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Sensitive

# Survey of the Lesser Prairie Chicken on Bureau of Land Management Lands

## Carlsbad Resource Area, NM

## 1998

Prepared for
Bureau of Land Management, Carlsbad Field Office

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## Introduction

The decline of the Lesser Prairie Chicken (LPCH, *Tympanuchus pallidicinctus*) in New Mexico has been recognized since the 1930's, when hunting of the species was first prohibited (Peterson and Boyd, 1998). The Roswell Field Office of the Bureau of Land Management has documented the presence of LPCH populations on the Caprock Wildlife Habitat Management Area (Caprock WHMA) for 27 years. The LPCH monitoring results of the Caprock WHMA have been used as an index of the species' status in New Mexico. Based on the negative trend in this population, the New Mexico Department of Game and Fish (NMDGF) discontinued the seasonal hunts of 1996-1998. The NMDGF is expected to rule in 1998 on a petition to list the species as endangered in New Mexico under the New Mexico Wildlife Conservation Act.

The range-wide decline of the species prompted a 1995 petition of the US Fish and Wildlife Service to list the LPCH as threatened (Biodiversity Legal Foundation, 1995). On June 9, 1998, the U.S. Fish and Wildlife Service published a twelve-month finding on the petition to list the LPCH. "Protection of the LPCH under the Federal Endangered Species Act is justified", states the ruling, and this species remains a candidate for future listing (Department of the Interior, 1998). The necessity of reviewing species of higher priority precludes the listing of the LPCH for at least one year.

In 1985 the Bureau of Land Management (BLM) Carlsbad Field Office initiated a lek-monitoring program. Four initial leks were counted, and by 1987 twenty active leks were tallied. In the 13-year history of the study, there have been 33 different leks described in Eddy and Lea counties. The purpose of this study was to survey the historic lek sites and known habitat within the Carlsbad Resource Area (CRA) for LPCH activity. The results of this study have strong implications in the landscape management and habitat conservation of the southern high plains grasslands.

## Methods

Lek Surveys

The accepted protocol for monitoring LPCH populations is to conduct an inventory of active leks over a large area. This is not an adequate measure of density or habitat association; however, it serves as an index of population trends. In 1998, both BLM and New Mexico Natural Heritage Program (NMNHP) biologists inventoried the CRA. The 29 historic leks of the Querecho Plains Survey Area were visited by NMNHP personnel. Morning surveys were conducted during the four-hour window of highest lek activity. Surveys began as early as first light and were generally concluded by 08:45. Survey effort was concentrated in the first two weeks of April. The NMNHP visits were concluded by 04-23-98. Our most accurate indicator of the peak in booming was from initial visits to the Caprock WHMA, where leks were generally active by the first of the month. Results and weather were recorded on data sheets (Appendix 2). Active leks were approached, when possible, to best determine lek size and sex ratio. Observers recorded noise disturbance in the vicinity of each historic lek, described as none, low, moderate, or high. Leks determined by sound to be inactive were

then investigated on foot. Investigators searched for evidence of lek site occupation (feces, tracks, feathers) to assess whether birds were temporarily absent. This method was the most accurate means of determining occupancy in the areas of high noise disturbance.

Road Transects

Lek visits were supplemented with roadside surveys. The lek survey protocol was used; however, route selection was narrowed down according to habitat availability. Landscape features and noise sometimes impaired lek detection, but under acceptable conditions we could confidently detect an active lek from within a one-mile radius. Road transects entailed three- to five-minute listening stops at .3 mile intervals. A map supplement to this report, of USGS 7.5 x 15 minute quadrangles, is included. The exact routes taken are indicated on these maps.

Database

Survey data from historic lek sites were added to the NMNHP Access database. This database includes 14 years of Carlsbad data, in addition to the 27 years of Roswell BLM surveys and three years of NMDGF results. The database was queried to provide population trend information. A lek survey consists of a count of males, females, and birds of unknown sex. The highest single count at each lek was summed by year. This sum is the total number of birds surveyed (Number of LPCHs, Fig. 1). This count will always be a conservative estimate, because of variation in lek attendance, primarily by females. "Leks visited" (Fig. 1) provides a measure of investigator effort. We define average lek attendance (Fig. 2) and percent of leks active (Fig 2) as two separate measures of activity. We include percent of leks active from 1991, because visits to unoccupied leks were not noted in prior years.

## Results

Surveys

In 1998 we visited 29 of the 33 known leks on CRA land. The results of the Caprock WHMA survey suggest that visits were timed in concordance with the expected peak in booming this year (Johnson and Smith, 1998). There was one active booming ground on the Querecho Plains; otherwise, all remaining historic leks were inactive. Querecho Plains #22 (QP22) was visited four times (Appendix 1). On April 7, the historic site was unoccupied, and booming was heard to the south. When flushed from a lek, either by vehicles or predators, males will often boom off of a lek. These birds were moving north at the time of detection. Later the same morning, John Sherman (BLM) visited QP22 and found the males in the historic location. We regard this activity as localized enough to be attributed to one lek, and thus there were two separate map locations for QP22 (Appendix 1). On March 26 and April 1, QP22 was observed within 200m of the historic site.

The lek counts across the four visits to QP22 never exceeded six known individuals. The flight described on 04-07-98 was estimated to consist of between six and ten individuals. On the morning of 04-01-98 four males and one female were seen on the lek. This was the only definite observation of a female LPCH on CRA-administered land in 1998.

Road Transects

The road surveys covered 244 road miles of potential LPCH habitat (Table 1). The area of coverage via road survey was >488 square miles (≅ 312,000 acres). Each route was unique. We made no effort to resample negative routes. The results of the roadside surveys were completely negative. Road surveys overlapped with historic lek site surveys. The road survey results thus increase confidence in the lek visit results.

Pump Noise Level

The noise disturbance levels were significant on the Querecho Plains survey area. Table 2 breaks down the historic lek sites visited by quad and describes the noise level. Sound assessments were made at 29 sites, 21 of which (72%) were impacted by pump noise. Noise level was subjectively rated as none, low, moderate, or high. Thirty-four percent of the historic leks experienced high noise impact, and 45% ranked as at least moderate or high.

Table 1.

**1998 Lesser Prairie Chicken Road Surveys**

| Quad | Date | Time | Mileage (mi) |
|---|---|---|---|
| Henshaw Tank* | 4/29/98 | 0535-0845 | 31.6 |
| Williams Sink | 4/22/98 | 0545-0805 | 10.2 |
| Greenwood Lake | 4/7/98<br>4/14/98<br>4/22/98<br>4/24/98 | 0750-0812<br>0635-0800<br>0815-0835<br>0550-0600 | 27.4 |
| Laguna Gatuna NW | 4/3/98<br>4/8/98<br>4/23/98 | 0515-0700<br>0700-0800<br>0545-0800 | 41.2 |
| Laguna Gatuna | 4/21/98 | 0600-0835 | 12.8 |
| Bootleg Ridge* | 4/30/98<br>5/1/98 | 0530-0830<br>0540-0630 | 34 |
| The Divide* | 5/1/98 | 0630-0830 | 16.8 |
| Maljamar | 4/17/98<br>4/24/98<br>4/28/98 | 0645-0800<br>0605-0800<br>0550-0845 | 39.8 |
| Ironhouse Well | 4/6/98<br>4/16/98 | 0655-0800<br>0640-0735 | 17.6 |
| Lea | 4/15/98 | 0615-0754 | 12.8 |
| *Surveys conducted by Carlsbad BLM biologists | | | |

Table 2.

**Pump Noise Level**

| Quad | Lek | None | Low | Moderate | High |
|---|---|---|---|---|---|
| Greenwood Lake | QP8 | | | | ✓ |
| | QP22 | ✓ | | | |
| | QP23 | | ✓ | | |
| | QP24 | | | | ✓ |
| | QP27 | | | | ✓ |
| Ironhouse Well | QP16 | ✓ | | | |
| | QP17 | ✓ | | | |
| | QP18 | | | | ✓ |
| Laguna Gatuna | QP25 | | | | ✓ |
| Laguna Gatuna NW | QP1 | | | | ✓ |
| | QP2 | ✓ | | | |
| | QP3 | ✓ | | | |
| | QP4 | | ✓ | | |
| | QP5 | ✓ | | | |
| | QP6 | | | ✓ | |
| | QP9 | | ✓ | | |
| | QP10 | | ✓ | | |
| | QP11 | | ✓ | | |
| | QP12 | | ✓ | | |
| | QP13 | ✓ | | | |
| | QP14 | | | | ✓ |
| | QP15 | | ✓ | | |
| | QP19 | | ✓ | | |
| | QP20 | ✓ | | | |
| | QP28 | | | | ✓ |
| Lea | QP21 | | | ✓ | |
| | QP26 | | | | ✓ |
| | QP29 | | | | ✓ |
| Maljamar | QP7 | | | ✓ | |
| Total | 29 leks | 8 | 8 | 3 | 10 |

## Discussion

Range Reduction

An appraisal of LPCH management threats reveals over a century of cumulative impacts. Range-wide, the species is reduced to eight percent of its original distribution. Over five states, just three percent of the estimated historic population remains (Gieson, 1998). Historically, crop conversion, drought, and grazing practices have accounted for population declines, yet two sources cite a 78% reduction in occupied range since 1963 (Gieson, 1998, Taylor and Guthery, 1980).

A similar decline in LPCH range has occurred within the state of New Mexico. In the northeast portion of the state the LPCH is considered extirpated from Harding, Quay and Union counties. In east-central and southeast New Mexico the LPCH is believed to occur in only 34% of its historic range (NMDGF, unpublished data). In 1998, the NMDGF prepared a report on the status of LPCH nesting habitat. Of the suitable, historic range identified by J. Bailey and J. Klingel (unpublished data) only 4% of 334 sites (13) were rated as good potential nesting habitat.

Carlsbad Resource Area

Over the past decade, the LPCH survey effort on the CRA has increased steadily. In 1989 and 1990 fewer than five leks were visited, whereas greater than twenty sites were checked in each of the past five years. In 1998 we observed the continuing trend of greater effort, with fewer results. The addition of road surveys to the annual effort augments our knowledge of LPCH distribution over the given area. In summary, one active lek was observed over the course of visits to thirty historic lek sites and 244 miles of road transects. This population peaked at 160 individuals in 1987, according to records kept by Carlsbad Field Office biologists. This peak may have been an artifact of above average range condition, as the Caprock WHMA population reached a twenty-year high, at over 1,400 counted individuals, in 1986. In any light, the reduction from 160 to six counted individuals in 1998 is serious. These data suggest that the CRA population of prairie chickens is in imminent jeopardy of extirpation. There is evidence of near-zero recruitment between 1997 and 1998, a breeding cycle over which the Caprock WHMA population experienced a 100% increase, and Game and Fish Prairie Chicken Management Area (PCA) counts rebounded by 500% (Johnson et al., 1998).

Causes of Decline

The Carlsbad population of the Lesser Prairie-Chicken has not been able to sustain the confounding impacts of drought, habitat loss, and disruption of reproductive behavior. The integrity of the sand shinnery grasslands that support the LPCH underlies the conservation of this species. As nesting habitat, the High Plains Bluestem Subtype-1 (HPBS-1), dominated by shinnery oak (*Quercus havardii*) and sand bluestem (*Andropogon hallii*), is critical to nest success (Riley et al. 1992). The Subtype-1 provides nesting cover for hens, protection from uncommonly high predation rates, and buffer to environmental stress, which can influence abandonment. An evaluation of brood foraging sites revealed that LPCH broods were found exclusively in the HPBS, dominated by shinnery oak and three-awn grasses (*Aristida* spp.) (Riley and Davis, 1993). From 1968 to 1993, the BLM has treated 78,376 acres of CRA

shinnery oak communities with the herbicide tebuthiuron. Preliminary results of an ongoing nest habitat study on the Caprock WHMA, which underwent a tebuthiuron application program, show that nesting hens are using untreated pastures (Johnson et al. 1998). In a separate study, hens were found to prefer nesting in uncontrolled shinnery pastures as well (Peterson and Boyd, 1998). Grazing, drought, and herbicide applications have altered the landscape proven optimal for LPCH reproduction.

Oil and gas development is evident throughout LPCH range in New Mexico; however, well density and noise-related impacts on the CRA are particularly significant. We cannot understate the potential severity of sound disturbance on a species that is reliant upon vocal communications. Booming males signal their whereabouts to females and attract hens for copulation through a complex system of vocalizations (Giesen, 1998). The observed high fidelity to display grounds by LPCH means that sound disturbance at traditional lek sites could be devastating to breeding efforts. Perturbance by un-muffled pump jacks is only one form of disturbance attributable to oil and gas development. Habitat fragmentation, road construction, vehicle traffic, and oil-well-wastewater sites may also impact the LPCH of this region.

Across the five state range, population fragmentation and disappearance has been common (Biodiversity Legal Foundation, 1995). Not only is the health of individual populations at risk, but connectivity between gene pools is necessary to maintain overall species viability. Without feasible corridors, neighboring populations experience inbreeding, a symptom of small, isolated populations. This loss of connectivity can lead to "adaptive decline and extinction" (Mills and Allendorf, 1996).

Research Recommendations

There is little chance of the natural restoration of this LPCH population. 1) The primary research goal at this time should be a close scrutiny of the management practices that led up to this demise. It is critical that the Carlsbad managers communicate the findings of this inquiry to all managers presiding over similar resource development within LPCH habitats. 2) Population genetic studies can aid in determining whether future reintroduction from an extant population might be feasible. 3) The continuation of the effort to evaluate post herbicide- treatment habitats, within nest habitat/success studies will aid in prioritizing the conservation effort. 4) A comprehensive map of the habitat subtypes supporting the LPCH would also streamline management efforts. Such a map would require land satellite imagery refined by remote-sensing techniques; if the subtypes were readily apparent this tool could be widely applied to assess range quality. 5) Further understanding of predator impacts on LPCH populations is necessary. There is evidence of high predation rates on the Caprock WHMA (Davis et al. 1979, Johnson et al. 1998). A further study of mammalian, avian, and reptilian depredation could reveal new management strategies. 6) Continued parasite analysis of the LPCH is recommended.

Conclusions

The extirpation of the LPCH from the CRA is likely; however, the population decline was foreseeable, and potentially preventable. The CRA needs to be evaluated from an ecosystem

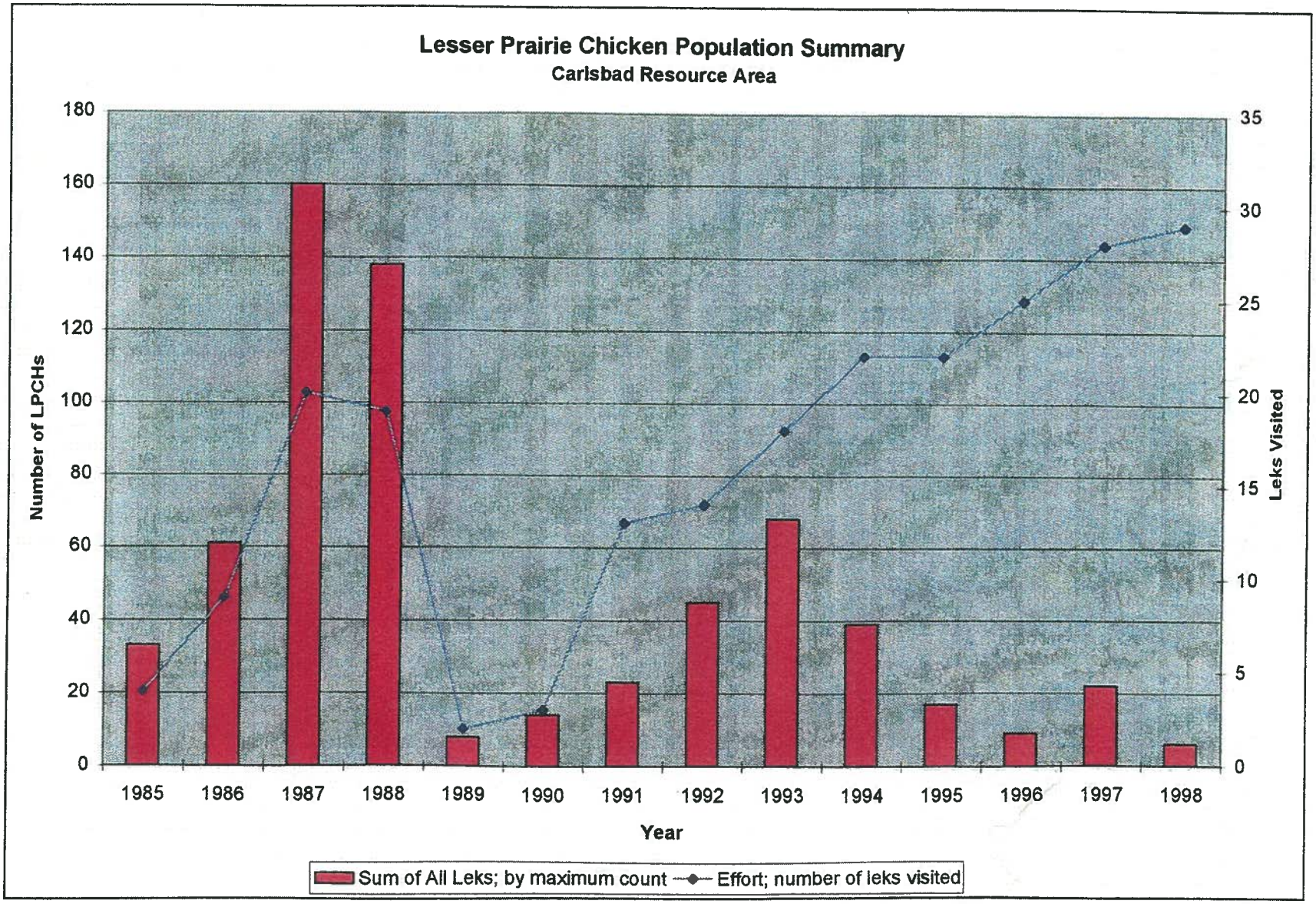
standpoint, and rehabilitated to prevent losses in biodiversity. Measures to salvage this population will benefit the collage of species inhabiting the shinnery oak-bluestem grassland.

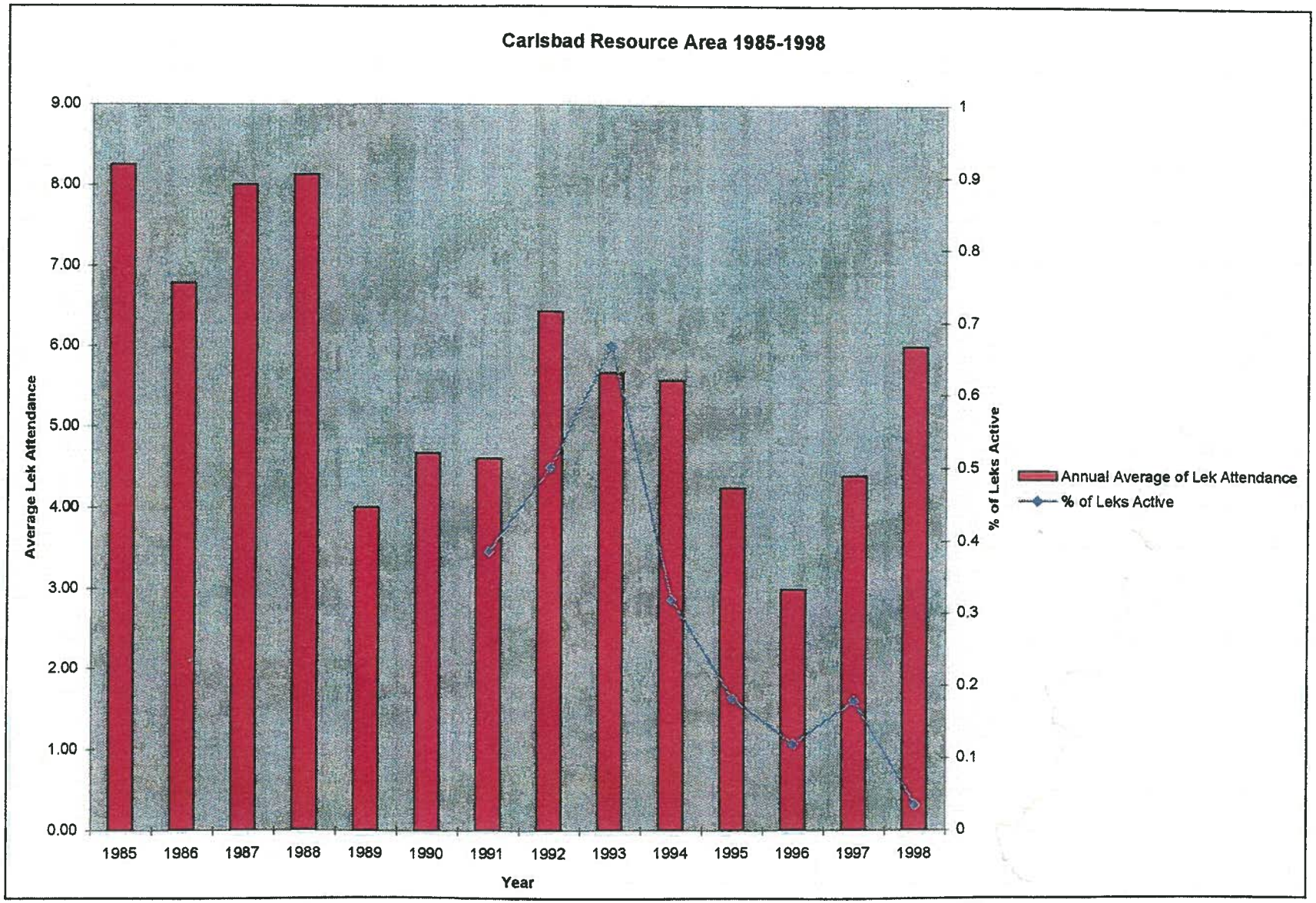
The fate of the LPCH is not sealed on the CRA. The PCA program, managed by the NMDGF, illustrates an effective conservation practice. Land allotments equal to or greater than a section appear to have been successful as breeding exclosures in LPCH nesting habitat. It is possible that non-territorial males, the remaining associates of QP22, and migrant additions to the population could repopulate the CRA. To facilitate such a recovery it would be important to remove noise disturbance and protect remaining habitats.

## Figure Legends

Figure 1. Sums of maximum numbers of LPCH counted at all BLM leks, 1985-1998. The blue line connects points showing the number of lek sites visited.

Figure 2. The annual population count was divided by number of active leks to gather a mean lek attendance figure, 1985-1998. The blue line connects points showing the percent of visited leks which were active, 1991-1998. Prior to 1991, negative survey records were not kept.


Lesser Prairie Chicken Population Summary
Carlsbad Resource Area
Number of LPCHs
Leks Visited
Year
0
20
40
60
80
100
120
140
160
180
0
5
10
15
20
25
30
35
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
Sum of All Leks; by maximum count
Effort; number of leks visited


Carlsbad Resource Area 1985-1998
Average Lek Attendance
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
% of Leks Active
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
Year
Annual Average of Lek Attendance
% of Leks Active

## References


Biodiversity Legal Foundation. 1995. Petition for rule to list the Lesser Prairie-Chicken *Tympanuchus pallidicinctus* as "threatened" within its known historic range under the Endangered Species Act, 16 USC. Sec. 1531 et seq. (1973) as amended. 77 pp.

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Johnson, K., and H. Smith. 1998. Radio telemetry study of Lesser Prairie Chicken habitat use in the Caprock Wildlife Habitat Management Area. New Mexico Natural Heritage Program technical report. 17 pp.

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Mills, L.S., and F.W. Allendorf. 1996. The one migrant-per-generation rule in conservation and management. Conservation Biology 10:1509-1518.

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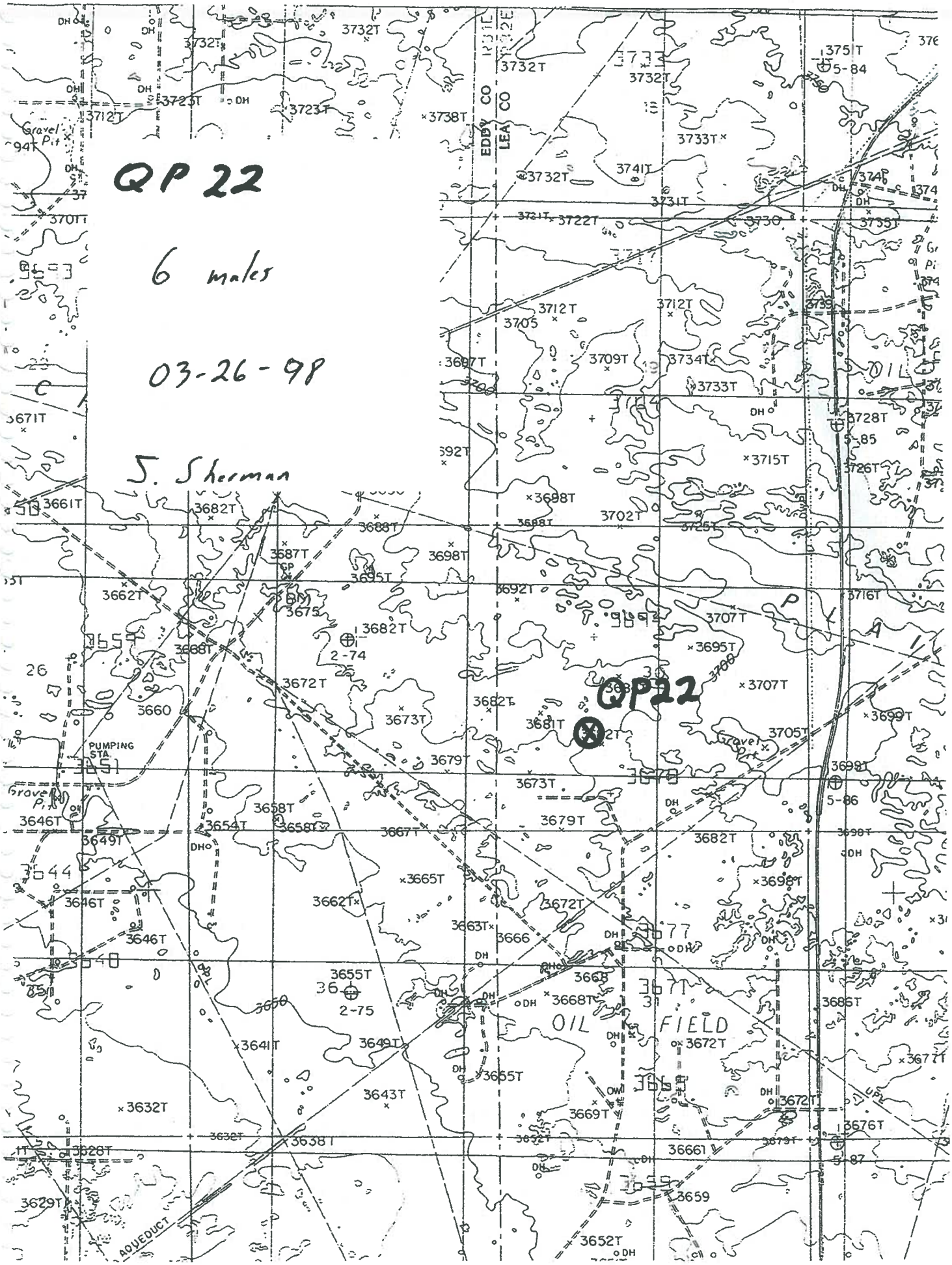
Riley, T.Z., C.A. Davis. 1993. Vegetative characteristics of lesser prairie-chicken brood foraging sites. Prairie Naturalist 25: 243-248.

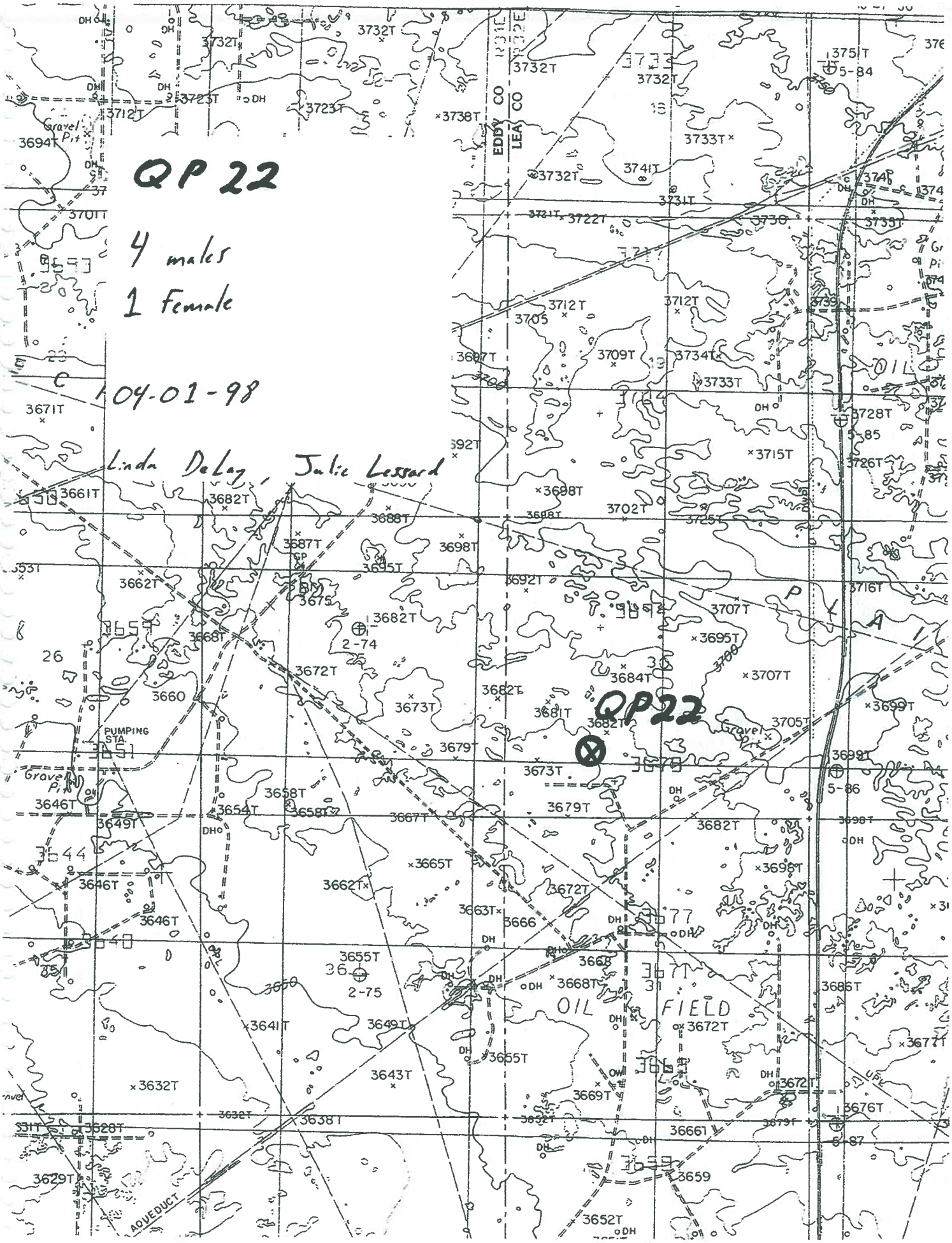
Taylor, M.A., and F.S.Guthery. 1980. Status, ecology, and management of the Lesser Prairie-Chicken. General Technical Report RM-77. Fort Collins: U.S. Department of Agriculture, Forest Service. 15 pp.

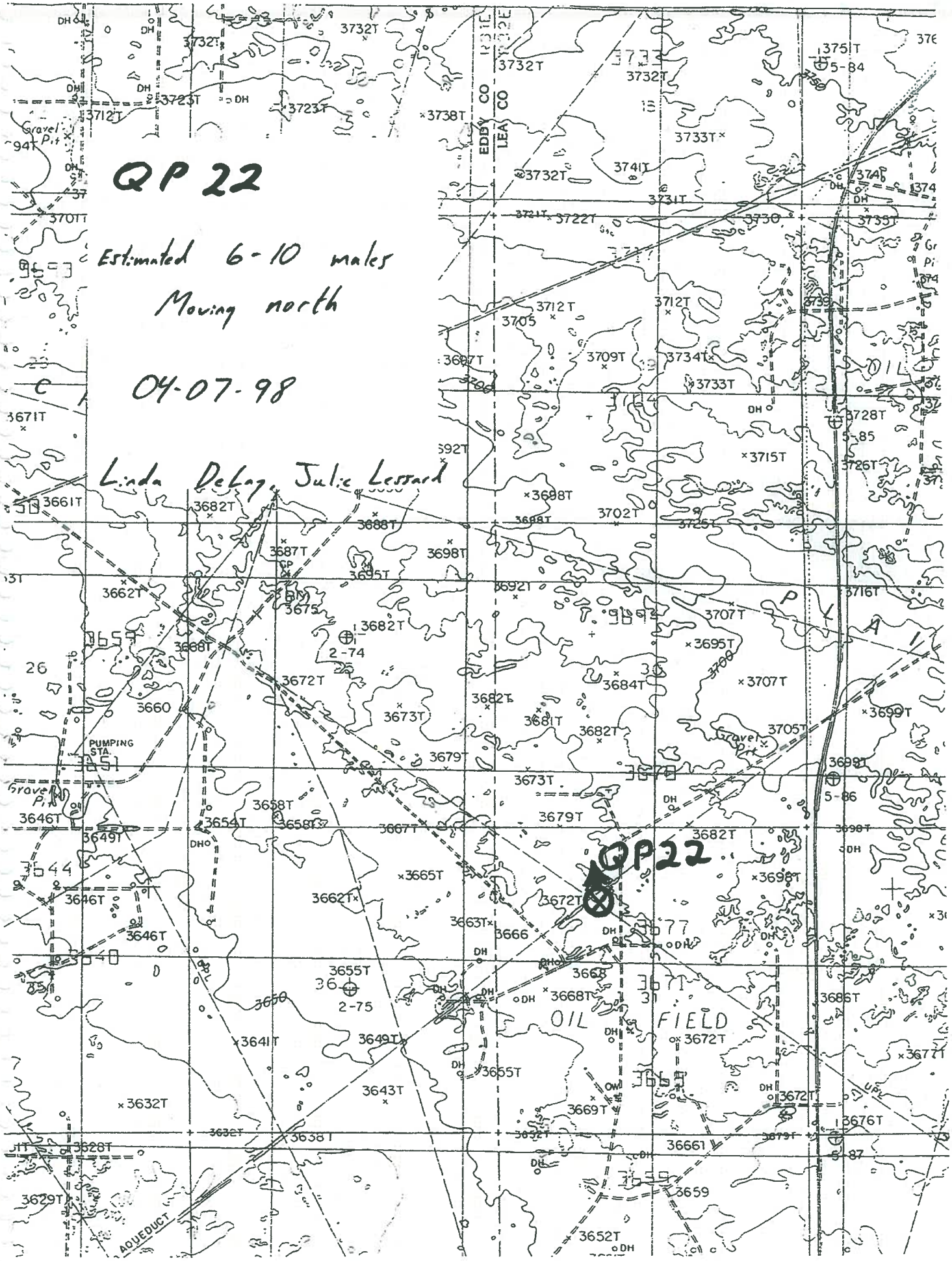
## List of Appendices

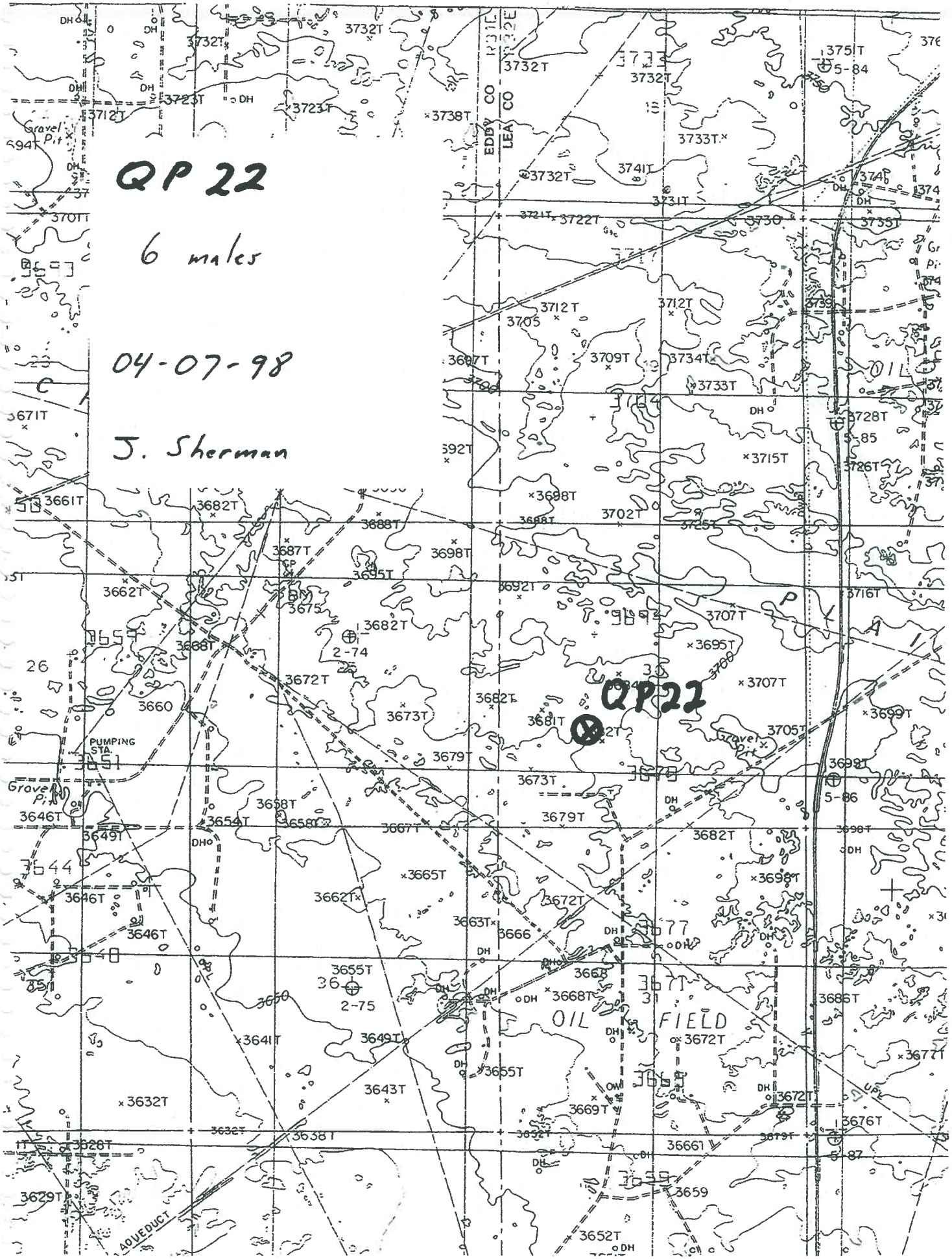
Appendix 1. Map locations of QP22.

Appendix 2. Data sheets from 1998 surveys of CRA historic leks.


QP 22
6 miles
03-26-98
S. Sherman
QP22
EDDY CO
LEA CO
OIL FIELD
PUMPING STA.
AQUEDUCT
Gravel Pit
2-74
2-75
5-84
5-85
5-86
5-87


QP 22
4 males
1 Female
04-01-98
Linda DeLay, Julie Lessard
EDDY CO
LEA CO
QP22
OIL FIELD
PUMPING STA.
Gravel Pit
AQUEDUCT


QP 22
Estimated 6-10 miles
Moving north
04-07-98
Linda DeLay, Julie Lessard
EDDY CO
LEA CO
OIL FIELD
PUMPING STA.
AQUEDUCT
Gravel Pit
QP22


QP 22
6 males
04-07-98
J. Sherman
QP22
EDDY CO
LEA CO
OIL FIELD
PUMPING STA.
Gravel Pit
AQUEDUCT

(1) LEK NO. QP1

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4/5/98

(X) TIME 7:05-7:10

(X) OBSERVER(S)
LD
JL

(10) T. 19 (11) R. 33 (12) SEC. 11 (13) QTR. NWNE (15) LAND STATUS

(X) WEATHER Calm, clear

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS
Oil well noise significant, OG

(26) COMMENTS

(1) LEK NO. QP2

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Gatuna

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4/5/98

(X) TIME 7:30-8:10 am

(X) OBSERVER(S)
LD
JL

(10) T. 18 (11) R. 33 (12) SEC. 34 (13) QTR. SWNE (15) LAND STATUS

(X) WEATHER Calm, clear

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Also searched section 33 for this particular lek [Rd, 0]

(26) COMMENTS

(1) LEK NO. QP3

✓

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Cow Island

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Salinas NW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4 Apr 98

(X) TIME [illegible]

(X) OBSERVER(S)
LWB
JL

(10) T. 18 (11) R. 33 (12) SEC. 32 (13) QTR. SWNE (15) LAND STATUS

(X) WEATHER [illegible] <5mph

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT.

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Searched Pts. in Sec. 32

(26) COMMENTS [OG]

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

FORM 6611.32-1
MARCH 1987

(1) LEK NO. QP4

✓

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(8&9) DATE 3 Apr 93

(3) SPECIAL PROJ. AREA

(X) TIME 0525

(4) MAP REFERENCE Laguna Gatuna NW

(X) OBSERVER(S) LSD JL

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(10) T. 18 (11) R. 33 (12) SEC. 18 (13) QTR. SWSW (15) LAND STATUS

(X) WEATHER cold, clear 5 mph wind

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT.

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

(26) COMMENTS

(1) LEK NO. QP5

## PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE
Laguna

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 8 Apr 98

(X) TIME 0600-0620

(X) OBSERVER(S) LSD JL

(10) T. 19 (11) R. 33 (12) SEC. 9 (13) QTR. NESW (15) LAND STATUS

(X) WEATHER [illegible] (40°?, < 5 mph wind)

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Sect. 4-5-8 Also listened for lek, Quiet.

(26) COMMENTS OG, DP

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

FORM 6611.32-1
MARCH 1987

(1) LEK NO. QP6

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Gatuna

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 8 Apr 98

(X) TIME 0645-0700

(X) OBSERVER(S) CSD JL

(10) T. 19 (11) R. 32 (12) SEC. 1 (13) QTR. NENW (15) LAND STATUS

(X) WEATHER Clear, cold, <5mph winds

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Checked sect. 2 (drive; listen) low-mod noise level

(26) COMMENTS OG.

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

FORM 6611.32-1
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(1) LEK NO. QP7

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad - Quercho Plains

(8&9) DATE 17 Apr 98

(3) SPECIAL PROJ. AREA

(X) TIME 6:00-6:40 am

(4) MAP REFERENCE Maljamar

(X) OBSERVER(S)
JR
JO

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(10) T. 17 (11) R. 31 (12) SEC. 36 (13) QTR. NESW (15) LAND STATUS

(X) WEATHER mostly cloudy, calm, ~40's

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Also looked in section 35
Noise from highway + nearby refinery moderate level
OG)

(26) COMMENTS

(1) LEK NO. QP-8

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Greenwood Lake

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 1 April 78

(X) TIME Start = 630

(X) OBSERVER(S) LSD JL

(10) T. 19 S (11) R. 32 E (12) SEC. 22 ~~27~~ (13) QTR. NWNE (15) LAND STATUS

(X) WEATHER clear, calm, lots of well noise

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES

(17) NO. FEMALES

(18) NO. UNIDENT.

(19) NO. ESTIMATED

(20) TOTAL NO.

(21) LEK SITE

(22) IMPACT

(25) REMARKS
630-78 (21) → SENW
Sec. 22 → SWSE

22 → NWNE 715-740
abandoned pad - Floyd Oil Co.
OF / DP

(26) COMMENTS

(1) LEK NO. QP7

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Gatuna NW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 23 Apr 98

(X) TIME 0700-0800

(X) OBSERVER(S) LSB JL

(10) T. 19 (11) R. 32 (12) SEC. 11 (13) QTR. NWNE (15) LAND STATUS

(X) WEATHER Calm, clear, warmish

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS low noise level (OR-, DP)

(26) COMMENTS searched Sect 11, 12, 15, 13, 14 (roadside)

(1) LEK NO. QP10

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(8&9) DATE 3 April 98

(3) SPECIAL PROJ. AREA

(X) TIME 0575

(4) MAP REFERENCE Laguna Gatuna NW

(X) OBSERVER(S) LSD JL

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(10) T. 18S (11) R. 32 (12) SEC. 13 (13) QTR. SENE (15) LAND STATUS

(X) WEATHER Clear, 45mph winds, cool

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

[OG] [illegible]

(26) COMMENTS

(1) LEK NO. QP11

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Gatuna NW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4/3/88

(X) TIME 0610

(X) OBSERVER(S) LSD JL

(10) T. 18 (11) R. 32 (12) SEC. 24 (13) QTR. NWNE (15) LAND STATUS

(X) WEATHER cold, clear, 2mph wind

(X) LEK STATUS Inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES

(18) NO. UNIDENT.

(19) NO. ESTIMATED

(20) TOTAL NO.

(21) LEK SITE

(22) IMPACT

(25) REMARKS low OG noise

(26) COMMENTS

(1) LEK NO. QP12

## PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna [illegible] NW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4 Apr 98

(X) TIME 0520-0540

(X) OBSERVER(S) [illegible] JL

(10) T. 18 (11) R. 32 (12) SEC. 36 (13) QTR. NWNE (15) LAND STATUS

(X) WEATHER Clear, <5mph

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT.

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

Also searched [illegible] .25 [illegible] [illegible]

(26) COMMENTS

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(1) LEK NO. QP13

## PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4 Apr 78

(X) TIME 0550 - 0615

(X) OBSERVER(S)

LD
JL

(10) T. 18 (11) R. 33 (12) SEC. 52 (13) QTR. NWSW (15) LAND STATUS

(X) WEATHER clear, wind < 3 mph

(X) LEK STATUS [illegible]

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT.

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

[illegible] Sect. 31 too. [illegible]

(26) COMMENTS.

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

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(1) LEK NO. QP14A

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Gatuna NW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4/5/98

(X) TIME 6:30-7:00am

(X) OBSERVER(S) LD JL

(10) T. 19 (11) R. 33 (12) SEC. 10 (13) QTR. NWNE (15) LAND STATUS

(X) WEATHER calm, clear

(X) LEK STATUS inactive

(23) MOVEMENT See below

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS two sets of UTM coordinates for QP14
- this particular area has been ~~[illegible]~~ active

(26) COMMENTS

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

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(1) LEK NO. QP14B

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4/5/98

(X) TIME 7:18-7:25am

(X) OBSERVER(S)
LD
JL

(10) T. 19 (11) R. 33 (12) SEC. 3 (13) QTR. SENW (15) LAND STATUS

(X) WEATHER calm, clear

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS may have moved south recently (see QP14A)

(26) COMMENTS

Revisit

(1) LEK NO. QP14-A

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA [illegible]

(8&9) DATE 23 Apr 90

(3) SPECIAL PROJ. AREA

(X) TIME 0600 - 0620

(4) MAP REFERENCE [illegible]

(X) OBSERVER(S)

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(10) T. (11) R. (12) SEC. (13) QTR. (15) LAND STATUS

(X) WEATHER clear, calm, warmish (50's F)

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT mod oil well service to high

(25) REMARKS

(26) COMMENTS Searched roadside section 10, 15, 22

(1) LEK NO. Q P 15

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Gatuna NW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 3 Apr 93

(X) TIME 0545

(X) OBSERVER(S) LSD JL

(10) T. 18 (11) R. 32 (12) SEC. 24 (13) QTR. SENE (15) LAND STATUS

(X) WEATHER cold, [illegible], 2mph wind

(X) LEK STATUS Inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT.

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

low OE noise

(26) COMMENTS

(1) LEK NO. QP16

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE ironhorse well

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 6 Apr 98

(X) TIME 0600-0625

(X) OBSERVER(S)
LSD
JL

(10) T. 19 (11) R. 33 (12) SEC. 12 & 7 (13) QTR. SENE (15) LAND STATUS

(X) WEATHER Clear, calm, ~50's ?

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. -

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Searched sect 7 near Neenburg Rj

(26) COMMENTS

(1) LEK NO. CP17

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Trashouse well

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 6 Apr 88

(X) TIME 0625-0650

(X) OBSERVER(S) Delay, Lessard

(10) T. 19 (11) R. 33 (12) SEC. 1 (13) QTR. SE SW (15) LAND STATUS

(X) WEATHER Clear

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED —

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

(26) COMMENTS Searched sec. 12 also

(1) LEK NO. QP 13

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlo Land

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE [illegible]

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 6 Apr 73

(X) TIME 0625-0[illegible]5

(X) OBSERVER(S)

LSP
JL

(10) T. 17 (11) R. 33 (12) SEC. 1 (13) QTR. [illegible] (15) LAND STATUS

(X) WEATHER Clear [illegible] 40-50°s

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

(26) COMMENTS

Search part of sect. 2
Sump. oil well [illegible]

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ROSWELL DISTRICT OFFICE

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(1) LEK NO. QP19

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad - Quercecho Plains

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Gatuna NW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4/16/98

(X) TIME 6:10 - 6:45

(X) OBSERVER(S)
JL
JC

(10) T. 18 (11) R. 33 (12) SEC. 35 (13) QTR. NESE (15) LAND STATUS

(X) WEATHER Clear, breezy (5-10 mph)

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS

(26) COMMENTS Listened & looked for lek in Section 25 + in section 36 on 4/16/98
Some well noise in the distance - low

(1) LEK NO. _____ ?A P.G. Structure

Not a lek

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 1 April 98 + 2 April 98

(X) TIME 1700 500 5.30am

(X) OBSERVER(S)
LD
JL

(10) T. 19 (11) R. 32 (12) SEC. 3 (13) QTR SWNE (15) LAND STATUS

(X) WEATHER 2 April - very windy (30mph gusts)

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES

(17) NO. FEMALES

(18) NO. UNIDENT.

(19) NO. ESTIMATED

(20) TOTAL NO.

(21) LEK SITE

(22) IMPACT

(25) REMARKS
bad census day due to wind - will return at later date

(26) COMMENTS
1700 - stand on dunes - no sound.

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

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✓

(1) LEK NO. PP20

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(8&9) DATE 8 Apr 78

(3) SPECIAL PROJ. AREA

(X) TIME 0620-0635

(4) MAP REFERENCE Laguna Plume

(X) OBSERVER(S) LSD JL

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(10) T. 19 (11) R. 33 (12) SEC. 8 (13) QTR. SENW (15) LAND STATUS

(X) WEATHER Clear, cold, 8 5mph

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Searched & listened Sec 7 & 9; Count

(26) COMMENTS

(1) LEK NO. QP21

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad - Quercho Plains

(3) SPECIAL PROJ. AREA LCA

(4) MAP REFERENCE

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 15 Apr 98

(X) TIME 0550-0615

(X) OBSERVER(S)

JL

JD

(10) T. 20S (11) R. 34E (12) SEC. 9 (13) QTR. NWSE (15) LAND STATUS

(X) WEATHER Calm, clear & cold (40's)

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT.

(19) NO. ESTIMATED

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS listened for lek also in section 10
noise from oil wells moderate

(26) COMMENTS

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ROSWELL DISTRICT OFFICE

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(1) Lek No. QP #22

PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

( 2) SURVEY AREA Quercho Plains (869) DATE 3/26/98

( 3) SPECIAL PROT. AREA (X) TIME 6:20 am

( 4) MAP REFERENCE ~~[illegible]~~ Greenwood Lake (X) OBSERVER G. Sherman

( 5) ALLOTMENT NAME Twin Wells North

( 6) ALLOTMENT NO. 7012

( 7) PASTURE

(10) T. 18 (11) R. 32 (12) SEC. 30 (13) ¼ ¼ NESW (15) LAND STATUS BLM

( X) WEATHER Clear and calm - dry

( X) LEK STATUS active (23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 6

(17) NO. FEMALES

(18) NO. UNIDENT.

(19) NO. ESTIMATED

(20) TOTAL NO. 6

(21) LEK SITE Native shinnery / bluestem - dropseed

(22) IMPACT Lek is >1 mile from oil & gas disturbance

(25) REMARKS

(26) COMMENTS

(1) LEK NO. QP22

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Greenwood Lake

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 1 April 78

(X) TIME 0520-0530

(X) OBSERVER(S)
Linda
Julie

(10) T. 18 (11) R. 32 (12) SEC. 30 (13) QTR. SWSW (15) LAND STATUS

(X) WEATHER Calm, Clear [illegible]

(X) LEK STATUS

(23) MOVEMENT Stayed with 10m

(24) NEW LOCATION

(16) NO. MALES 4

(17) NO. FEMALES 1

(18) NO. UNIDENT.

(19) NO. ESTIMATED 5

(20) TOTAL NO. 5

(21) LEK SITE

(22) IMPACT

(25) REMARKS Returned 1745-1830 (sunset) - no calling/sightings.

(26) COMMENTS Calling, clucking & jumping. but not booming

observed for about 20 min.

2nd reading:
UTM 611578.5
N 3620080.9
1039m
H040212B 45 wpts.

0530
GPS UTM 611734.9
(NAD78) 3620069.2
1008 m

H040112A
18 wpts.

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(1) LEK NO. QP22-B

~~Or possible~~ new lek? Same lek as (Q22).

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Greenwood Lake

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 7 Apr 98

(X) TIME 0610 - 0640

(X) OBSERVER(S) includes new surrounding pts (15 min at lek)

LSD
JFL

(10) T. 18 (11) R. 32 (12) SEC. 31 (13) QTR. SE NW (15) LAND STATUS

(X) WEATHER Clear, calm

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES

(17) NO. FEMALES Not visible

(18) NO. UNIDENT.

(19) NO. ESTIMATED 6 to 10

(20) TOTAL NO.

(21) LEK SITE

(22) IMPACT

(25) REMARKS

GPS 611714
(H040712A) 3619286.7 1238 m
50 wpts.

(26) COMMENTS

Searched road surrounding vocal location
Some calls may have been from old location;
Some calls sounded very mean (~ 50-100 m)

Satellite lek?

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

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(1) Lek No. QP #22

PRAIRIE CHICKEN SURVEY FORM
(see Survey Codes)

( 2) SURVEY Area QP

(869) DATE 4/7/98

( 3) SPECIAL PROT. AREA

(X) TIME 6:45

( 4) MAP REFERENCE Greenwood Lake

(X) OBSERVER JS Lerman

( 5) ALLOTMENT NAME Twin Wells North

( 6) ALLOTMENT NO.

( 7) PASTURE

(10) T. 18 (11) R. 32 (12) SEC. 30 (13) ¼ ¼ NESW (15) LAND STATUS BLM

( X) WEATHER Slight breeze

( X) LEK STATUS Active

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 6

(17) NO. FEMALES

(18) NO. UNIDENT.

(19) NO. ESTIMATED

(20) TOTAL NO. 6

(21) LEK SITE Native Shinnery/Bluestem/Dropseed

(22) IMPACT Lek is >1 mile from active O&G disturbance

(25) REMARKS

(26) COMMENTS

(1) LEK NO. QP23

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Greenwood Lake

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 7 Apr 98

(X) TIME 0550-0600

(X) OBSERVER(S)
LSD
JL

(10) T. 18 (11) R. 32 (12) SEC. 29 (13) QTR. SESW (15) LAND STATUS

(X) WEATHER Cold Clear [illegible]

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. –

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Searched up road (thru [illegible]) [illegible] along [illegible]

(26) COMMENTS

USDI, BUREAU OF LAND MANAGEMENT
ROSWELL DISTRICT OFFICE

FORM 6611.32-1
MARCH 1987

(1) LEK NO. QP23

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad - Quercho Plains

(8&9) DATE 4/14/98

(3) SPECIAL PROJ. AREA

(X) TIME 700-740am

(4) MAP REFERENCE Greenwood Lake

(X) OBSERVER(S) Julie Lessard, Jeff Ogburn

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(10) T. 18S (11) R. 32E (12) SEC. 29 (13) QTR. SESW (15) LAND STATUS

(X) WEATHER clear, calm (winds <5mph.)

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS
Also listened for this lek in Sections 28, 32, 33
noise from oil wells low. could hear cars on main road

(26) COMMENTS
walked from abandoned pad toward lek site

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ROSWELL DISTRICT OFFICE

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V

(1) LEK NO. QP24

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carls

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Greenwood Lake

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 7 Apr 93

(X) TIME 0705 - 0725

(X) OBSERVER(S) [illegible] Rd search

LSB
JL

(10) T. 18 (11) R. 31 (12) SEC. 35 (13) QTR. SWNW (15) LAND STATUS

(X) WEATHER Clear, Calm

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Searched section 34
Significant oil field noise & traffic.

(26) COMMENTS

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(1) LEK NO. QP25

## PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Laguna Cartana

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 21 Apr 98

(X) TIME 0545-0600

(X) OBSERVER(S) LSD JL

(10) T. 20 (11) R. 33 (12) SEC. 3 (13) QTR. NENE (15) LAND STATUS

(X) WEATHER Clear, calm

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT significant air field noise

(25) REMARKS

(26) COMMENTS

(1) LEK NO. QP26

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad - Querecho Plains

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Lea

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 15 Apr 98

(X) TIME 0645 0700

(X) OBSERVER(S)
JL
JU

(10) T. 20S (11) R. 34E (12) SEC. 20 (13) QTR. NWNW (15) LAND STATUS

(X) WEATHER clear + calm

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Also searched sections 17 + 19 for this lek. Good habitat in this area but noisy oil wells. Found b. owl burrow + owls in area (3 owls sighted)

(26) COMMENTS ↓

GPS 6329516 1190 m
3603498.8 File H041513A 30 way pts

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ROSWELL DISTRICT OFFICE

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(1) LEK NO. QP27

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Orchardwood Lake

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 7 Apr 93

(X) TIME 0650-0705 include meet rd. search

(X) OBSERVER(S) LSD JL

(10) T. 18 (11) R. 31 (12) SEC. 23 (13) QTR. SWSW (15) LAND STATUS

(X) WEATHER Clear, Calm

(X) LEK STATUS

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. —

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT

(25) REMARKS Searched sections 27, 26, 22
Significant oil field noise.

(26) COMMENTS

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(1) LEK NO. QP28

# PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY AREA Carlsbad

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(8&9) DATE 4/5/96

(X) TIME 6:05 - 6:15am

(X) OBSERVER(S)
LD
JL

(10) T. 19 (11) R. 33 (12) SEC. 18 (13) QTR. SENW (15) LAND STATUS

(X) WEATHER calm, clear

(X) LEK STATUS
inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT New cattle congregations, DP, OG, Rd. pump noise = ~~[illegible]~~ high

(25) REMARKS

(26) COMMENTS

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(1) LEK NO. QP29

**PRAIRIE CHICKEN SURVEY FORM**
(See Survey Codes)

(2) SURVEY AREA Carlsbad - Quercia Plains

(8&9) DATE 4/15/78

(3) SPECIAL PROJ. AREA

(X) TIME 0640 - 0650

(4) MAP REFERENCE Lea

(X) OBSERVER(S)
JL
JO

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE NAME

(10) T. 20S (11) R. 34E (12) SEC. 17 (13) QTR. SWNW (15) LAND STATUS

(X) WEATHER Calm & clear

(X) LEK STATUS inactive

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES 0

(17) NO. FEMALES 0

(18) NO. UNIDENT. 0

(19) NO. ESTIMATED 0

(20) TOTAL NO. 0

(21) LEK SITE

(22) IMPACT OG

(25) REMARKS Also searched in section 18 for this lek
Noisy oil wells nearby

(26) COMMENTS

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(1) Lek No.

E23

PRAIRIE CHICKEN SURVEY FORM
(See Survey Codes)

(2) SURVEY Area Eunice

(3) SPECIAL PROJ. AREA

(4) MAP REFERENCE Hobbs SW

(5) ALLOTMENT NAME

(6) ALLOTMENT NO.

(7) PASTURE

(8&9) DATE 4/9 & 4/22

(X) TIME 6:20 6:25

(X) OBSERVER G. Sherman

(10) T. 20 (11) R. 37 (12) SEC. 27 (13) ¼ ¼ SENE (15) LAND STATUS BLM

(X) WEATHER Clear, Calm

(X) LEK STATUS NOT Active

(23) MOVEMENT

(24) NEW LOCATION

(16) NO. MALES -0-

(17) NO. FEMALES "

(18) NO. UNIDENT. "

(19) NO. ESTIMATED "

(20) TOTAL NO. -0-

(21) LEK SITE - This has been A very active lek even in 1997. No birds were observed.

(22) IMPACT

(25) REMARKS I got out and walked the lek site to look for tracks. None were observed

(26) COMMENTS