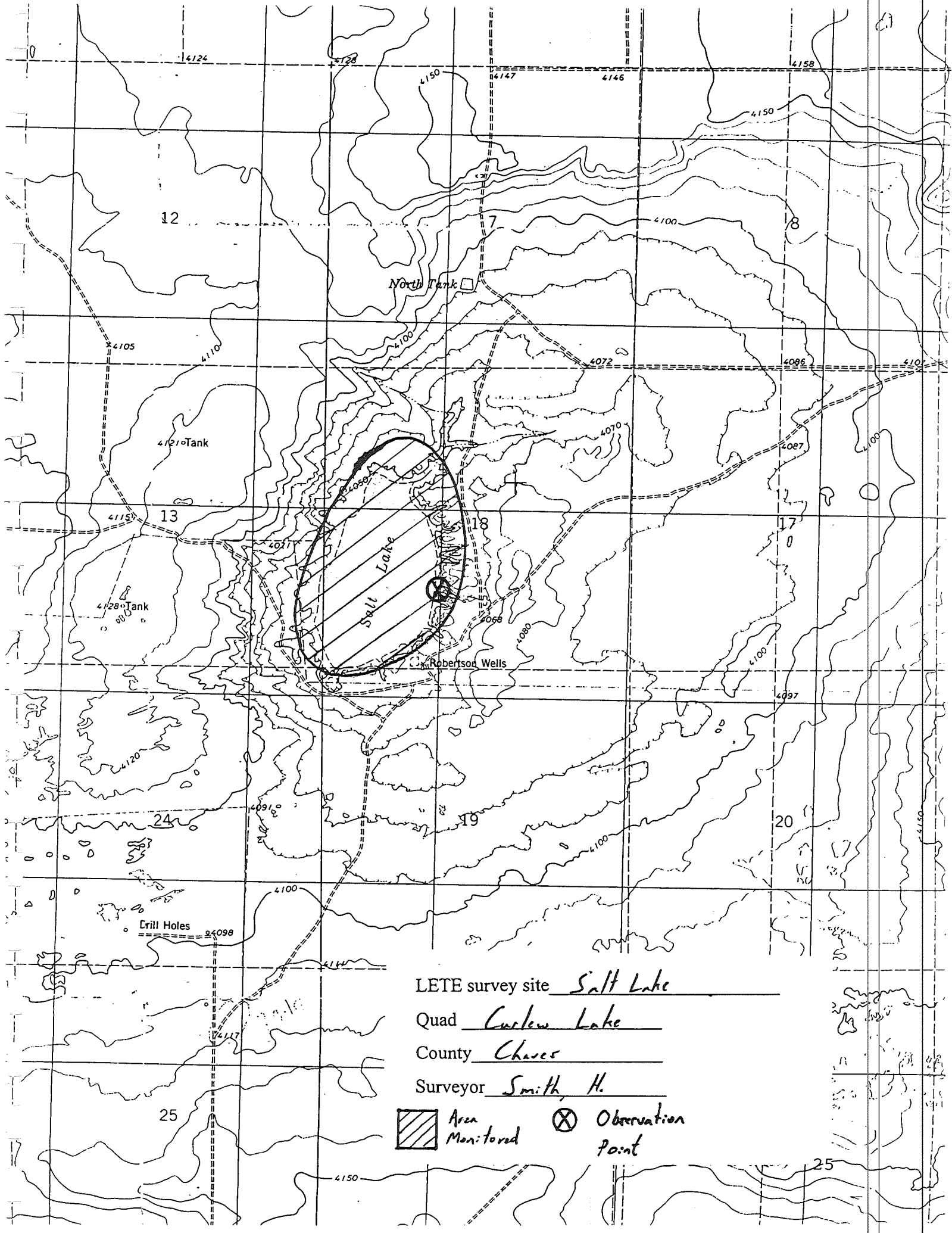
AMAV - 20

peep - 7

Comments:

The north and east peripheral flats offer good LETE nesting habitats. I scanned this area for 1 hour, then did a walk through.







LETE survey site Salt Lake

Quad Culew Lake

County Chaves

Surveyor Smith, H.

 Area Monitored       Observation Point

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date 07-13-97

Time 1230-1430

Observer H. Smith

Location Ishee / Nakee Ishee Lakes

Quad Name Basin Well / Diamond Mound County Eddy

Weather 100° F, 60% cloud, wind 0-5

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest?(Y/N) N

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.)

Additional Species Observed & Counts:

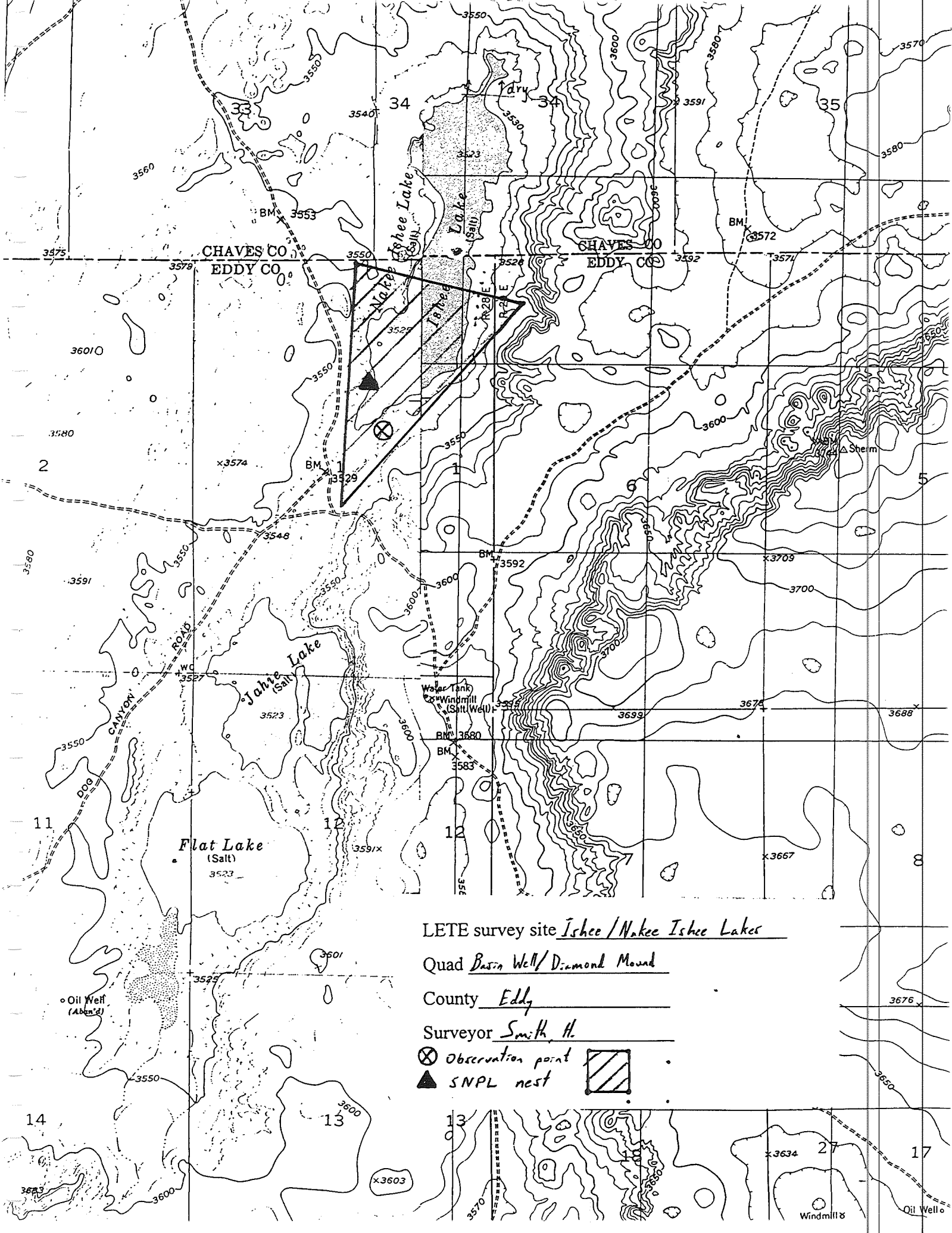
SNPL - 3 ; 1 SNPL nest found

KILL - 2

LECA - 1

Comments:

The survey included the exposed salt flat at the southern edge of the lake. This was the only suitable LETE nesting habitat. I scanned with scope and binoculars for 1.5 hrs, and then walked the extent of the habitat.



LETE survey site Ishee / Makee Ishee Lakes

Quad Basin Well / Diamond Mount

County Eddy

Surveyor Smith, H.

⊗ Observation point

▲ SNPL nest



14

13

13

17

Windmill

Oil Well

NEW MEXICO NATURAL HERITAGE PROGRAM  
LEAST TERN SURVEY FORM

Date 07-13-97

Time 1500 - 1700

Observer H. Smith

Location Flat Lake

Quad Name Diamond Mound County Eddy

Weather 100° F, 60% cloud cover, wind 5-10 mph

Total No. of LETE Observed 0 Breeding? (Y/N) N

No. of Pairs 0 GPS of Nest?(Y/N) N

Evidence of Breeding (If nest was found, draw site map with the nest location on the back of the survey form.)

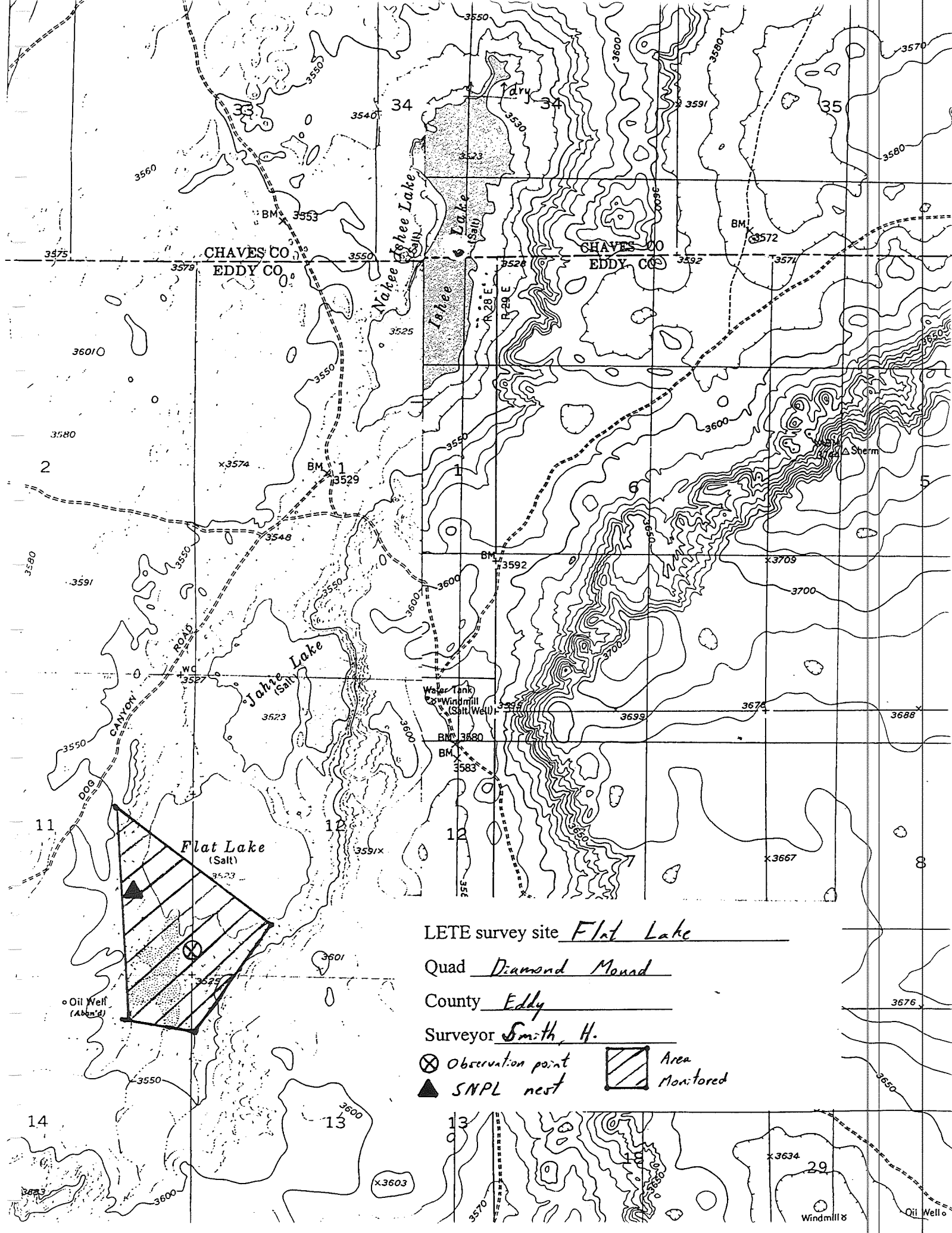
Additional Species Observed & Counts:

SNPL - 4 (1 nest)

Comments:

1 SNPL nest found.

I surveyed the southern flats on the southern Natchez Ishee lake. I surveyed with scope and binoculars for 1.5 hrs, then walked the suitable habitats.



LETE survey site Flat Lake  
 Quad Diamond Mound  
 County Eddy  
 Surveyor Smith, H.

- ⊗ Observation point
- ▲ SNPL nest
- Area Monitored

