

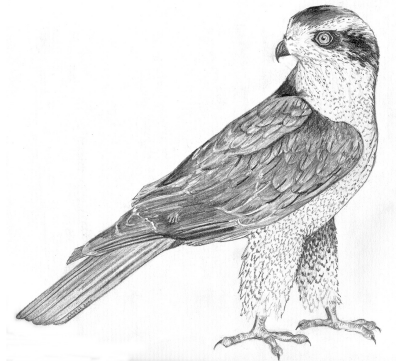
**Survey of Historic Northern Goshawk (*Accipiter gentilis*) Locations on the
Shoshone National Forest ~ 2004**

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Introduction

The Northern Goshawk (*Accipiter gentilis*) Linnaeus 1758, is a diurnal raptor (Family Accipitridae) of temperate forests and woodlands. The genus *Accipiter* is representative of closely related hawks noted for long tails and relatively broad wings, well suited for pursuit of prey in dense forests. The Northern Goshawk is a resident breeder and short distance migrant in the state of Wyoming. Adults may stay loosely tied to breeding territories throughout the winter months; however, prey abundance within home ranges is likely to be linked to winter dispersal distance. Dorn and Dorn (1999) list the goshawk in Wyoming as “Yearlong resident, uncommon in summer, rare in winter, with migration peaks in March and October”. Nest stands are generally occupied from early March until late September, and constitute the basis for this survey.

On June 22, 1998 the U. S. Fish and Wildlife Service (USFWS) announced a 12-month petition finding that listing of the Northern Goshawk, in the contiguous United States west of the 100th meridian, as endangered or threatened under the Endangered Species Act, was not warranted. The best available information does not indicate that this *A.g. atricapillus* sub-population is in danger of extinction or likely to become so in the foreseeable future (USFWS 1998). The USFWS contends that although the species does require mature forests or older trees for nesting habitat, there is no evidence of decline in the overall matrix of habitats utilized by goshawks. The service found that the species continues to be widely distributed throughout the western range. Because an estimated 80% of goshawk habitat exists on federal land, the 12-month ruling cited a curtailment of timber harvest and fire exclusion on federal lands as positive for goshawk viability (USFWS 1998). The service found that forest conditions on federal lands are no longer declining as they had in the past two decades, and in many cases management schemes are improving habitats. The decision also cited insufficient evidence of a population decline, allowing that such decline may be occurring but the current science has not detected such trends. On June 28, 2001 this ruling was upheld in federal court by United States District Court Judge Frye (Kennedy 2003).

In 2001 the Northern Goshawk was listed as “sensitive species” by all of the Forest Service Regions (Kennedy 2003). Proposed forest management actions must submit to biological evaluations that consider potential impacts to sensitive species.

Wyoming Natural Diversity Database (WYNDD) uses a standardized ranking protocol developed by The Nature Conservancy and a nationwide network of natural heritage programs. The network of natural heritage programs and systematic biological inventory protocol is now coordinated by NatureServe [Arlington, VA.]. Global, state, breeding, and non-breeding status are monitored and updated in accordance with current scientific standards. The Northern Goshawk has a global rank (G-rank) of G5 on a scale of 1-5, which indicates the species is demonstrably secure throughout the majority of its range. Breeding goshawks are rare throughout the state, and limited in their distribution, and hence has a state rank (S-rank) of S3, on scale of 1-5.

This document is a summary of results from surveys for Northern Goshawk at sites determined to be of high likelihood for current occupation during the 2004 breeding season.

Methods

This study was designed as a prioritized presence/absence survey of Northern Goshawk on the Shoshone National Forest (Shoshone NF). The principle objective was to visit historic Northern Goshawk breeding sites as determined by the WYNDD Biotics Data System and regional experts. Due to the relative scarcity of information on historic goshawk nests on the Shoshone NF, the remaining surveys were conducted in areas of anecdotal documentation of goshawks, where evidence of nesting was lacking.

Site centers were determined by preexisting coordinates taken at the location of breeding season goshawk observation (WYNDD database, Nicholoff and Wagner 2003), or from secondary information provided to WYNDD biologists during this study. WYNDD biologists surveyed appropriate habitat in proximity to site centers utilizing tape-playback surveys (Kennedy and Stahlecker 1993). Alarm calls were played intermittently for five minutes in each survey area (Figures 2-13), and tape playback locations were spaced approximately 300 meters apart. Surveys were conducted during all daylight hours, although effort was made to travel between survey sites during the middle of the day, and survey during late afternoon or early morning hours. In the event that Northern Goshawks were located, an intensive stand-level search for evidence of courtship, mating, or nesting was conducted.

One survey was conducted per site, which took either one or two days to perform thoroughly. Due to this limitation, the timing of the start of the survey period was meant to correspond as closely as possible to the hatching phase of brood rearing, and continue through nestling and early fledging phases, when responsiveness to the survey protocol is more reliable (Kennedy and Stahlecker 1993).

Results

Thirteen sites were visited during the survey period (Figure 1, Table 2) across the northern and southern zones of the Shoshone NF. Two active Northern Goshawk nests were located (Table 1). The first, Worthen Meadow Reservoir, on the Washakie Ranger District, was active with a female attending, and was known to have at least two nestlings at the time of discovery. The second, Reef Creek, on the Clarks Fork Ranger District was attended by a female, but the nest contents were unknown at the time. Two incidental observations of goshawks by Dr. Gary Beauvais of WYNDD (one adult, 07/02/04 and two immature; begging, 08/06/04) in the vicinity of Swamp Lake; approximately one mile from the nest site, suggest that the Reef Creek nest likely fledged at least two young.

Table 1.

Nest Site	Date Located	Coordinates – UTM, NAD27, Zone 12		Comments
		Easting	Northing	
Worthen Meadow Reservoir	6/17/2004	669331	4730364	Nest @ 40' in a 60' Lodgepole Pine (approx. 10" dbh). Nest against bole, two chicks present with female attending. Nest tree situated on a NE facing slope on the edge of a shallow depression.
Reef Creek (Dead Man Bench)	6/20/2004	613772	4966216	Nest @ 50' in 100' Douglas Fir (approx. 14" dbh), along side of FS trail #605. Slope aspect 353 deg., nest tree found on upper quarter of sustained slope, adjacent to recent selective cutting to East and Southeast.

Table 2.

Date	Survey Location	N. Goshawk Nest	Comments
06/14	Beaver Creek		Marginal habitat, active timber harvest, historic site recommended by J. Fustos (falconer)
06/15	Beaver Creek		
06/16	Worthen Meadow Reservoir	v	Historic nest, active, at least two juveniles, female attending, historic site recommended by J. Fustos (falconer)
06/17	Pat O'hara Peak		Poor weather, survey not completed. Historic sighting, R. Dorn, WYNDD database, 1989
06/18	Carter Mountain		Active timber harvest in area, active Sharp-shinned Hawk nest on state land, survey site suggested by L. Otto 6/17/04.
06/19	Crandall Ranger Station		Historic nest location, 1994 - WYNDD database, habitat radically altered due to wildfire.
06/19	Dead Indian Creek		Excellent habitat, extensive, active Cooper's Hawk nest (T 55N, R19E, sec 30)
06/20	Dead Indian Creek		
06/20	Lily Lake		Follow up on sightings reported by C. Garber, WYNDD database, 1994
06/20	Reef Creek	v	Excellent habitat, active Northern Goshawk nest, survey site suggested by L. Otto 6/17/04. Observation of 2 subadults in vicinity by G. Beauvais (08/06/04) suggests at least two young fledged from this nest.
06/21	Pat O'hara Peak		Poor weather, survey not completed
06/22	Glacier Trail		Follow up on report of historical observations of Northern Goshawk in this area (pers. comm., M. Hirschberger, 6/21/04).
06/23	Brent Creek		Follow up on report of historical observations of Northern Goshawk in this area (pers. comm., M. Hirschberger, 6/21/04).
06/23	Spring Mountain		Follow up on report of historical observations of Northern Goshawk in this area (pers. comm., M. Hirschberger, 6/21/04).
06/24	Glacier Trail		
06/25	Miner's Delight		Follow up on historic sightings reported in Nicholoff and Wagner (2003)
06/25	Little Rock Creek		Follow up on historic sightings reported in Nicholoff and Wagner (2003)

During site surveys two additional accipiter nests were discovered. An active Sharp-shinned hawk (*Accipiter striatus*) nest was observed on a state owned parcel of land at the Carter Mountain survey site (Table 2, Figure 4). An active Cooper's Hawk nest was observed on a site that appeared to be excellent goshawk habitat along Dead Indian Creek (Table 2, Figure 6). In both cases observers were unable to discern nest contents. A historic observation site at Pat O'hara Peak was visited twice, and on both dates poor visibility and inclement weather prohibited the completion of protocol surveys. The habitat on the north slope of Pat O'hara Mountain may best be accessed via USFS roads in the upper Paint Creek basin.

Discussion

There are characteristics of nest stands that are common across much of the goshawk's range. Johnsgard (1990) describes a stand of tall timber with moderately dense canopy in proximity to small, open foraging areas within the forest. Goshawks are generally associated with mature forest types, yet there is variation throughout the range, with particular tolerances within particular cover types. Nest sites generally are found in proximity to a source of water, on moderate slopes with northerly aspects, in stands of generally older and larger timber (Johnsgard 1990). Nest stands appear to provide protection from predators through increased cover, and a mild and stable micro-climate for protection of vulnerable broods (Reynolds et al. 1994). Goshawks will re-use nest stands between years, often using several (range 1-8) alternate nests, either within stands or between stands, over time (Squires and Reynolds 1997). Historic nest areas have been reported in use intermittently over decades (Reynolds 1983).

Nests from the central Rocky Mountains have been described in lodgepole pine (*Pinus contorta*) dominated, conifer, mixed conifer, and quaking aspen (*Populus tremuloides*) forests (Squires and Ruggiero 1996). The more arid climates of the interior Rocky Mountains result in goshawk habitat selection defined by often single-story stands of large trees, dense canopy cover which is the result of higher tree densities, and a less complex understory with less ground debris (Shuster 1980, Hayward and Escano 1989). On the Targhee National Forest (NF) all goshawk nests have been found in the montane

zone, dominated by Douglas fir (*Pseudotsuga menziesii* var. *glauca*) and lodgepole pine (*P. c.* var. *latifolia*) which occur in pure stands or in mixed conifer forests with Engelmann spruce (*Picea engelmannii*), subalpine fir (*Abies lasiocarpa*), whitebark pine (*Pinus albicaulis*) or limber pine (*Pinus flexilis*). Aspen stands are found along the lower elevation edges of the montane zone, or mixed within predominantly conifer forests at higher elevations (Patla 1997). The two nests located in 2004 on the Shoshone NF match the description of nest sites of the montane zone reported by Patla (1997), of which one was in a Douglas fir, and the second was located in a lodgepole pine.

Northern Goshawk population trend data has been reported from the monitoring project on the Targhee National Forest (Patla 2003). In a comparison of mean occupancy rate between two five year periods (1990-1994 and 1998-2002), goshawk occupancy is down by greater than half (from 64% to 31%). Nest success (nest producing at least one fledgling) at monitored territories also declined from 56% to 19%. Occupancy rates and success rates during the later period were higher in undisturbed territories than those located in timber harvest areas (Patla 2003). This is a study limited in area; however, as the only trend data from the immediate region, and one which contradicts the population status findings of the USFWS (1998), it should be recognized that a monitored population of goshawks in close proximity to the Shoshone NF is in demonstrable decline.

Forest management for goshawks, where possible, should follow a design that mimics “regional natural disturbance regimes”, as large even aged stands, monoculture, or predominantly early seral stage forests will not be conducive to goshawk habitation (Kennedy 2003). The following paragraph from Kennedy (2003) presents the habitat parameters that Region 2 should be establish as goals for landscape level management:

“The limited data on goshawk breeding season nest sites and foraging habitat suggests that old or mature forest stands with open understories, relatively high canopy closure, large trees and high stem densities are selected. The limited regional data suggest that foraging areas are more likely to occur in mature forests on gentler slopes (6-60%), with open understories and greater densities of large conifers (23.0-37.5 cm dbh; range = 0-11 stems/0.04 ha). Evidence for use of openings for foraging is also available but limited. Older forests with more open or uniform understories would probably support goshawks more than older forests with complex or very complex forest structure.”

Goshawk habitat use varies on both temporal and spatial scales (Reynolds et al. 1992; Graham et al. 1994). Landscape level planning for nesting Northern Goshawk should be based on three nested spatial scales which reflect goshawk habitat use within a breeding season home range i.e. Nest Area (and alternative nest areas; 10-12 ha), Post-fledging Area (PFA; 120-240 ha), and Foraging Area (1,500-2,100 ha) (Reynolds et al. 1992). Where active goshawk nests are identified on the Shoshone National Forest it is recommended that protective measures incorporate landscape level habitat needs. Protective measures currently utilized in Region 2 as described by Kennedy (2003) include:

Nest Area:

Create no-use or limited-use buffer zones around known nest sites (radius = 182-400m). This may include seasonal restrictions on activities in the vicinity of buffer zone boundaries (March-August).

Post-fledging Area (from Schultz et al. 2000 *in* Kennedy 2003):

Limit management activities in at least three known nest stands (approximately 12.1 ha each) or three replacement stands within each historically active territory.

Management activities should not reduce the structural and compositional integrity of active and alternative nest stands.

From March 1 – September 30, avoid timber harvest schedules that cause simultaneous, widespread disturbance across goshawk fledgling habitat (the PFA).

Management treatments in the PFA associated with active and alternative nests should be designed to enhance prey species habitat, and structural and compositional diversity.

There are currently no Region 2 forest plans which include protective measures for goshawk foraging areas (Kennedy 2003).

The dynamics of habitat availability and population status of Northern Goshawk on the Shoshone National Forest are only partially understood. Further work in this arena is necessary, especially in the light of an apparent population decline elsewhere in the Greater Yellowstone Ecosystem (Patla 2003).

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Figures

Figure 1. Shoshone National Forest 2004 Northern Goshawk Survey Overview Map

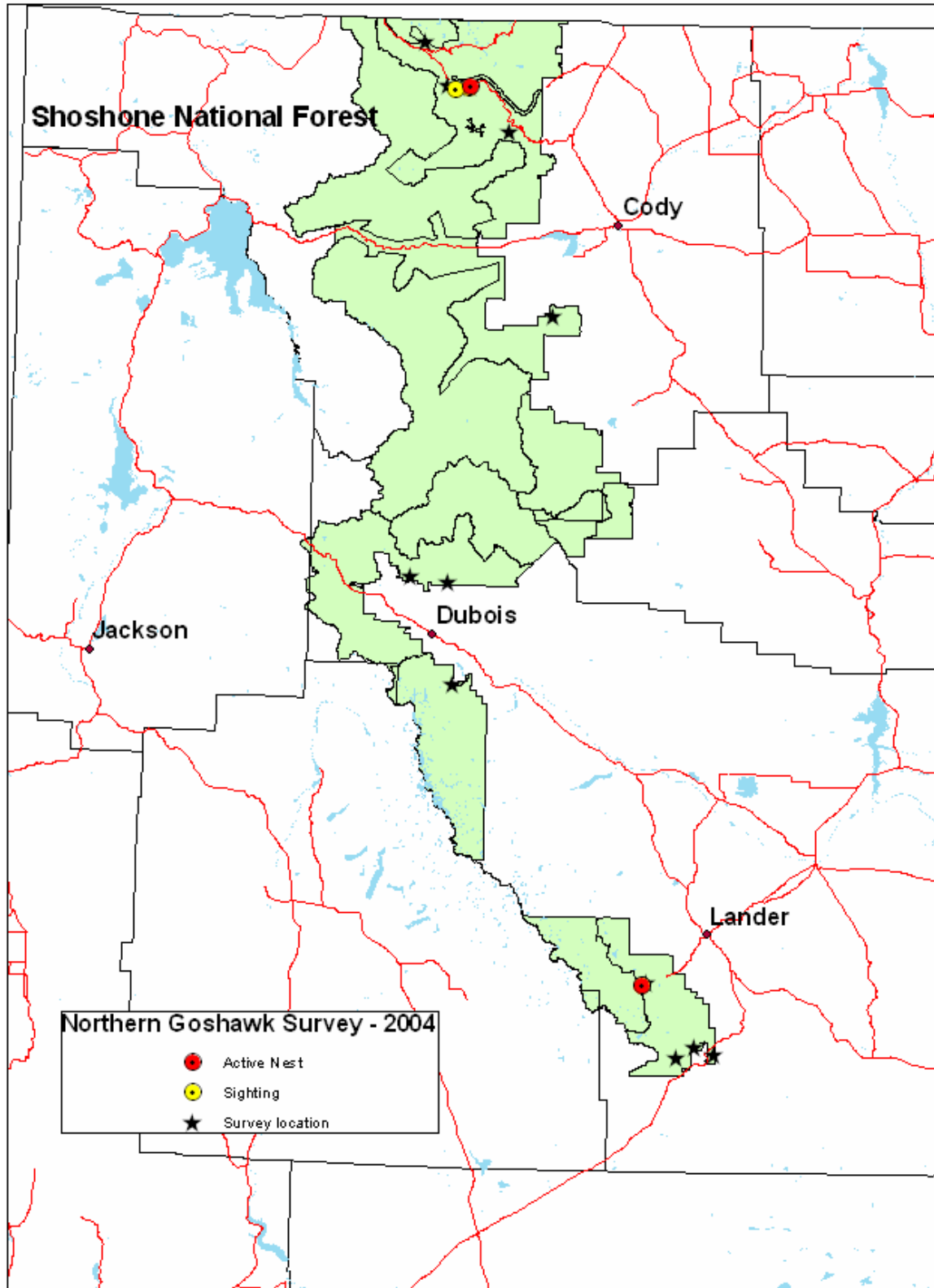


Figure 2. Beaver Creek

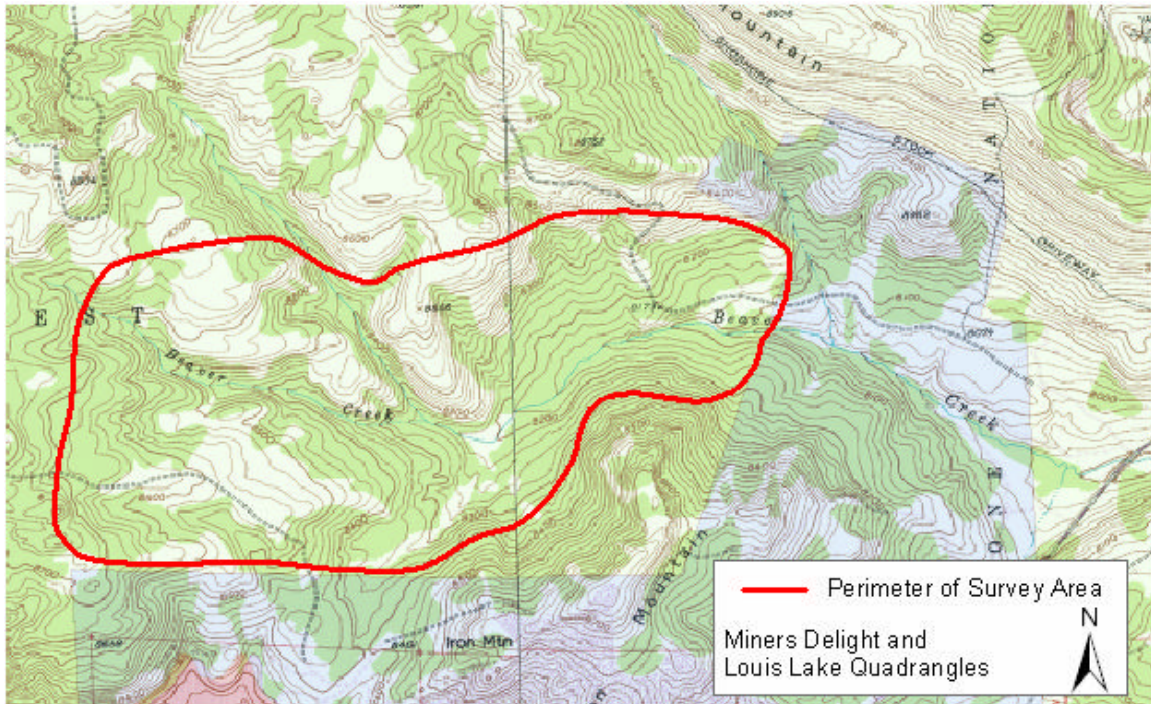


Figure 3. Brent Creek

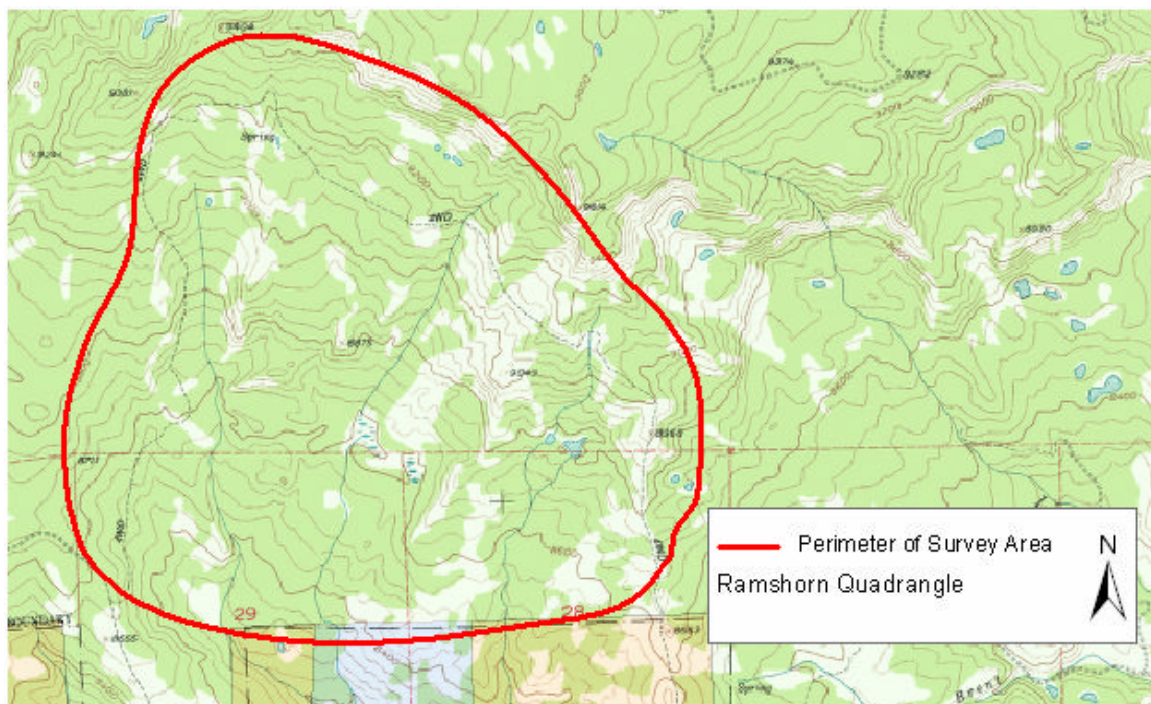


Figure 4. Carter Mountain

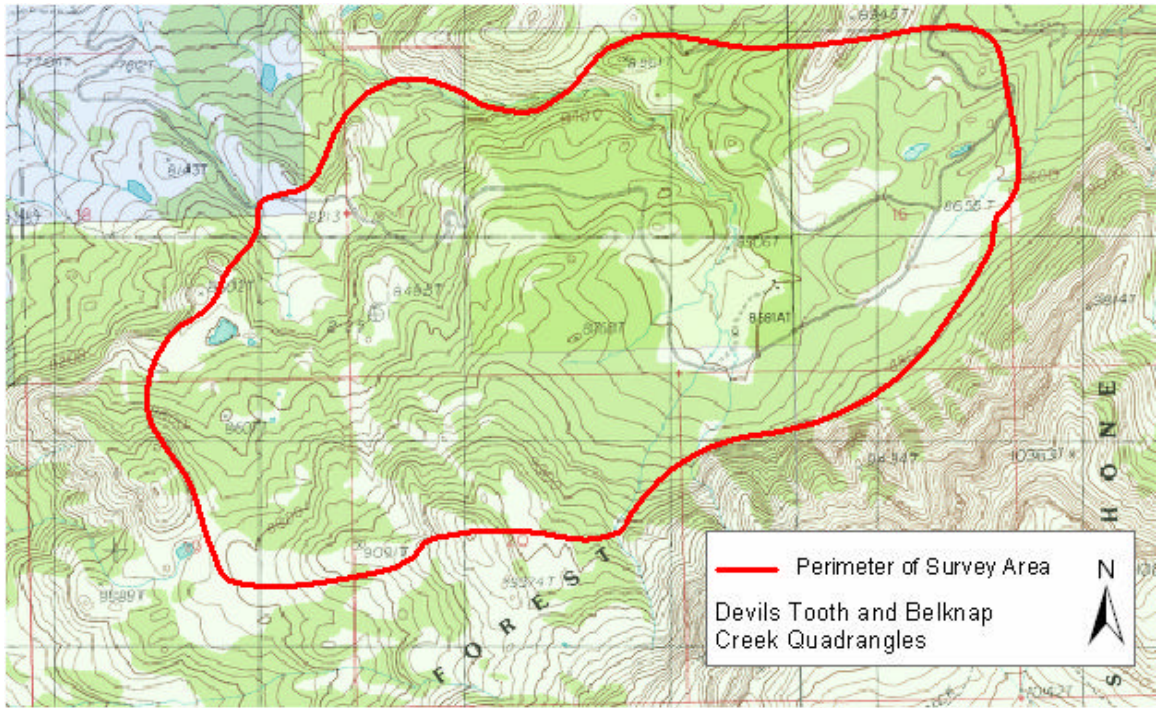


Figure 5. Crandall Guard Station

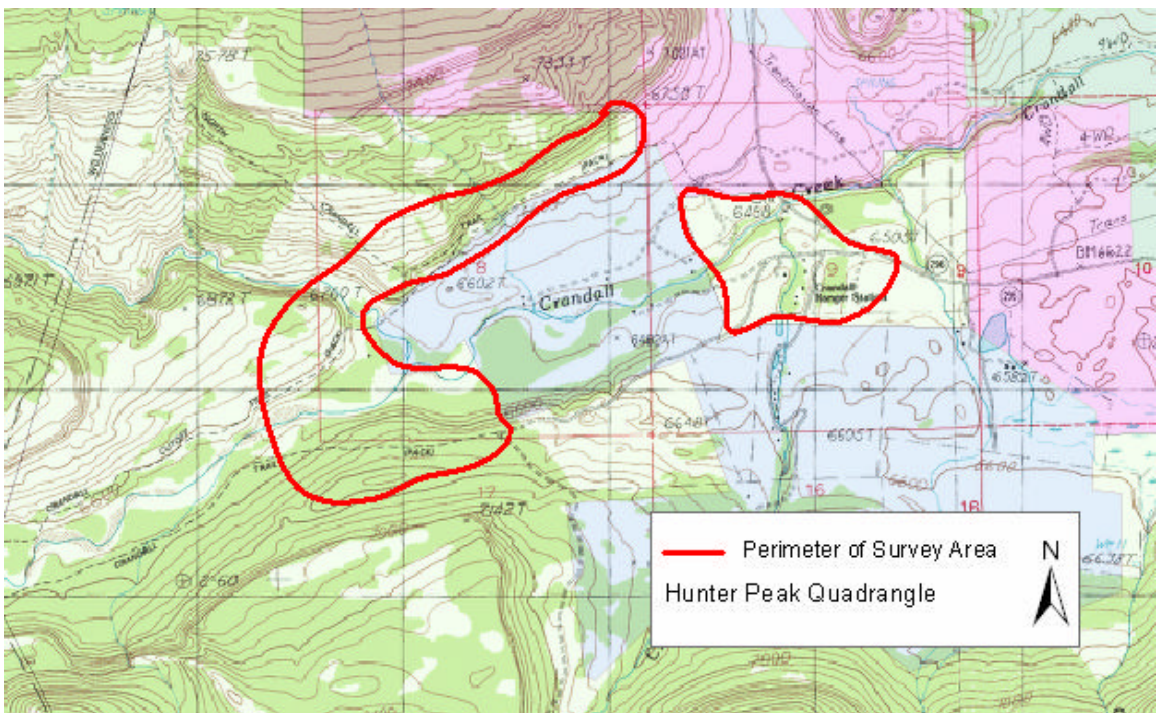


Figure 6. Dead Indian Creek

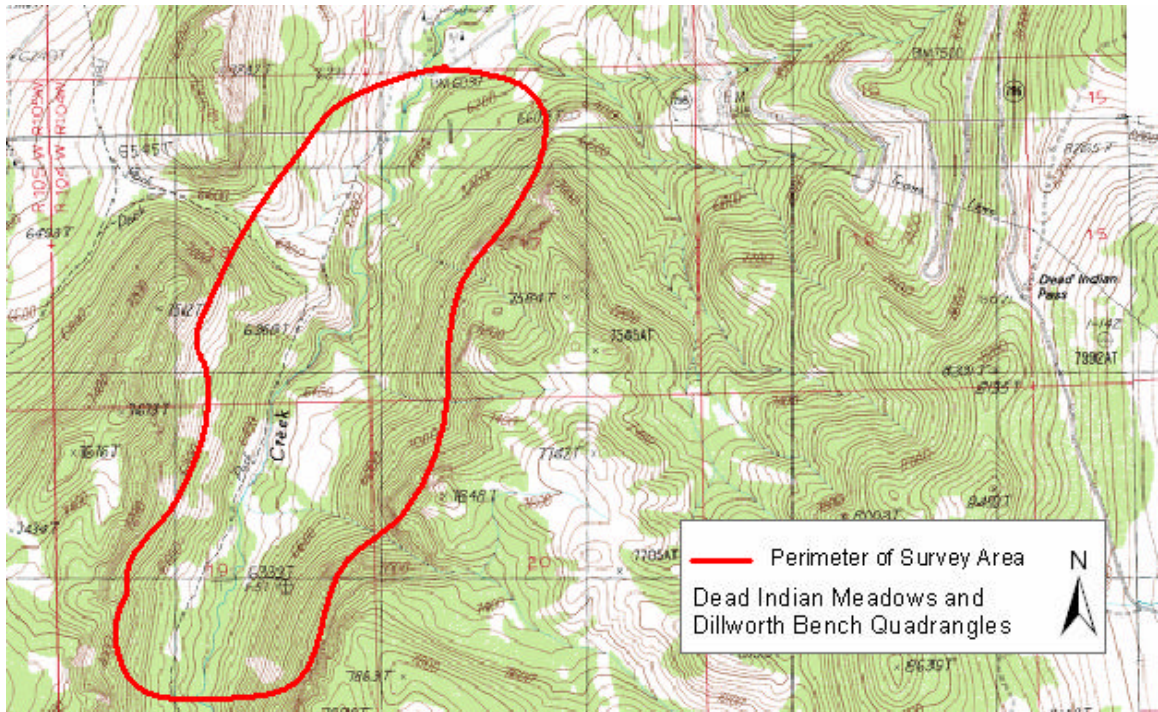


Figure 7. Glacier Trail

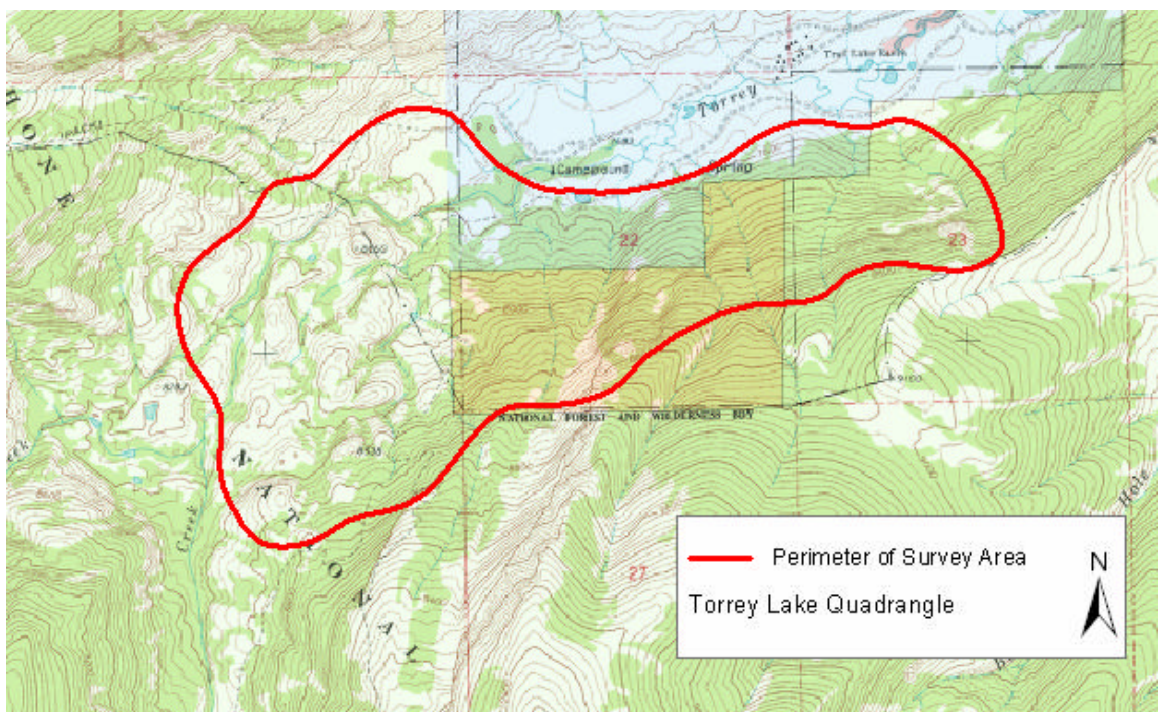


Figure 8. Lily Lake

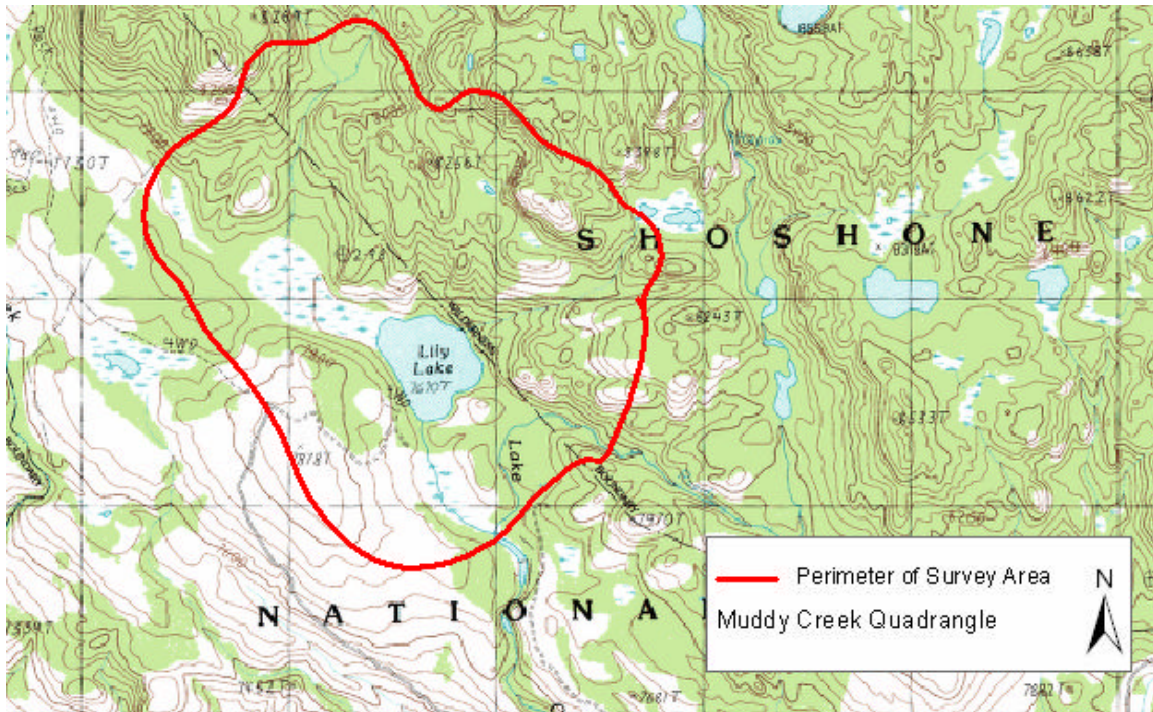


Figure 9. Little Rock Creek

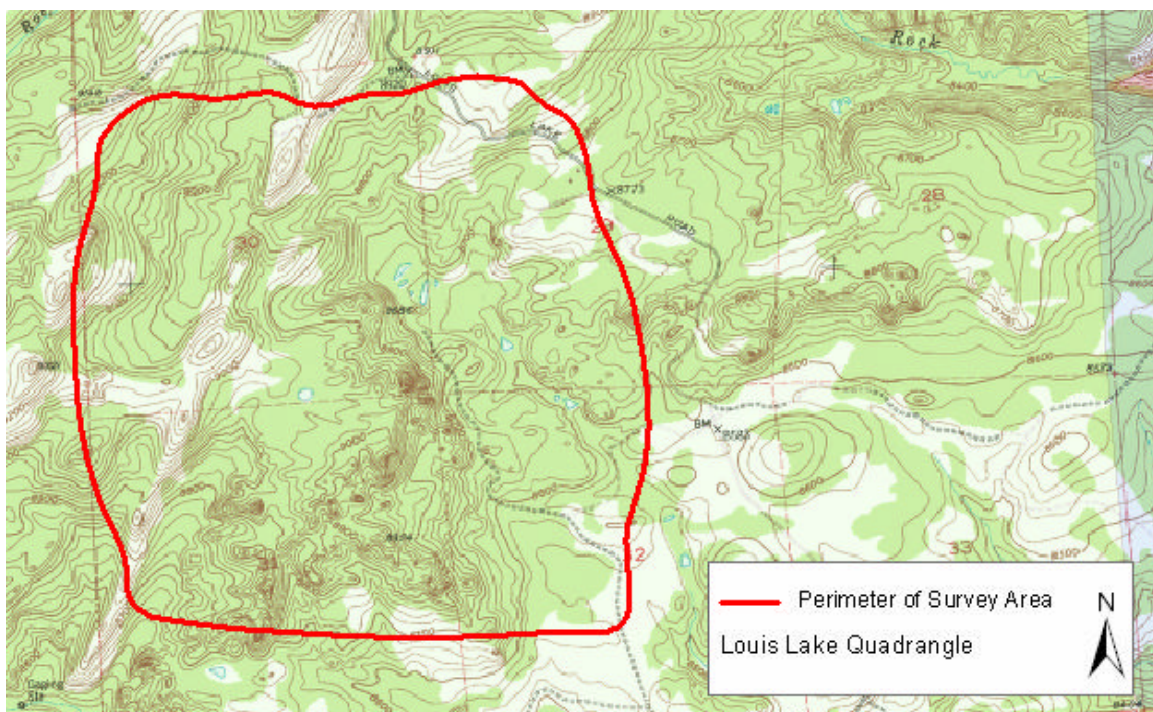


Figure 10. Miner's Delight

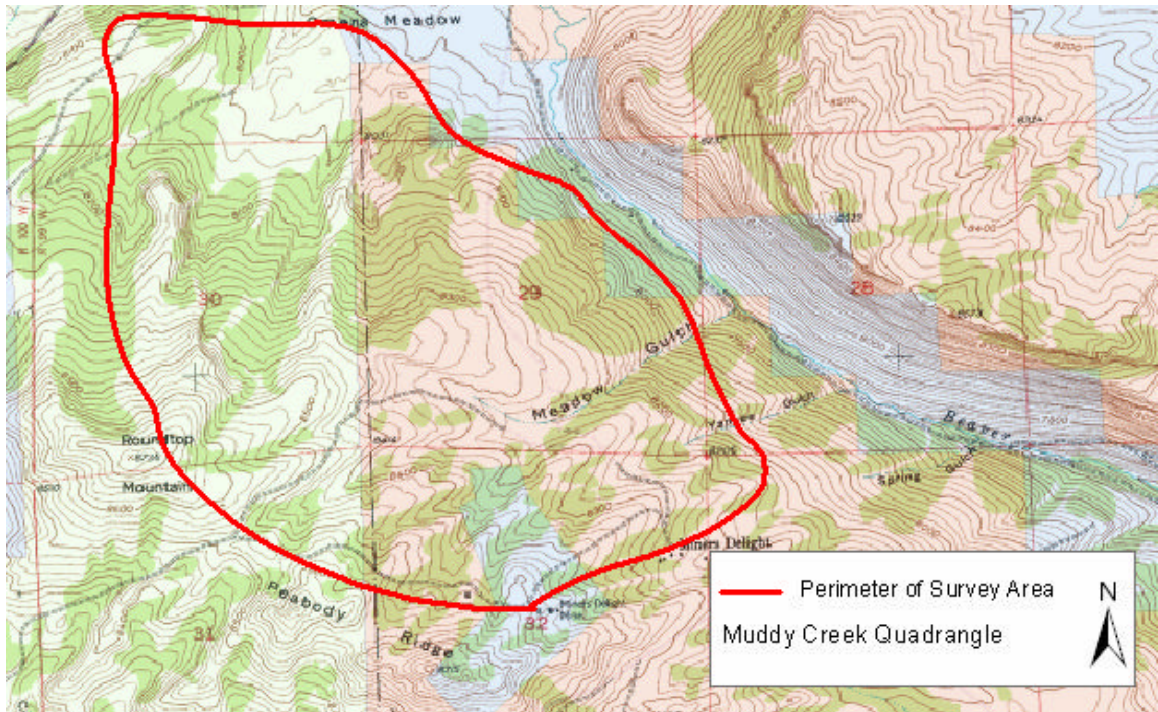


Figure 11. Reef Creek

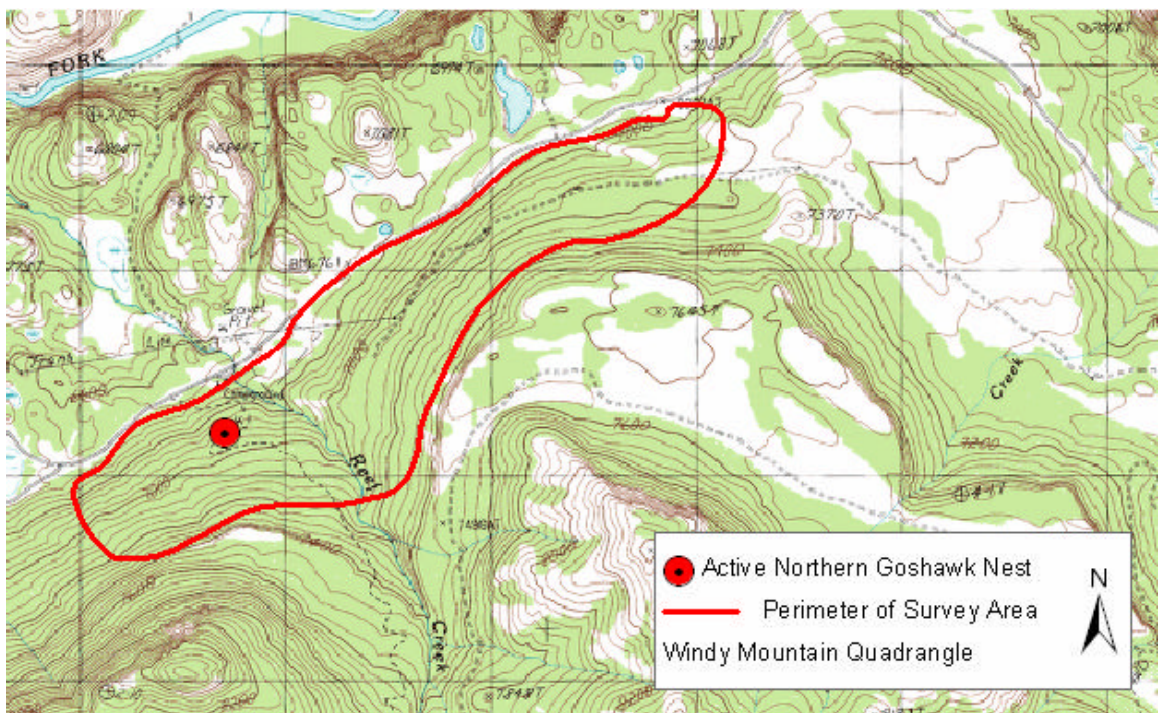


Figure 12. Spring Mountain

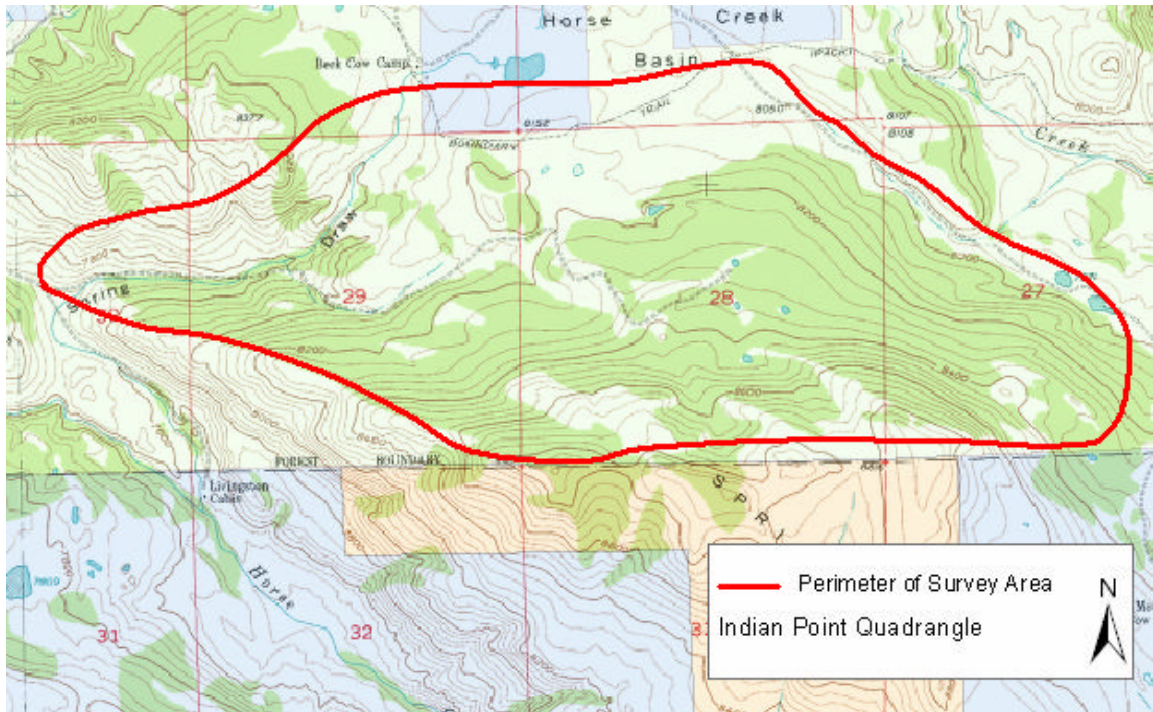


Figure 13. Worthen Meadow

