

# **Priscilla Peak Bighorn Sheep Habitat Prescribed Burning**

Plains/Thompson Falls Ranger District  
USDA Forest Service  
409 Clayton St.  
Plains, MT 59859

**Represented By:** David Wroblewski, Wildlife Biologist, 406-826-4321

*History with WSF:* The Plains/Thompson Falls Ranger District (represented by Patricia O'Connor) and Montana Chapter of WSF coordinated to accomplish prescribed burning for bighorn sheep habitat improvement in Munson Creek in the late 1990s. In 2004 an application was sent to WSF for grant-in-aid funding to assist with herbicide treatments to control noxious weeds in the Knowles Creek drainage. The project was not funded because adjacent landowners were not controlling enough weeds on their lands. In 2009 WSF and the Plains/Thompson Falls Ranger District cooperated in replacing interpretive signs for the Sheep Viewing Area along Highway 200 near Thompson Falls, MT. In 2013, both Montana Chapter WSF and National WSF contributed \$5,000 each toward the initial prescribed burning in the Cutoff area. These burns occurred in spring and fall 2014 and treated more than 4,000 acres of heavily-used sheep habitat.

This proposal will support *Wild Sheep Habitat Management*

**Note – This project is supported by Bruce Sterling (MTFWP, Thompson Falls Wildlife Biologist)**

## **Personal References:**

Bruce Sterling, Wildlife Biologist, Montana Department of Fish, Wildlife, and Parks, P.O. Box 674, Thompson Falls, MT 59873, (406) 827-4389

Ben Conard, Field Supervisor, Northern Idaho Field Office, 11103 East Montgomery Dr., Spokane, WA 99206, (509) 891-6839

Greg Gustina, Planning Staff Officer, Lolo National Forest, Bldg. 24, Fort Missoula, Missoula, MT 59804, (406) 329-3809

## **Project Area Descriptions**

The **Priscilla Peak area** consists of both summer and winter ranges and includes up to 4,500 acres of prescribed burning depending on weather conditions. The area is about 8 miles northeast of Thompson Falls and adjacent to the Thompson River. It is within Montana Hunting District 121 which formerly supported a large sheep herd of over 300 animals but is currently estimated at <75 animals. No disease has been detected in the population, but mortality from vehicle/train collisions, and targeted mountain lion predation are suspected as the cause for the decline (B. Sterling, Pers. Comm, 3/2015). Habitat improvement can hopefully reduce the time

the sheep spend along the highway and increase their efficiency at detecting and avoiding predators. The project area includes 3 treatment units extending from the Thompson River (2,500 feet elevation) upward to Priscilla Peak (over 7,000 feet). These units include many vegetation types from ponderosa pine forests with grass/shrub understories to high-elevation windswept ridges, meadows, and subalpine fir or hemlock-dominated stands. The area is used year-round by sheep and especially by rams in summer.

Within hunting District 121, 4 either-sex tags were allotted (and filled) in 2012, and 1 in 2013, 1 in 2014, and 1 in 2015 because of population declines (MTFWP 2013, 2014, 2015, Online Regulations). Hunter success rate for adult rams is similar at 90-100% (MTFWP 2010). There are a few small private domestic sheep (3-4 groups of 1-5 sheep/goats) known within the range of this sheep population. In summer 2014, about 500 acres of the project area burned in a wildfire (Thompson Complex, Spruce Creek Fire).

### **Project Rationale**

Because of the recent population decline (beginning in 2008) that is suspected to have been caused by highway and predation-related mortality, any action to improve conditions for this sheep population would help. Although bighorn sheep are currently present in the area, habitat conditions have declined due to lack of fire and heavy tree and brush growth. The current low population could be related to the long-term habitat decline in the area. Increased conifer encroachment over time could make predators more efficient and thus have a greater effect on population numbers. Reduced forage quality and quantity from conifer encroachment may be making the ranchlands along highway 200 more appealing than the upland natural areas increasing the exposure to highway mortality. Comparison of historical aerial photos (1947-1949) with current aerial photos (2000, 2005) displays a readily apparent increase in forest cover. This corresponds with the records of the Plains/Thompson Falls Ranger District identifying few fires in the areas. Some understory burning has occurred 20-30 years ago in some lower-elevation stands below Priscilla Peak to maintain larger ponderosa pine stands, kill encroaching Douglas-fir, and stimulate resprouting of shrubs and herbaceous plants. Reburning these areas is needed to maintain the abundant forage lost as shrubs grow out of reach and become “clubbed” from heavy use by elk, sheep, whitetail and mule deer.

The current application of fire will help maintain and increase visibility in the stands. Improvement of visibility increases habitat suitability for sheep by facilitating predator detection and enhancing their ability to communicate with alarm postures (Risenhoover and Bailey 1985). Understory burning and clear-cut timber harvest have been used successfully to improve bighorn sheep habitat in Utah (Smith et al. 1999) [note-we are only planning under- and over-story burning]. The authors reported increased use of treated areas, an expansion of the range of the population, and larger sheep group sizes after treatment in areas of both treatment types and attributed these outcomes to improved visibility, forage quality, and forage quantity (Smith et al. 1999).

Within the Priscilla Peak area prescribed fire is a better alternative to improve bighorn sheep habitat than timber harvest because: 1) the areas are so steep that road construction and harvest activities would be very expensive, 2) much of the areas are designated as *inventoried roadless*,

making commercial harvest extremely vulnerable to environmental concerns. Also, most of the area was designated as a portion of National Forest System Lands unsuitable for timber harvest (Lolo Forest Plan 1986), so there is no expectation of commercial harvest in the area nor are there adequate trees to support the cost of removing them in many areas. Prescribed burning avoids these concerns but provides the needed habitat improvement. Burning will reduce woody vegetation cover and increase both visibility and forage without road construction or the need for timber cruising, marking, and cutting.

## **Treatment Description**

**Goal:** Reduce or maintain low tree cover and increase productivity of grasses, forbs, and shrubs to improve visibility and forage for bighorn sheep and other wildlife. Areas of low tree cover are preferred by sheep for foraging and predator avoidance. Coincidentally, quality of the bighorn sheep hunting experience will improve with more open habitat where hunters can detect sheep. Higher-elevation treeless areas used by bighorn sheep in summer will also be enlarged as the fires burn within some of the higher stands. These higher-elevation, open meadow areas are heavily used by rams in summer while the lower-elevation, south aspect areas are more heavily used by ewes and lambs.

**Objectives:** Apply prescribed fire to up to 4,500 acres in the Priscilla Peak area. According to our vegetation management prescription and burn plans we will be treating areas susceptible to weed infestations (south aspects, lower elevations) when the litter/duff moisture is at or near 100% to reduce the potential spread of noxious weeds. Burning in these areas will be conducted to “top-kill” 30-70%+ of the shrub component (which will encourage resprouting from the surviving roots); kill 20-50% of the less than 3” diameter trees, 20%+ of the 3”-7” diameter trees; and kill 10%+ of the greater than 7” diameter trees. Within the mid- and higher-elevation areas, larger areas of tree mortality are expected. This would create some open stands in currently-forested areas and expand the size of current meadow areas.

**Methods:** Although fall burning has a more positive impact on herbaceous plants and shrubs because plants are dormant, energy is reserved in the roots, and active spring growth is not killed, it occurs with greater risk of escape and negative impacts from smoke. Spring burning comes with a lower risk of fire escape and does not harm plants if it can be completed before active growth begins. Spring burning will most likely be used on the eastern portion of the area and fall burning on the remainder of the area. The project area could be burned all at once or in portions over several years depending on the suitability of the weather and fuel moisture conditions. During each burn, fire will likely be applied from a helicopter with the strip head method beginning in the upper portions of the slopes and working downward through the area. Fire will not be directly applied to Riparian Conservation Areas (within 300 feet of fish-bearing streams), but rolling debris may ignite these areas.

The National Environmental Policy Act analysis for the project was completed in 2009. Prescribed burning could begin as soon as spring of 2015 but will be weather dependent as is all prescribed burning.

Monitoring to assess the burns will occur immediately after burning from a helicopter and with a later flight after a rain event. The objectives of this monitoring will be to determine and photograph the relative extent and intensity of the fire to assess if the objectives (above) were achieved. Detailed vegetation plot monitoring will not occur because the effects of prescribed fire on montane dry forests are well documented. Montana Department of Fish, Wildlife, and Parks will continue their annual bighorn sheep surveys in the Hunting District.

The Forest Service committed about \$10,000 (Fiscal years 2006 and 2012) toward the environmental analysis and layout of the project. We intend to commit at about \$20,000 - \$30,000 per year for implementation beginning in 2015 until completion. Costs of application of prescribed fire in this area will range from \$50-80/acre and burning will likely be divided among multiple years (total cost is expected to be \$225,000-\$360,000).

The USDA Forest Service has jurisdiction over the project area.

We would like to request \$15,000 from the Montana Wild Sheep Foundation for calendar year 2015/2016. Please note, we are also requesting an additional \$10,000-\$50,000 from the Wild Sheep Foundation (National).

Thank you for considering this project.

### **Literature Cited**

Montana Fish, Wildlife, and Parks. 2010. Montana bighorn sheep management plan. Helena, MT 322pp.

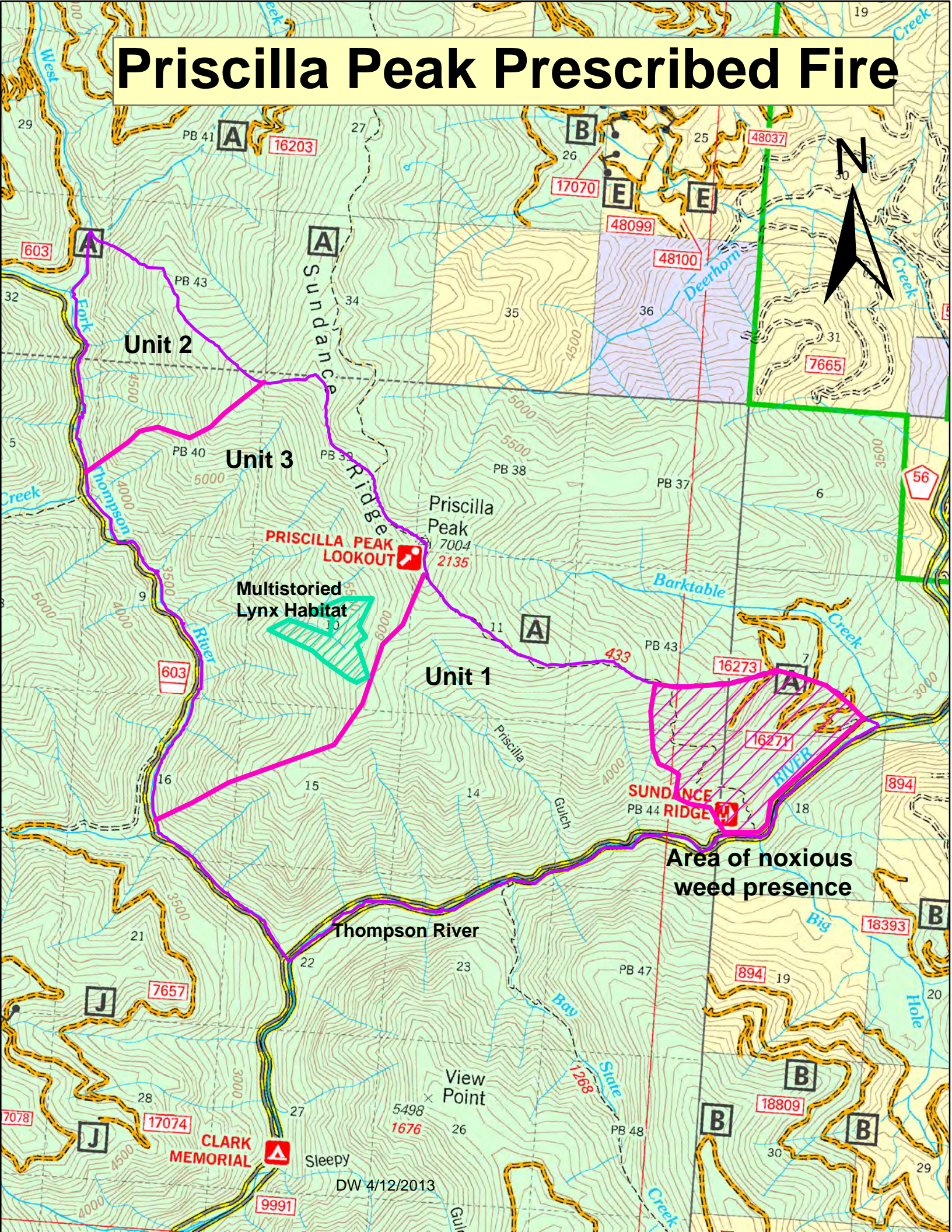
Risenhoover, K.L., and J.A. Bailey. 1985. Foraging ecology of mountain sheep: implications for habitat management. *J. Wildl. Manage.* 49:797-804.

Smith, T.S., P.J. Hardin, and J.T. Flinders. 1999. Response of bighorn sheep to clear-cut logging and prescribed burning. *Wildl. Soc. Bull.* 27:840-845.

### **Attachments:**

- Priscilla Peak burn area map

# Priscilla Peak Prescribed Fire



# Priscilla Peak Prescribed Fire

Unit 2

Unit 3

Unit 1

Multistoried  
Lynx Habitat

Area of noxious  
weed presence

Priscilla  
Peak  
7004  
2135

PRISCILLA PEAK  
LOOKOUT

CLARK  
MEMORIAL

Thompson River

SUNDANCE  
RIDGE

View  
Point

Sleepy  
DW 4/12/2013

Sundance  
Ridge

Area of noxious  
weed presence