

**SUMMARY OF CALLING SURVEYS FOR  
FLAMMULATED AND NORTHERN SAW-WHET OWLS  
IN THE SOUTHERN BLACK HILLS**

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**FOR  
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NATURAL HERITAGE DATABASE PROGRAM**

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Population and status data on small forest owls that inhabit the Black Hills is extremely limited. In addition, there is basically no information on the Flammulated Owl in the Black Hills, where seemingly suitable habitat occurs. Reasons for this are unknown, but, a recent observation of a "dark eyed owl" caught in a bat mist net by Joel Tigner in 1994 raises suspicion that this owl could occur in the Black Hills on a more regular basis than previously believed. This project attempted to establish the population and breeding status of the Northern Saw-whet Owl and the Flammulated Owl in the southern Black Hills and identify areas of high potential habitat for these species and their management.

The Northern Saw-whet Owl is currently monitored by the South Dakota Natural Heritage Database Program and the Flammulated Owl probably would be if it was previously known to occur in the state. Baseline data is needed to see if these very secretive species are in need of further management. While both federal and state agencies are concerned about these species, funding at the agency level does not exist for gathering this baseline data. However, if baseline studies indicate the need for further management, funding from other sources may become available for those purposes.

**PROJECT OBJECTIVES**

The objectives of this project were as follows:

- a) to gather a collection of data on occurrence frequency and nest/roost habitat preference of the Northern Saw-whet Owl in the study area
- b) to attempt to document the presence of Flammulated Owls, when and where they occur and whether these populations are transient individuals or a breeding population.

**METHODS**

This project has three major components:

- a) to locate the owls
- b) to evaluate the habitat
- c) to report the findings.

After a literature search was conducted to develop criteria for potential habitat in which to survey for the owls, transects were established through areas determined to be suitable for these species. Investigators drove along these transects and broadcast recorded calls of these species at intervals of .3 miles. Time taken at each station was five minutes with calls broadcast to each cardinal direction for one minute and one minute used to listen for any responses. When a bird responded, its location was noted and marked with flagging in the field, data was recorded about the habitat in which the

bird was found, the location was marked on maps which may be found in the back of this report, and second visit to the site was made during daylight hours to verify habitat notes. After a response, the surveyors moved .5 miles down the route before calling again to presumably travel out of the responding bird's territory. Surveyors also moved .5 miles down the route when Great-horned Owls answered the calls to move out of their territories as they are considered a primary predator on the smaller owls. Calling was conducted at night between 30 minutes after sunset to no later than midnight. A Johnny Caller™ wildlife caller was used to broadcast owl calls which were taped by Cornell University specifically for this purpose.

### **HABITAT ANALYSIS**

The literature search indicated that Saw-whet Owls prefer areas of open Ponderosa Pine forest with a thick understory of juniper for roosting in the Black Hills area. Distance from water was not listed as a preference criteria. Moths are listed as a primary prey item.

Flammulated Owls prefer open pine forest with a propensity toward areas with some oak and within 800 yards of open water. Recent literature also lists this species as beetle dependent (Rauber). This would tend to eliminate a lot of habitat in the well manicured Black Hills National Forest, leaving only areas of little and distant past logging activity.

### **TRANSECTS ESTABLISHED FOR SURVEY**

Utilizing the above referenced information, six transects were established for calling surveys for Saw-whet and Flammulated Owls. Exact routes are located on maps at the end of this report. Transects are identified by name and legal description of the beginning point in the chart below.

- |                             |                      |
|-----------------------------|----------------------|
| 1. McKenna Spring           | R3E, T4S, Section 34 |
| 2. Roby Canyon              | R1E, T2S, Section 19 |
| 3. Woodcock Spring          | R5E, T6S, Section 21 |
| 4. Pleasant Valley          | R3E, T5S, Section 3  |
| 5. CSP #2 Custer State Park | R6E, T4S, Section 7  |
| 6. NW Custer State Park     | R6E, T3S, Section 5  |

### **SUMMARY OF NORTHERN SAW-WHET OWL SURVEY RESULTS**

#### **McKenna Spring Transect**

The McKenna Spring Transect was run on May 3, 1997 from McKenna Spring, north, to US Highway 16 on Forest Road 277. During the course of the survey only one Northern Saw-whet Owl answered the broadcast calls. This bird occurred about fifteen feet off the ground in a Ponderosa Pine tree located to the outside of a cluster of

approximately seven pine trees. The area of occurrence was approximately 100 feet northwest of the intersection of Forest Roads 277 and 278 on Forest Road 277. The group of trees was located on the north side of a large meadow. Small juniper shrubs were visible at the edge of the meadow and below the trees in the grouping. No snags (preferred nesting place for this species) were visible from the location of the sighting, indicating that the bird may have been foraging at the time it was documented.

### **Roby Canyon Transect**

The Roby Canyon Transect was surveyed on May 9, 1997 from the Summit Peak Lookout Tower, south to the intersection of Boles Canyon Road. This area showed high potential for habitat for Northern Saw-whet Owls. There were many stands of juniper among the pine and spruce forest. Open areas for foraging exist and Saw-whet Owl roosts have been found in the canyon in the past by David Peterson, wildlife student from the University of Wyoming. In the course of this survey three Saw-whet Owls responded to the broadcast calls. Location of these birds were as follows; one bird 3.8 miles north of the intersection of Roby Canyon Road and Boles Canyon Road (Forest Road 117), one bird 1.9 miles north of the same intersection, and one bird .2 miles north of the same intersection.

The first bird answered calls from a lone pine tree in a small opening. Understory of the surrounding pine forest included numerous Rocky Mountain Junipers in both tree and shrub form. This individual was probably foraging at the time of the survey based on the fact the location was in the center of an open area.

The second bird called from a pine covered ridge on the east side of Roby Canyon. This bird was not seen but answered with typical Saw-whet Owl calls. Understory in the area included snags and juniper, both utilized for nesting and roosting by this species. While the area was searched for signs of nesting and roosting, no signs were found. This area would be a good place to search for nesting again.

The third bird was seen and heard calling from a pine covered hillside, just east of Roby Canyon Road. Spruce forest was thick in the vicinity and Rocky Mountain Juniper was common. The bird flew over the ridge to the east of Roby Canyon after slowly working its way south from the point it started calling. This individual was probably foraging at the time it was located as no nestsite or roost was located in the area in subsequent visits.

### **Custer State Park Transects**

The two Custer State Park transects were accomplished for Northern Saw-whet Owls on May 14, 1997. No Saw-whet Owls were located on either transect, although there appears to be an abundance of suitable habitat in the areas of the surveys. The most noticeable answer to the lack of Saw-whet Owls on the transects was the relative abundance of Great-horned Owls in the area. The larger owl is a primary

predator of the smaller forest owls. Along CSP road #2 four Great-horned Owls answered our Saw-whet calls. To attempt to avoid continuous attention of the Great-horned Owls we moved down the transect .5 mile to bypass the territories of the larger predators. This seemed to work as the larger owls did not answer our calls at adjoining calling stations. Great-horned Owls answered our calls on the Northwest Custer State Park transect three times. The same protocol was used, but, since this route was somewhat circular, it seemed that there were few areas which were not within the rather large territories of these birds. This route was eliminated from further survey for this reason.

#### **Woodcock Spring Transect**

The Woodcock Spring Transect was surveyed on May 31, 1997 from Woodcock Spring to a point five miles north of the spring on Forest Road 682. Although some habitat for Saw-whet Owls was present, the habitat was not continuous along the length of the transect. No Saw-whet Owls were located during the survey.

#### **Pleasant Valley Transect**

The Pleasant Valley Transect was surveyed on May 30, 1997. The protocol used for this transect differed from the other transects in that the calls of Saw-whet and Flammulated Owls were alternated between stations. There were no responses by either species on this route. However, during the course of Forest Service activity in similar habitat approximately one mile south of the ending calling station, a Saw-whet Owl nest was located in a pine snag on a pine covered ridgetop.

#### **SUMMARY OF FLAMMULATED OWL SURVEYS**

Flammulated Owls have never been positively documented in South Dakota even though potential habitat does exist in the Black Hills. The only probable report was the previously related capture of a small dark eyed owl by Joel Tigner at Woodcock Spring in August of 1994. While Saw-whet Owls have been reported in the Black Hills at all seasons of the year, the Flammulated Owl is migratory. According to reports from Colorado, the Flammulated Owl arrives in that state during the last two weeks of May with nesting starting during the first two weeks of June. With this in mind, surveys for this species began with the Pleasant Valley transect on May 30, 1997 and ended June 30, 1997 with a second survey of the Woodcock Spring transect. No Flammulated Owls were located on any of the transects. If future surveys are funded, areas of the Black Hills with stands of oaks will be concentrated on for this species.

#### **CONCLUSIONS**

A number of conclusions may be reached from this study. After a search of the literature it was concluded that potential habitat for both owl species exists in the southern Black Hills. Surveys showed that viable populations of Northern Saw-whet

Owls exist in areas of pine forest with juniper undergrowth for roosting. No small forest owls were located in areas occupied by Great-horned Owls, a primary predator on small owls. This common owl would certainly be a limiting factor in small owl populations.

Surveys did not find any Flammulated Owls, although areas of apparently suitable habitat were surveyed. Possibly, the remoteness of this habitat from the known populations of this species in Colorado, southern Wyoming and western Nebraska would account for lack of this species in the Black Hills, although further surveys would be warranted in the opinion of this investigator. These efforts should be placed in areas of pine/oak forest with infestations of pine beetles.

### ACKNOWLEDGMENTS

Special thanks to Doug Backlund and the South Dakota Department of Game, Fish and Parks Natural Heritage Database Program for funding these surveys. Thanks also go out to Brad Philips (USDA Forest Service) for assisting with the surveys and providing the tape and wildlife caller used in the surveys. Contributions of input and advice were also provided by Gary Brundige (Custer State Park), Dan Roddy (Wind Cave National Park) and Mr. Richard Peterson (South Dakota Breeding Bird Atlas).

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1997 SMALL OWL SURVEY MAP  
MCKENZIE SPRING TRANSECT  
SCALE 1:10,000

# APPENDIX A

## MAPS OF 1997 SMALL OWL TRANSECTS AND FINDINGS

SWO → = SAW-WHET OWL SITING

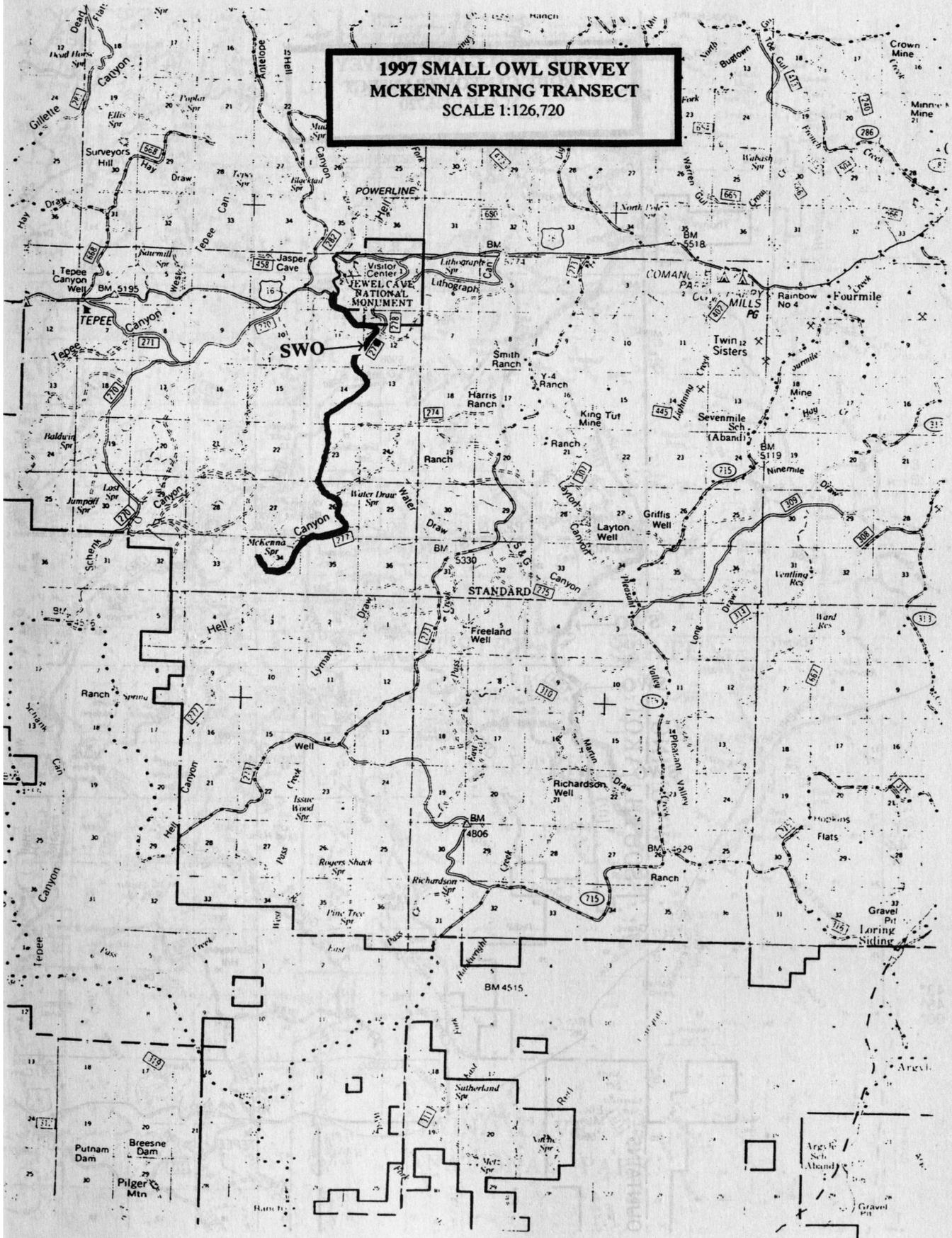
— = SMALL OWL SURVEY TRANSECT ROUTE

APPENDIX A

MAPS OF 1997  
SMALL OWL  
TRANSECTS AND  
FINDINGS

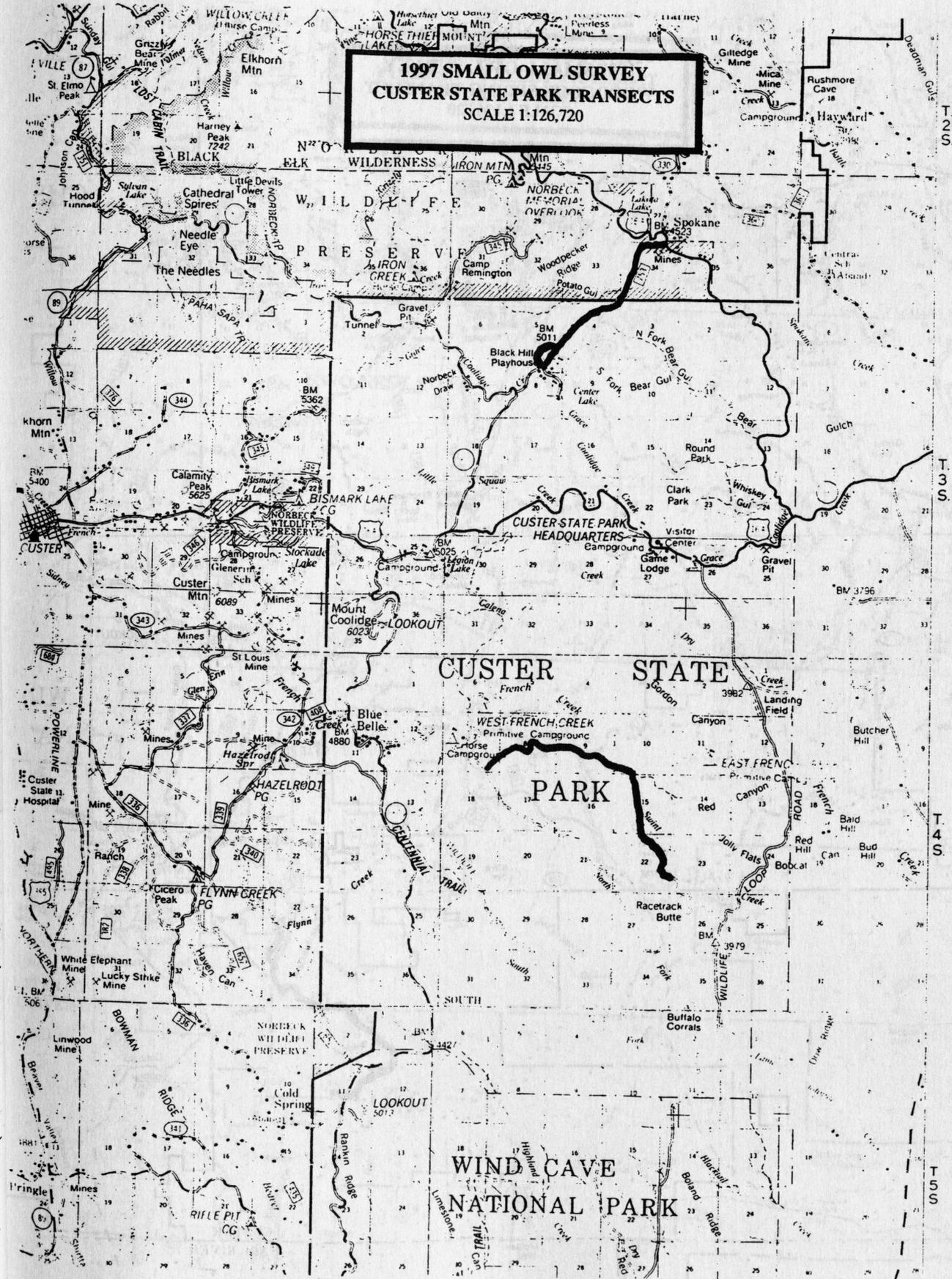
—●— SMALL OWL SURVEY TRANSECT ROUTE  
—○— SAW-WENT OWL SETTING

**1997 SMALL OWL SURVEY  
MCKENNA SPRING TRANSECT  
SCALE 1:126,720**

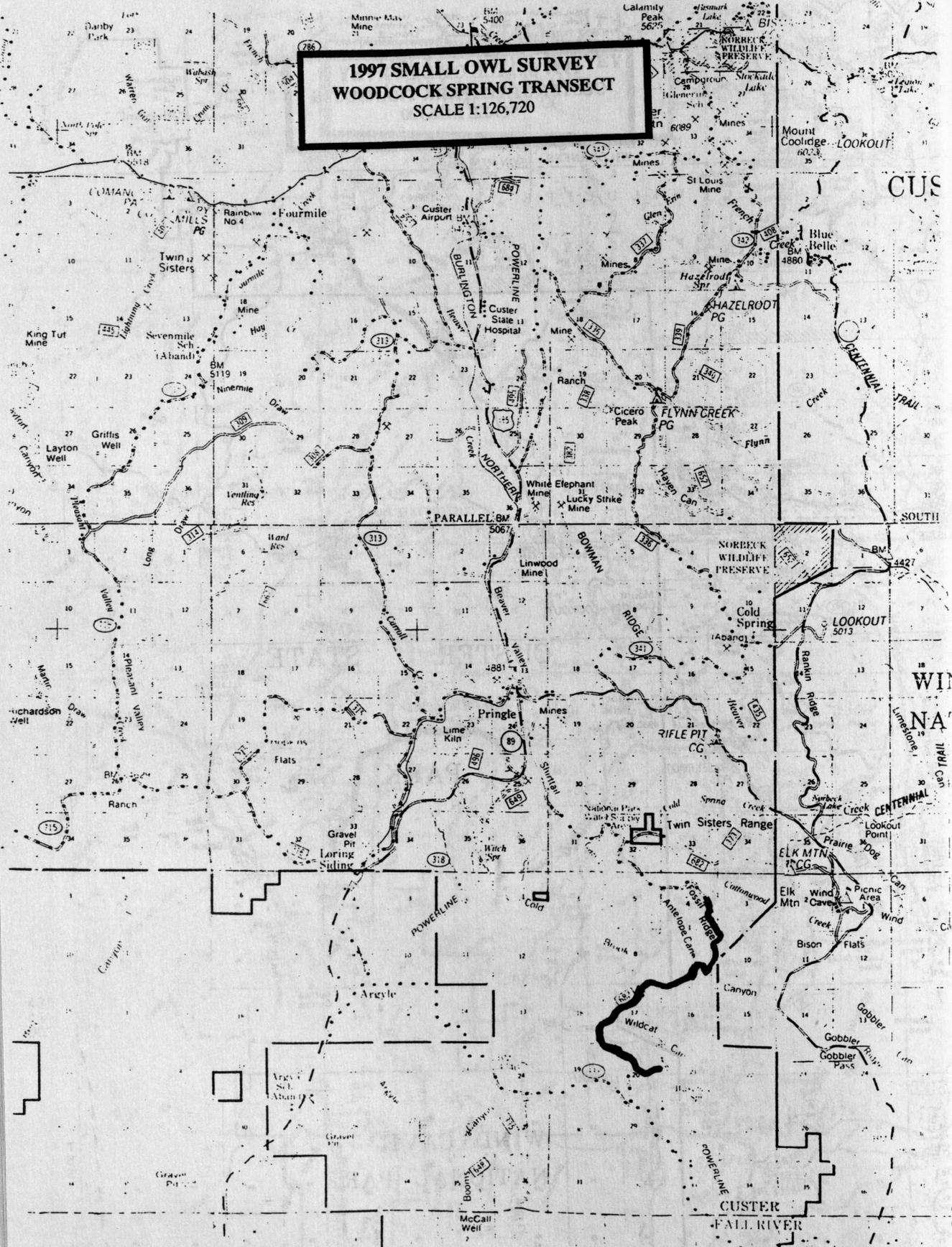




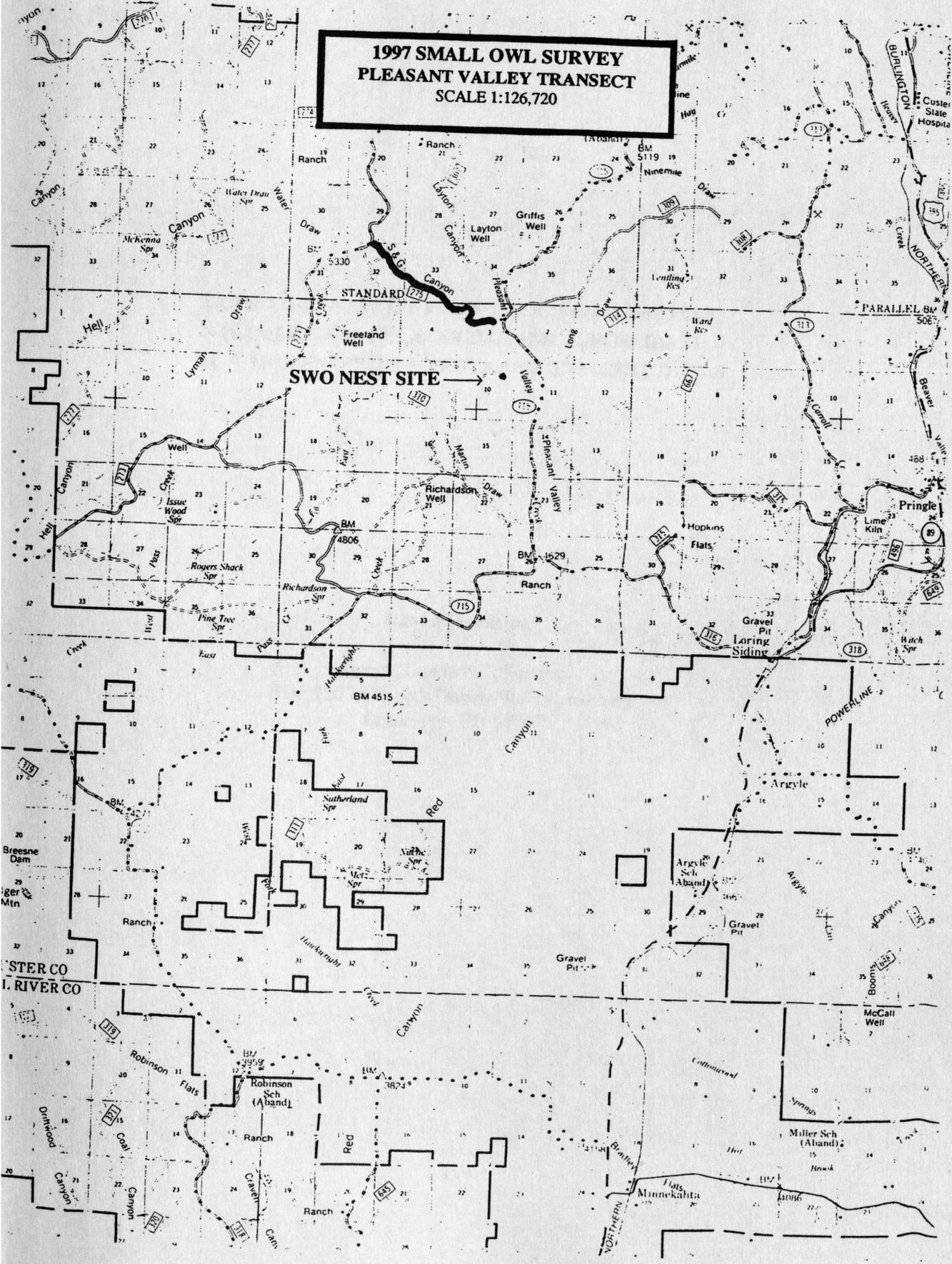
**1997 SMALL OWL SURVEY  
CUSTER STATE PARK TRANSECTS  
SCALE 1:126,720**



**1997 SMALL OWL SURVEY  
WOODCOCK SPRING TRANSECT  
SCALE 1:126,720**



**1997 SMALL OWL SURVEY  
PLEASANT VALLEY TRANSECT  
SCALE 1:126,720**



PLANNING VALLEY TOWN  
PLANNING VALLEY TOWN  
PLANNING VALLEY TOWN

TWO WEST SITE

11/1/50  
11/1/50

