2003 WILDLIFE DIVERSITY SMALL GRANT REPORT
SURVEYS FOR RARE OWL SPECIES IN THE BLACK HILLS

Submitted By:

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Cover Photo: Flammulated owl, copyright R & N Bowers

Acknowledgements

This study would not have been possible without the funding of the South Dakota Department of Game, Fish, and Parks, as well as the coordination and knowledge of Doug Backlund. Arvind Panjabi and Rich Levad of the Rocky Mountain Bird Observatory also contributed a wealth of knowledge that was of great assistance. Finally, my field assistant, Molly Froehlich was essential to the success of the study.

INTRODUCTION

The unknown status of owl species in the Black Hills is a significant void in the natural heritage knowledge of the area. In 2002 a flammulated owl was discovered by Bill Given and verified by Rocky Mountain Bird Observatory biologists and accepted by the South Dakota Rare Bird Committee leading to the addition of the owl to the state bird list. There have also been reports of boreal owl calling and suspected sightings of barred owls, two species not currently documented in the Black Hills. Clearly there is one species (flammulated) that occurs with a totally unknown distribution and there may well be other species that need to be documented. If they do exist undiscovered they may not far into the future without proper management. There is no group of birds, except possibly rails, about which so little is known as the owl group (Sutton 1994). However, survey efforts have greatly increased the knowledge of distribution of owl species throughout North America and the Black Hills are currently an important missing piece to survey for the Rocky Mountain region.

The Black Hills contains many of the same habitat types that are found throughout the Rocky Mountain region but it is an isolated island of these habitat types. The range for the northern saw-whet owl demonstrates this phenomenon as it ranges throughout the northern forests and the western mountain ranges and then the island of the Black Hills. A comparison of the known ranges for owl species shows that four other species, not well documented in the Black Hills, largely overlap with the northern saw-whet and that for them to occur in the Black Hills would be a similar spatial jump making it appear quite plausible.

This research consisted of conducting targeted surveys for five owl species in the Black Hills of South Dakota, including the barred owl (*Strix varia*), flammulated owl (*Otus flammeolus*), northern pygmy-owl (*Glaucidium gnoma*), northern saw-whet owl (*Aegolius acadicus*), and boreal owl (*Aegolius funereus*). All of these species are cavity nesters, very small in size (less than 10" tall except the barred), and mostly active in low light making them extremely hard to locate. All of these species will respond to tape broadcasts of their call (Sutton 1994) and thus can be actively surveyed for with great success. Thorough surveying should increase the understanding of the status within the Black Hills for each of the species.

PROJECT METHODS

Survey Site Selection

With limited resources it was important to strategically cover as much ground as possible. Through consultation with the South Dakota Heritage program and the Rocky Mountain Bird Observatory routes were chosen that were representative of major habitat types and that were vehicle accessible to maximize spatial coverage. Further, reports of suspected boreal owl calling also dictated routes as it was important to follow up on such reports.

Survey Calling Points were set at approximately 1/2 mile intervals as habitat dictated. See results section for mapped routes and number of Survey Calling Points.

Tape/Broadcast Response Survey

There are numerous acceptable protocols that differ on the amount of time to play tapes. This protocol was developed based on the recommendations of Rich Levad at the Rocky Mountain Bird Observatory who has been surveying owls in Colorado.

Surveys began approximately one hour after sunset (except for northern pygmy-owls, which could begin one hour before sunset). Upon arrival at a survey calling point there was a one minute listening period followed by three alternating periods of thirty seconds of tape calling and thirty seconds of silent listening. If there was no response the same protocol began for the next target owl if it was a multiple species survey site. Owls were surveyed in order of size calling the smallest first at multiple species sites. If an owl responded by voice broadcasting continued to try to lure it into sight. When possible the owl was spotted in a flashlight beam for visual identification. Once an owl had been visually identified calling ceased and the owl was no longer lighted. Survey data was recorded and the surveyors then proceeded to the next survey point. At each point a hand held global positioning system was used to record map coordinates. The time, date, and each species surveyed was recorded whether the species was found or not.

RESULTS

Eight separate areas were surveyed totaling 159 Survey Calling Points over a distance of approximately 78 miles. The results are organized by survey route. A summary sheet is included for each survey route that details the logistics, target species and results. A map for each route displays the area covered, including the distances and number of survey calling points. In addition to the survey effort funded by the grant, the route traveled in 2002 where the flammulated owl was discovered has been included too. Points where owls were located are shown on the maps with their corresponding GPS coordinates.

Hanna Route

Date: 5/24/02

General Habitat: Spruce-fir forest

Target species: barred owl, boreal owl, flammulated owl

Transect distance: 13.3 miles

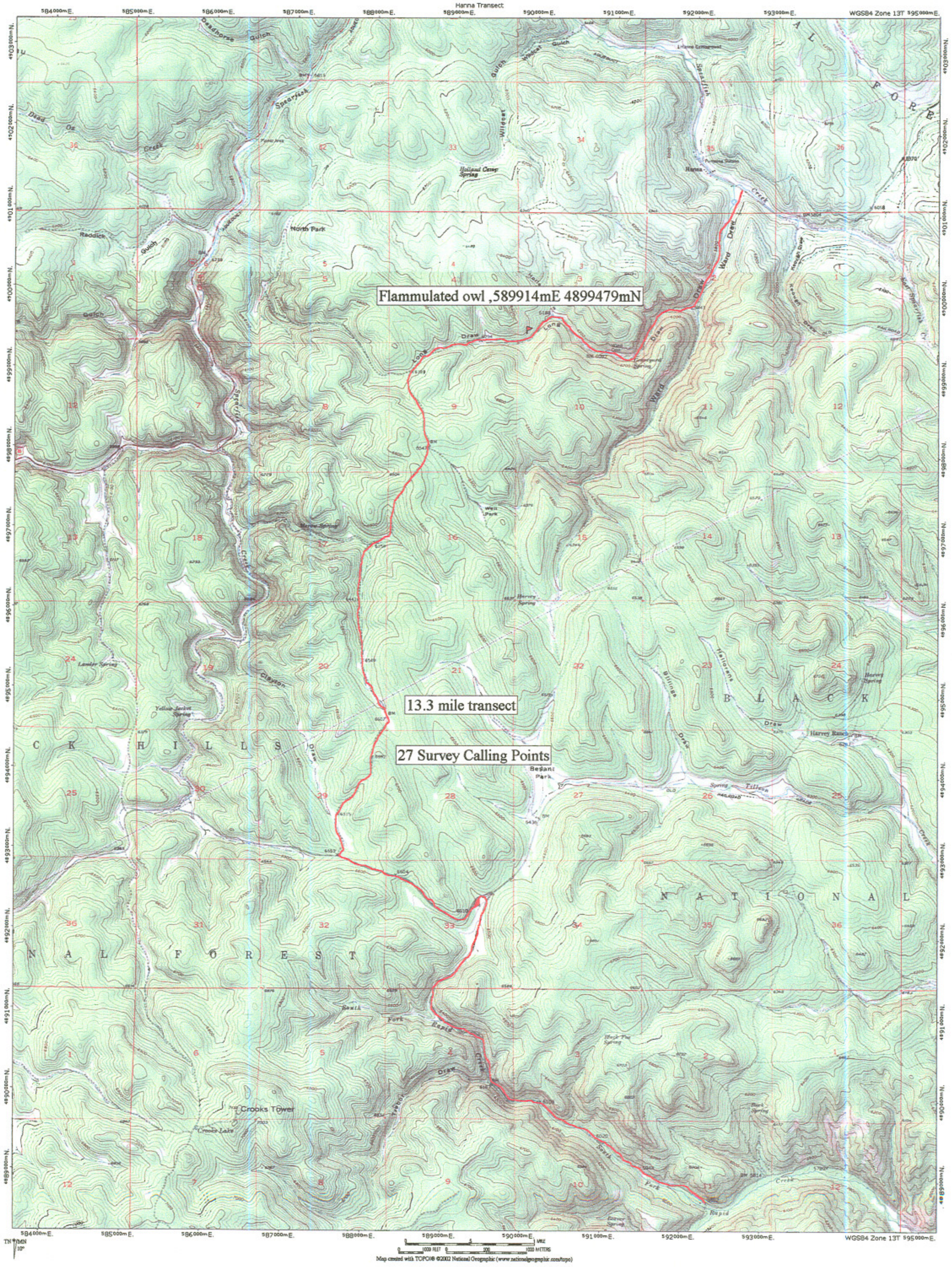
Survey Calling Points: 27

Results: Positive identification of flammulated owl (see map for location) (see appendix for South Dakota Rare Bird Records Committee submission)

Discussion: The survey was conducted in this area because a reputable local birder had reported possible boreal owl calls in Hanna. Also, a Rocky Mountain Bird Observatory field biologist believed he saw a spotted owl (more likely to be a barred owl) at the Black Fox Campground during the 2001 summer.

The surveys failed to turn up either boreal or barred owls. However, in an area of meadow with open, wide spaced spruce-fir forest the flammulated owl was located. The record was accepted by the South Dakota Rare Bird Records Committee on October 20, 2002 and the flammulated owl has now become part of the official South Dakota bird list.

Flammulated owl – copyright R&N Bowers


Hanna Transect
Flammulated owl ,589914mE 4899479mN
13.3 mile transect
27 Survey Calling Points
WGS84 Zone 13T
North Park
Crooks Tower
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Custer Crossing Route

Date: 5/08/03

General Habitat: Spruce-fir forest

Target species: barred owl, boreal owl, flammulated owl, northern saw-whet owl

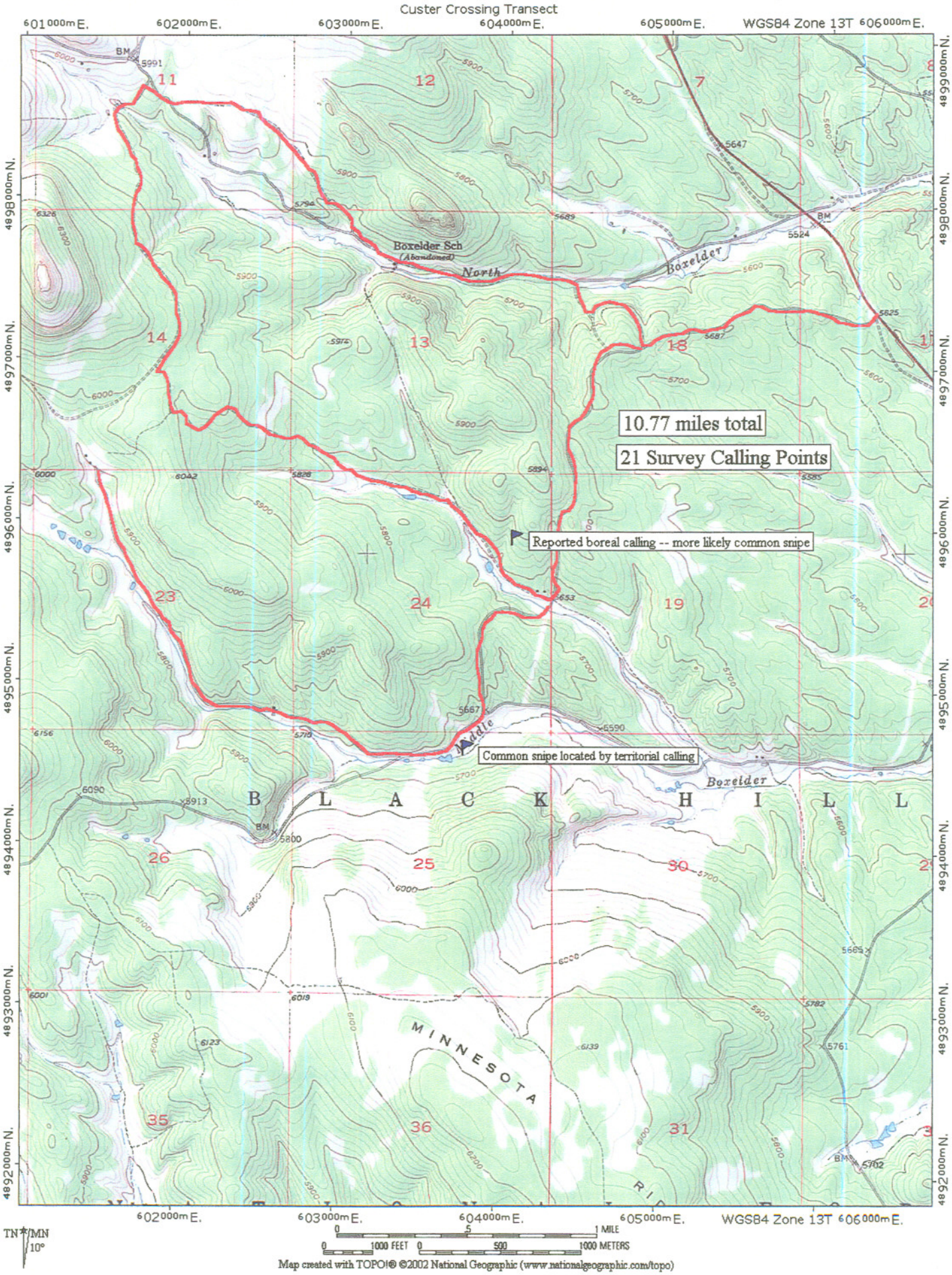
Transect distance: 10.77 miles

Survey Calling Points: 21

Results: No owls were located. Common snipe (*Gallinago gallinago*) were detected.

Discussion: The survey was conducted in this area because a U.S. Forest Service employee had reported possible boreal owl calls heard in the early a.m. while turkey hunting.

The survey failed to turn up any owls, including the suspected boreal owl. However, at the edge of a wetland approximately ¾ of a mile from the reported calling location, a common snipe was discovered that was conducting territorial displays. This display included a trilling or winnowing sound that is made by vibrating tail feathers during undulating flights that is very similar to the boreal owl call. It was possible based on the winnowing sound to determine that the snipe was flying in circular patterns around a territory. In addition to the easily confused trilling/winnowing sound there was a distinctive call note that was diagnostic for the common snipe. The flight sound of the common snipe is very similar to the boreal owl call and could be misidentified frequently, even by experienced biologists. The keys to distinguishing in the field are the behavior and additional calls. A boreal owl is likely to call from stationary points while the common snipe is in flight to make the sound. Thus, if the sound is in constant motion it is almost assuredly a snipe. Secondly, the snipe may utter a short series of single call notes that will identify them. All reports of boreal owls in the Black Hills should be followed up in the field after studying the calls of both boreal owls and common snipes.


Custer Crossing Transect
601000m E.
602000m E.
603000m E.
604000m E.
605000m E.
WGS84 Zone 13T
606000m E.
4899000m N.
4898000m N.
4897000m N.
4896000m N.
4895000m N.
4894000m N.
4893000m N.
4892000m N.
Boxelder Sch
(Abandoned)
North
Boxelder
Middle
Boxelder
10.77 miles total
21 Survey Calling Points
Reported boreal calling -- more likely common snipe
Common snipe located by territorial calling
B L A C K H I L L
MINNESOTA
TN
MN
10°
0 5 1 MILE
0 1000 FEET 0 500 1000 METERS
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Virkula Gulch Route

Date: 5/09/03

General Habitat: Spruce-fir forest

Target species: barred owl, boreal owl, flammulated owl, northern saw-whet owl

Transect distance: 11.55 miles

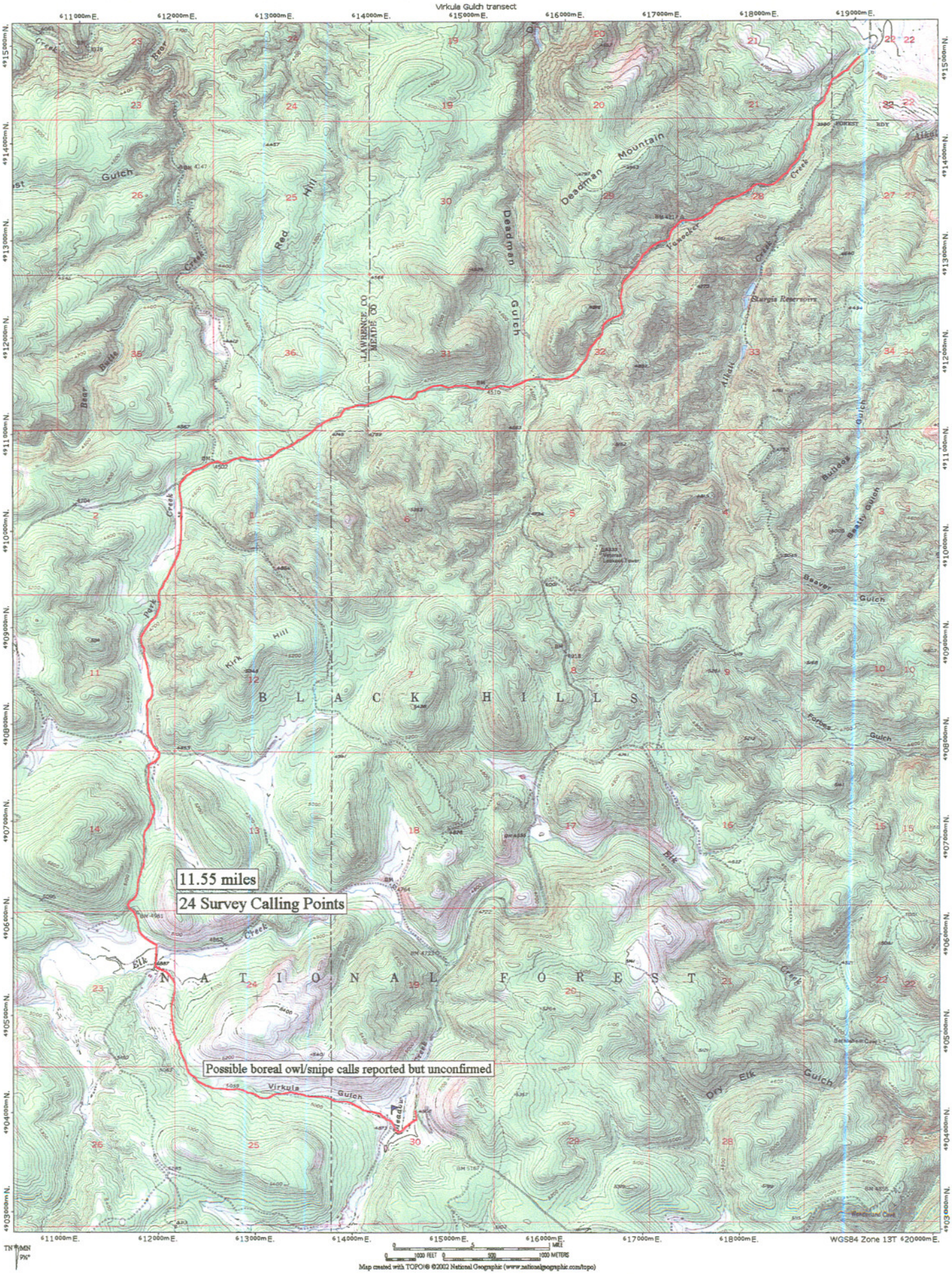
Survey Calling Points: 24

Results: No owls were located.

Discussion: The survey was conducted in this area because a biologist setting squirrel traps heard a sound that reminded her of a common snipe. However, after hearing of the suspected boreal owl calls at the Custer Crossing area and listening to tapes of boreal owls the biologist suspected that boreal owls may have been the source.

No owls were found during the survey. It is likely that the biologist did hear a snipe based on their known presence in the Black Hills and the lack of response by boreal owls to the broadcast of boreal calls just 3 days after the biologist had heard the sound.

Boreal owl in nesting cavity.


Virkula Gulch transect
11.55 miles
24 Survey Calling Points
Possible boreal owl/snipe calls reported but unconfirmed
B L A C K H I L L S
N A T I O N A L F O R E S T
Deadman Gulch
Deadman Mountain
Red Hill
Kirk Hill
Bear Gulch
Elk Creek
Virkula Gulch
Dry Elk Gulch
Beaver Gulch
Bulldog Gulch
Forbes Gulch
Yeaney Creek
Sturgis Reservoir
LAWRENCE CO
MEADE CO
WGS84 Zone 13T

Woodcock Spring Route

Date: 6/05/03

General Habitat: Ponderosa pine, some Douglas fir

Target species: flammulated owl, northern pygmy-owl, northern saw-whet owl

Transect distance: 12.38 miles

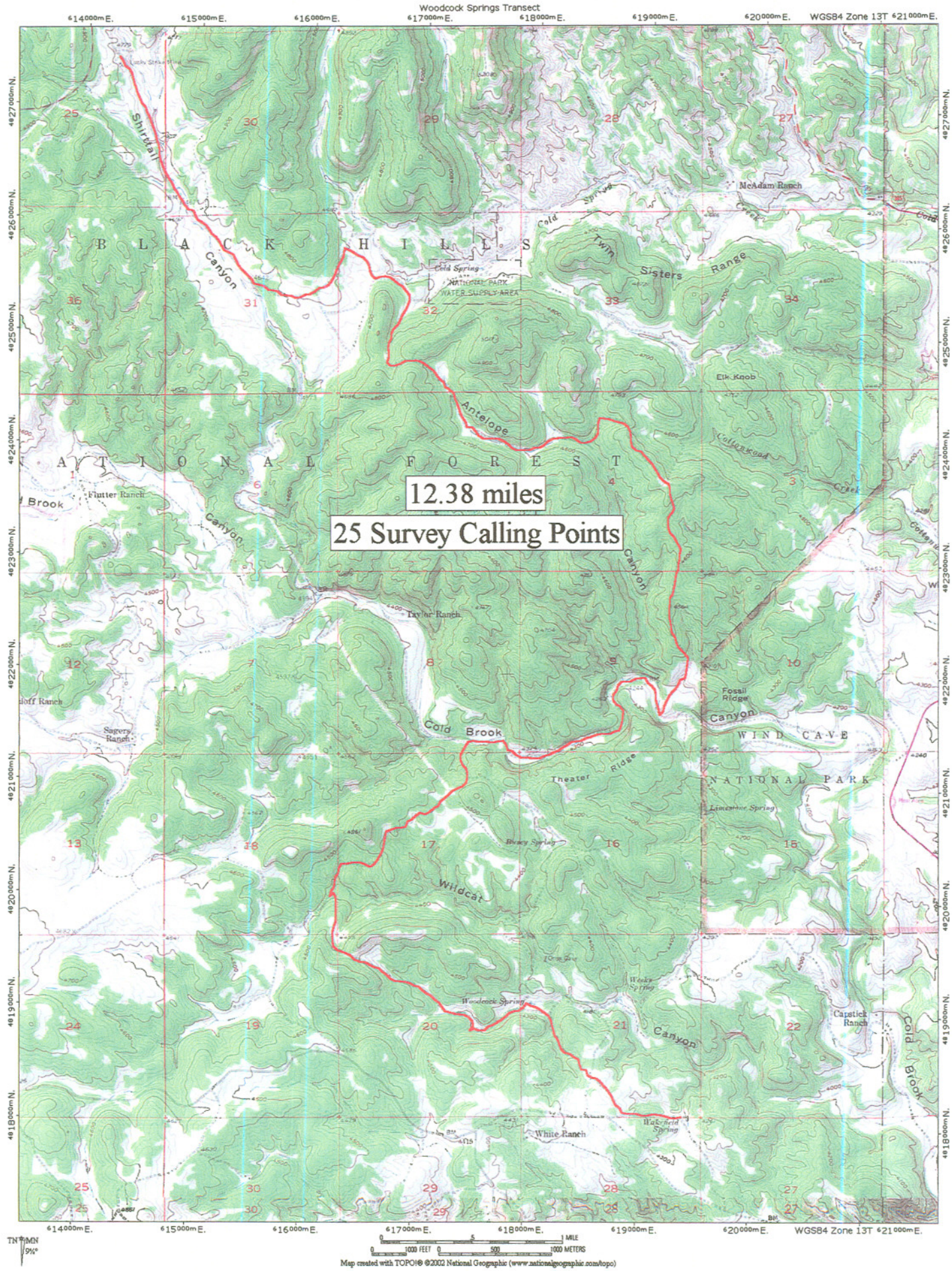
Survey Calling Points: 25

Results: No owls were located.

Discussion: Woodcock Spring was the sight of a possible flammulated owl in 1994 (Backlund, pers. comm). A bat biologist caught a small owl that he was not familiar with, however, the written description was that of a flammulated owl. This was the only known possible flammulated owl until the 2002 discovery on the Hanna route (Given 2002).

The dominance of ponderosa pine in this area makes it one of the best potential areas to locate northern pygmy-owls, in addition to flammulated owls. Without natural fire regimes the ponderosa forests are not an ideal open structure through much of the area. There is also very little aspen in the area, which would be an enhancing feature for northern saw-whets and flammulated owls.

Pygmy-owl


Woodcock Springs Transect
614000m E.
615000m E.
616000m E.
617000m E.
618000m E.
619000m E.
620000m E.
621000m E.
WGS84 Zone 13T
4927000m N.
4926000m N.
4925000m N.
4924000m N.
4923000m N.
4922000m N.
4921000m N.
4920000m N.
4919000m N.
4918000m N.
B L A C K H I L L S
A T I O N A L F O R E S T
N A T I O N A L P A R K
W I N D C A V E
12.38 miles
25 Survey Calling Points
Shirttail Canyon
Cold Spring
NATIONAL PARK WATER SUPPLY AREA
Cold Spring Creek
Twin Sisters Range
McAdam Ranch
Elk Knob
Antelope Canyon
Cottonwood Creek
Flatter Ranch
Taylor Ranch
Fossil Ridge
Canyon
Cold Brook
Sagers Ranch
Theater Ridge
Limestone Spring
Bivacy Spring
Wildcat Canyon
Woodcock Spring
Weeks Spring
Capstick Ranch
Cold Brook
Wakefield Spring
White Ranch
TN
MN
9%°
1 MILE
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Custer Park Route

Date: 6/06/03

General Habitat: Ponderosa pine, spruce-fir forest, some aspen

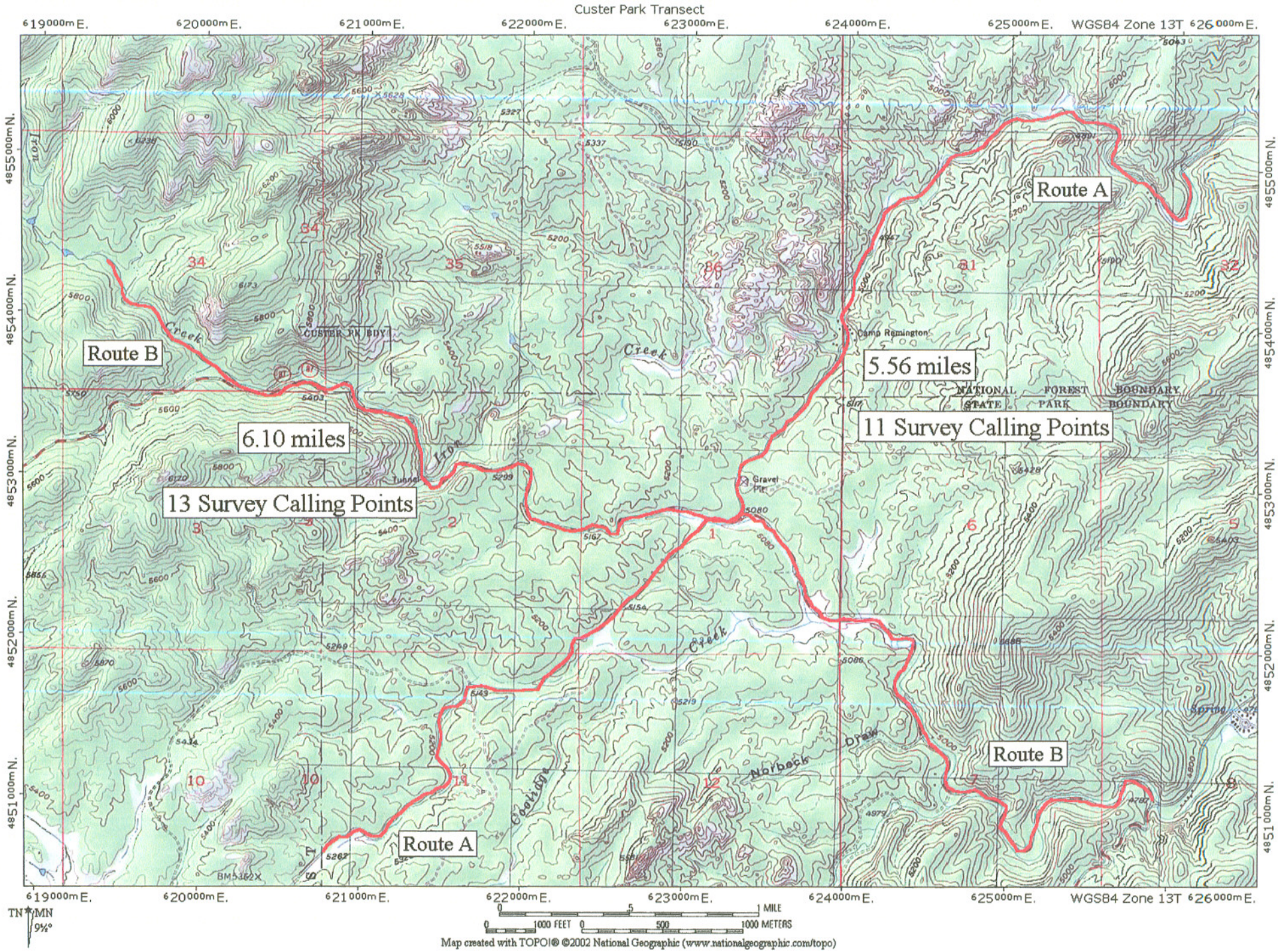
Target species: barred owl, boreal owl, flammulated owl, northern pygmy-owl, northern saw-whet owl

Transect distance: 11.66 miles

Survey Calling Points: 24

Results: No owls were located.

Discussion: This route was chosen for the diversity of habitat types. Elevation ranged from approximately 4,700 feet up to 5,800 feet. All 5 of the target species were called for along this route depending on the habitat type. Despite the diversity of habitats no owls were found.


Custer Park Transect
619000m E.
620000m E.
621000m E.
622000m E.
623000m E.
624000m E.
625000m E.
WGS84 Zone 13T
626000m E.
4855000m N.
4854000m N.
4853000m N.
4852000m N.
4851000m N.
Route A
Route B
5.56 miles
11 Survey Calling Points
6.10 miles
13 Survey Calling Points
Route B
Route A
Camp Remington
NATIONAL FOREST BOUNDARY
STATE PARK BOUNDARY
Gravel Pit
Spring
Creek
Norback Draw
Coalridge
TN MN
9½°
MILE
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Jewel Cave Route

Date: 7/15/03

General Habitat: Ponderosa pine, much of the area was opened by recent fires

Target species: flammulated owl, northern pygmy-owl

Transect distance: 2.06 miles

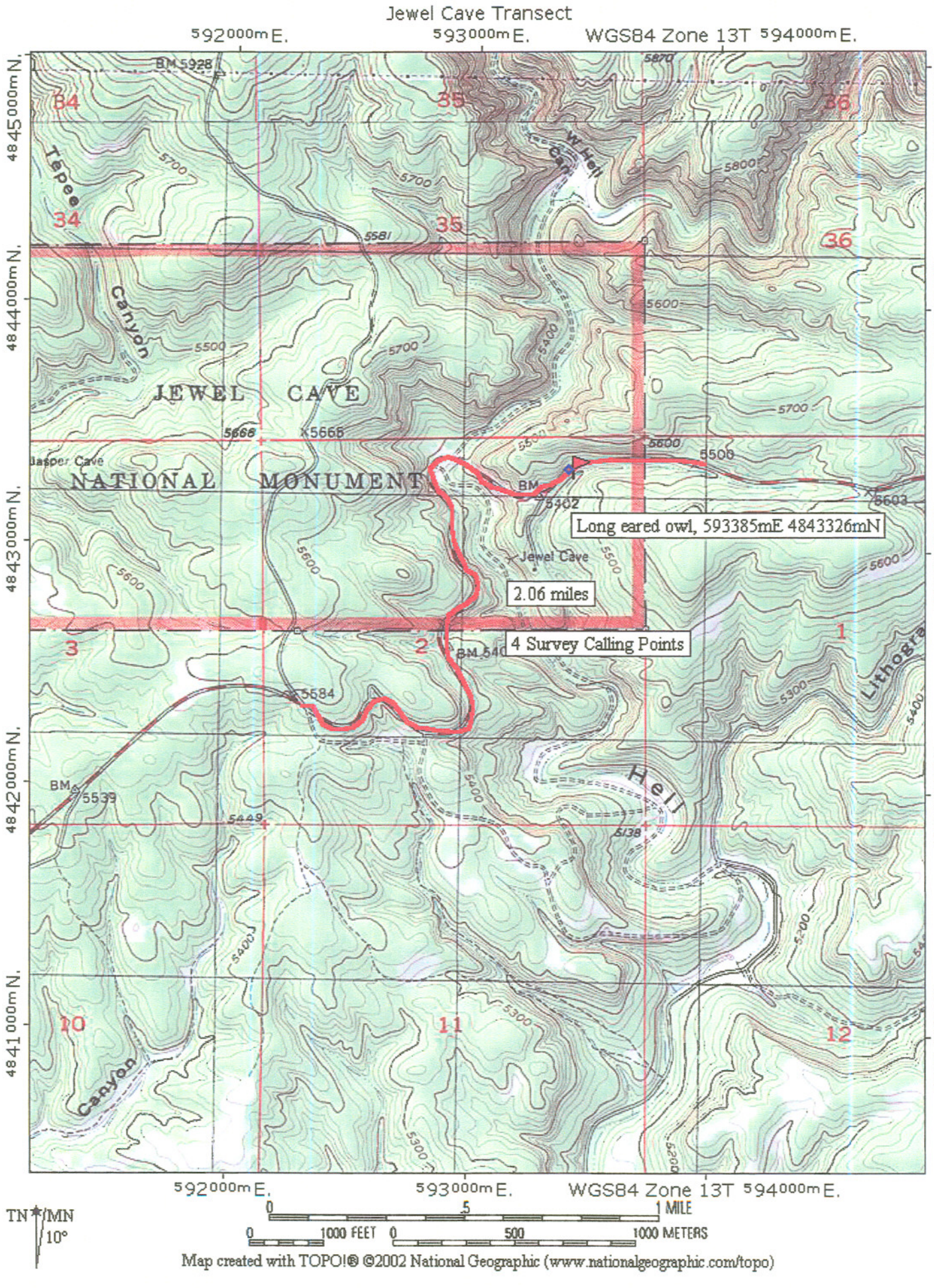
Survey Calling Points: 4

Results: Long-eared owl was located (see map).

Discussion: The survey was conducted in this area along a major highway because the fire impact created large open areas that were a unique survey opportunity within a national monument.

While driving the route an owl silhouette flew across the road into a thick, tall ponderosa stand adjacent to a burned over open area. Subsequent tape playing elicited a call response and an eventual sighting of a long-eared owl. Long-eared owls are not particularly rare in South Dakota but they are thought to be uncommon in the Black Hills.

Long-eared owl


Jewel Cave Transect
592000m E.
593000m E.
WGS84 Zone 13T 594000m E.
4845000m N.
4844000m N.
4843000m N.
4842000m N.
4841000m N.
JEWEL CAVE
NATIONAL MONUMENT
Jasper Cave
Tepee Canyon
Hell Canyon
Lithogra
Jewel Cave
Long eared owl, 593385mE 4843326mN
2.06 miles
4 Survey Calling Points
BM 5928
BM 5402
BM 5539
5581
5603
5506
5684
5449
5138
5870
5800
5700
5600
5500
5400
5300
5200
34
35
36
3
2
1
10
11
12
TN 10° MN
0 .5 1 MILE
0 1000 FEET 0 500 1000 METERS
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Schenk Canyon Route

Date: 7/15/03

General Habitat: Canyon habitat, ponderosa pine

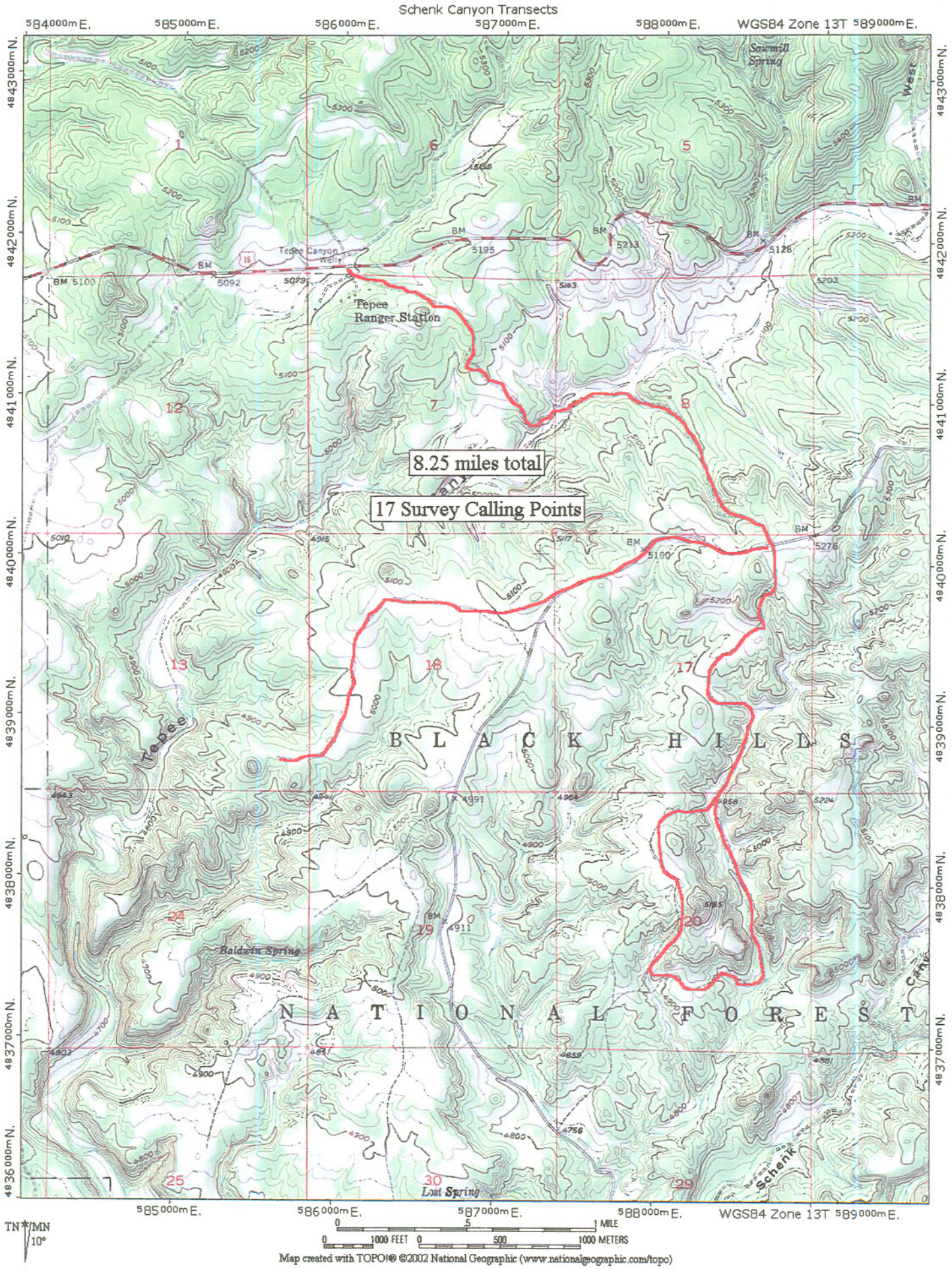
Target species: flammulated owl, northern pygmy-owl, northern saw-whet owl

Transect distance: 8.25 miles

Survey Calling Points: 17

Results: No owls were located.

Discussion: Ponderosa pine in canyon terrain provided excellent potential habitat for the northern pygmy-owl. The ponderosa forest in this area is mature and is more openly spaced than other areas surveyed making it a unique habitat that could be favorable to flammulated owls as well as the pygmy-owl.


Schenk Canyon Transects
8.25 miles total
17 Survey Calling Points
Tepee Ranger Station
Tepee Canyon Well
Sawmill Spring
Baldwin Spring
Lost Spring
Schenk
Tepee
B L A C K H I L L S
N A T I O N A L F O R E S T
WGS84 Zone 13T
TN 10°
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Bales Canyon Route

Date: 7/16/03

General Habitat: Ponderosa pine, Douglas fir, canyons

Target species: flammulated owl, northern pygmy-owl, northern saw-whet owl

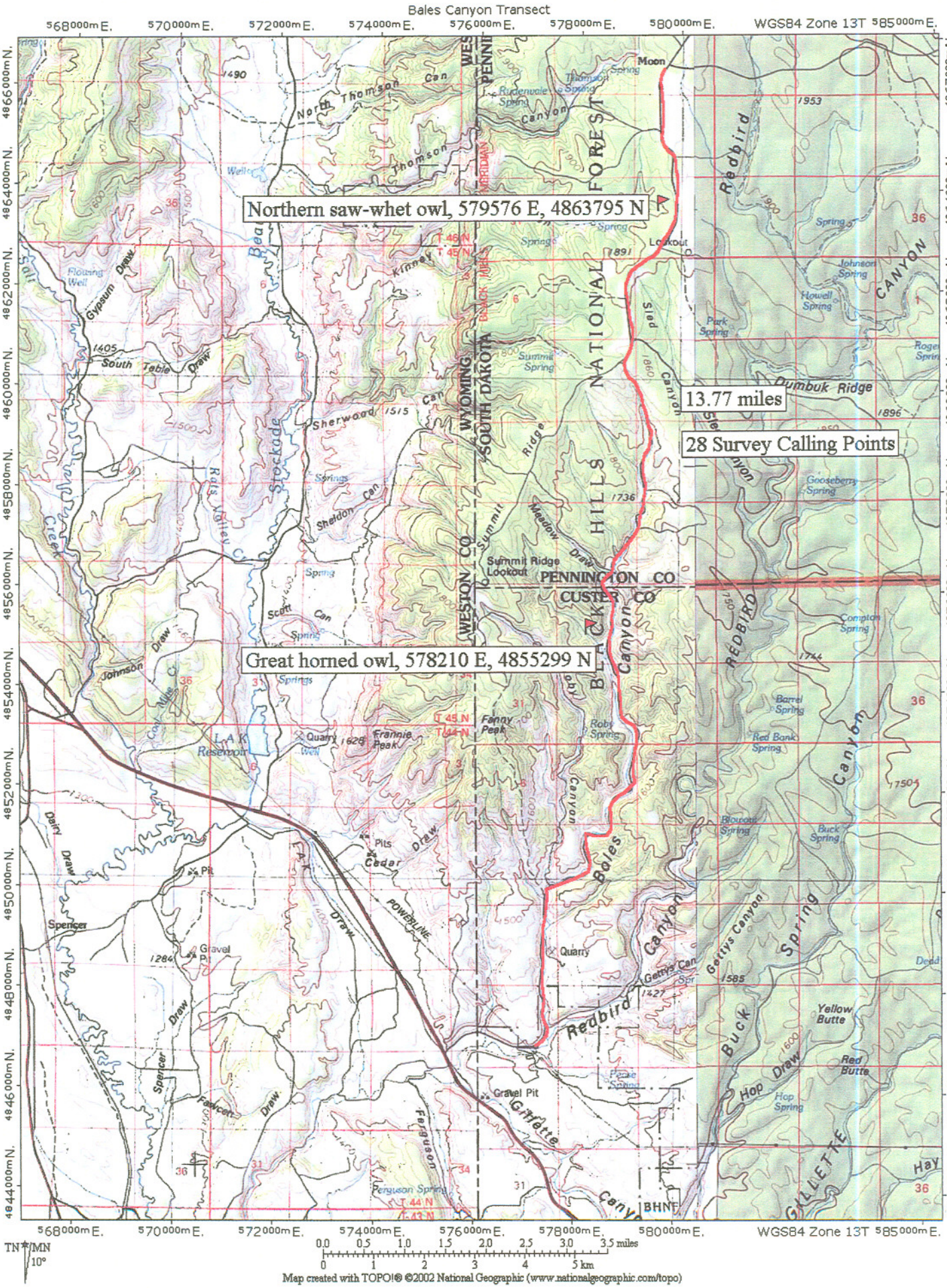
Transect distance: 13.77 miles

Survey Calling Points: 28

Results: Northern saw-whet owl and great horned owl were located (see map).

Discussion: Northern saw-whet owls are known to occur in this vicinity. The open forests, and diverse topography are favorable as potential habitat for the flammulated owl and northern pygmy owl as well.

A northern saw-whet owl was located as it responded to a taped call. The owl was extremely vocal and spotted in a ponderosa pine, where it remained for approximately five minutes. A great horned owl was heard along the route and spotted flying across a meadow from one group of trees near the road to a far off patch of trees. It is difficult to locate any small owls if a great horned is in the vicinity as they usually will remain silent.

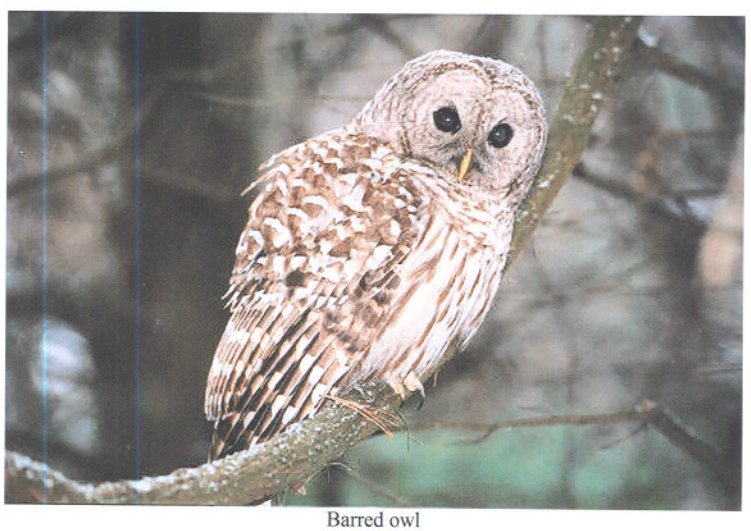

Bales Canyon Transect
Northern saw-whet owl, 579576 E, 4863795 N
Great horned owl, 578210 E, 4855299 N
13.77 miles
28 Survey Calling Points
568000m E.
570000m E.
572000m E.
574000m E.
576000m E.
578000m E.
580000m E.
585000m E.
WGS84 Zone 13T
4866000m N.
4864000m N.
4862000m N.
4860000m N.
4858000m N.
4856000m N.
4854000m N.
4852000m N.
4850000m N.
4848000m N.
4846000m N.
4844000m N.
4867000m N.
BLACK HILLS NATIONAL FOREST
WESTON CO
PENNINGTON CO
CUSTER CO
WYOMING
SOUTH DAKOTA
Bales Canyon
Redbird Canyon
Buck Spring Canyon
Dumbuk Ridge
Summit Ridge Lookout
Moon
Lookout
Quarry
Gravel Pit
Pits
Fanny Peak
Frannie Peak
Sherwood
Scott Can
Sheldon Can
Johnson Draw
Spencer Draw
Dairy Draw
Cedar Draw
Ferguson Draw
Hop Draw
Yellow Butte
Red Butte
Griffette
Ferguson Spring
Hop Spring
Buck Spring
Red Bank Spring
Barrel Spring
Compton Spring
Gooseberry Spring
Howell Spring
Johnson Spring
Park Spring
Summit Spring
Rudenvale Spring
Thomson Spring
Getrys Canyon
POWERLINE
L A K Reservoir
BHNF
TN 10°
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 miles
0 1 2 3 4 5 km
Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

SUMMARY

During the 2003 field season a large sampling of varying habitats were surveyed for the five target species, with over 78 miles of routes being covered (including one route in 2002). Following the discovery of a flammulated owl in 2002 only one of the target species was located in 2003. One northern saw-whet owl was located in an area where they are already known to exist. Additionally, a long-eared owl, which is of interest as an unusual resident in the Black Hills, was located within Jewel Cave National Monument.

Spatial coverage was well distributed to survey habitat for each of the target species. However, there are many areas of interest that remain to be surveyed. In particular, the western edge of the Black Hills and the south central canyon areas should be surveyed to be confident in the absence of the northern pygmy-owl. The north-west area of the Black Hills has not been surveyed at all and may be the best area to survey for barred owls as well as an important potential area for boreal owls, as could be the central Black Hills. Finally, as the flammulated owl has been documented to occur there are very likely more to be found. It was expected that the southern region of the Black Hills would have the best flammulated owl habitat, yet it was discovered to the north in spruce-fir habitat that would have generally been considered more likely to support boreal owls.

The negative data supports that the target owl species are very rare in the Black Hills if they occur at all, which we know that the northern saw-whet and flammulated owl do. Continued surveys are essential to further document the existence of flammulated owls in the Black Hills as well as to determine if northern saw-whets are confined to the western region. Reports of boreal calling and barred owl sightings also need further investigation to discover if they occur in the Black Hills and have simply gone undetected like the flammulated owl. This study was an excellent start to investigate the status of these owls, however, as species fluctuate from year to year and high quality habitat remains unsurveyed it is critical to continue strategic survey efforts to increase spatial coverage and further our understanding of these species within the Black Hills.



Barred owl

REFERENCES

Backlund, D. 2002. Personal communication on status of owls in the Black Hills.

Given, W. 2002. South Dakota Rare Birds Record Committee Record Submittal.

Johnsgard, P.A. 2002. North American Owls: Biology and Natural History. Smithsonian Institution Press. Washington, D.C. 298 pp.

Palmer, D.A. 1986. Habitat selection, movements and activity of boreal and saw-whet owls. M.S. Thesis, Colorado State University, Fort Collins, CO.

South Dakota Breeding Bird Atlas -- online. http://www.npwrc.usgs.gov/resource/distr/birds/sdatlas

Sutton, Patricia and Clay. 1994. How to Spot an Owl. Chapters Publishing Ltd. Shelburne, VT. 144 pp.

Verner, J., and A.S. Boss. 1990. California wildlife and their habitats: Western Sierra nevada. USDA, Forest Service, Gen. Tech. Rept. PWS-37.

APPENDIX

South Dakota Rare Bird Observation Form
Official Record of Flammulated Owl

Submit to:

SOUTH DAKOTA RARE BIRD RECORDS COMMITTEE
c/o David Swanson, Dept. Biology, Univ. So. Dakota, Vermillion, SD 57069-2390

Rare Bird Observation Form

If you watch birds solely for your own enjoyment, a written description of your observations is unnecessary. But, if you have seen something unusual, a sighting that should be shared with others, a written description is essential. Compilers of regional bird lists must insist that their records be accurate. Future bird students— those studying occurrences 50 years from now— must have a written record on which to depend. By providing the verifying written description, you are helping to further knowledge of South Dakota bird populations. This procedure is required of all extraordinary observations, regardless of the observer. Thank you for your time.

Common Name: Flammulated Owl

Scientific Name: Otus flammeolus

Observation Date: 5/24/02 Time(s): 11:15 pm - 11:40 p.

Duration of observation: brief, approx. 5 seconds visual, 25 minutes audible

Distance from bird: 10 feet

Light Conditions: full moon at night

Optical Equipment:

Notes made at time of sighting? ✓
Notes made later from memory?

Date report prepared: 6/10/02

Location of observation (be as specific as possible)

UTM Coordinates 13T 0589.914 4899.479

Forest Road 209 approximately 5.5 miles north from its intersection with SFR 231 near Hanna

Weather at time of observation

Cold, about 25° F, partly cloudy still damp from late afternoon/early evening rain

Prior weather (how may days since last change?)

not sure

Enter number of birds in each category.

Total number observed: 1 based on call

SEX (ES): Males ✓ Females ____ Unknowns ____

AGE(S): Adults ✓ Juv/Imms. ____ 2-3 yr. birds ____ Unknowns ____

PLUMAGE(S): Breeding ____ Juvenal ____ Winter ____ Dark Phase ____ Eclipse ____ Light Phase ____ Other X Gray phase

PHOTO/DRAWING? TAPE RECORDING? Available ____ Enclosed ____

Description of bird: include all field marks YOU ACTUALLY OBSERVED including details on size, shape, colors, bill, feet, eyes, plumage, etc.

View of perched bird was brief and then quick flight was observed. The owl was clearly diminutive in size, 5-7 inches in length. Brief viewing did not allow for detailed description type observation,

however, it was discernable that the owl was a mottled gray plumage with small ear tufts that were very indistinct. More importantly, the eyes were completely dark (blackish) with absolutely no yellow -- this is a distinctive field mark for the flammulated owl as it is found in no other small owl (Johnsgard 1988).

This occurrence was primarily identified by call but I have complete confidence in the brief view due to eye color and size which are distinctive.

Do not write below here! For SDBRC use only!

Record Number

Description of bird (continued from previous page):

List similar species and describe how or why you eliminated them.

Eastern screech – has yellow eyes and more pronounced ear tufts as well as larger appearance. Whiny and long trill of notes call.

Northern saw-whet – large head w/ yellow eyes, dark face with white markings as well as larger appearance. Metallic sounding series of notes, often continuous for call.

Boreal owl – Similar to saw-whet but with spotting on crown rather than streaking. Has winnowing trill for call.

Northern pygmy owl – correct size but different appearance due to long narrow tail and dark brown streaks on white belly as well as yellow eyes.

Describe the behavior of this bird. Other species seen with this one(s)? Any interaction between birds?

As is consistent with my experience the call was mostly continuous, with single hoots approx. every 2 seconds and the location changed frequently with only the one brief sighting in a 25 minute period. I believe there was a second male further away as I could hear calls simultaneously from two opposite directions. The Flammulated's began calling in response to my broadcast of a boreal owl and continued when I switched to the flammulated tape. As is typical behavior the flammulated would call but was elusive to spot where as all of the other small owls have come directly into sight in response to tapes.

What is the habitat at this location? Adjacent or nearby habitat?

Habitat was open, widely spaced spruce/fir forest adjacent to a large meadow. Nearby habitat consists of more dense spruce/fir forest.

Describe the bird's song, calls, or other vocalizations.
How were calls delivered? (from a perch, in flight, etc.)

The call was a ~~repeat~~ single, low pitched hoot repeated approximately every two seconds continuously for long periods of time.

What is your experience with this or other similar species?

I have successfully surveyed (spotted) for flammulated, boreal, n. saw-whet, eastern + western screech, n. pygmy, and others. I have located flammulated owls previously in numerous locations in Colorado, Arizona and New Mexico. I am a Wildlife Biologist by profession and have done numerous surveys professionally.

References used for identification:

North American Owls by Paul Johnsgard 1988

Birds of North America – Arizona Geographic

Print reporter's name, address, and phone number.

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Signature William Given

Corroborating observers not reporting separately.

Print name Signature

Address