

FIRE'S PLACE AND USE IN HABITAT AND MANAGEMENT WITHIN THE SUN RIVER AREA OF WEST-CENTRAL MONTANA

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Abstract: Bighorn sheep (*Ovis canadensis canadensis*) in the Sun River area of west central Montana represent one of the largest native populations in the state. Habitat types utilized by this population include old burn areas. Most of these sites are the result of wild fires occurring before 1920 when significant fire suppression was realized. Since then, conifer encroachment, often significant, has remained relatively unchecked in many areas. This may result in reduced bighorn sheep habitat amounts and/or efficiencies. The ability to manage fire coupled with a greater understanding and tolerance of fire's natural role as a changing force may provide land managers the option of fire as a habitat manipulation tool.

INTRODUCTION

A review of past and current fire presence and management in the Sun River area of west-central Montana expands on the philosophy that fire is a natural and necessary component of this ecosystem. By reviewing the historical presence of fire, the current absence of fire, how those conditions have impacted the environment and, presumably the wildlife, managers have taken great strides in recognizing and utilizing fire as an ally on at least one region of the Rocky Mountain East Front.

The Sun River bighorn sheep (*Ovis canadensis canadensis*) herd is one of the largest native populations in the world. While the current population is below target, past research efforts have put the site potential at over 800 animals (Frisina 1974). Documented Native American presence and utilization of resources in the Sun River area goes back to at least 1600 AD (Picton and Picton 1975). That resource appreciation, to include hunting and nonconsumptive opportunities associated with bighorn sheep continues today.

Just as the history of bighorn sheep in the Sun River area is relatively easy to document, so is fire. It is well documented that burned habitat types have been and continue to be a significant part of year round range for bighorn sheep in the Sun River area (Erickson 1972, Frisina 1974, Schallenberger 1966). Likewise, it is relatively easy to capture the considerable habitat changes that have taken place since significant fire suppression was initiated. Researched estimates of open areas lost to conifer encroachment have run as high as 30% of historical bighorn sheep habitat (Schirokauer 1996).

It is no stretch to recognize bighorn presence in the Sun River area, the value of that presence to the human environment, the historical coexistence of sheep and fire, the relatively recent exclusion of that fire and obvious signs of what that exclusion has done to the environment. With these realizations in hand, it is difficult to argue against fire as a necessary component of

this ecosystem. While the philosophy of fire's natural role has long enjoyed some amount of scientific acceptance, the proposed scale of managed fire in the Sun River area is quite new and is the most recent step in the progressive application of prescribed fire on the Rocky Mountain District of the Lewis and Clark National Forest.

DISCUSSION

The vegetation that makes up the Rocky Mountain Front has had a long history of fire. Prior to 1920, an average of 10,000 acres burned annually. Through the 20's, 30's and 40's, after the inception of fire suppression, that number was reduced to 200 acres burned on average every year. Through the 50's, 60's and 70's that average was reduced even further to less than 50 acres per year.

In 1982, the Prescribed Natural Fire Policy (PNF) was implemented in the Bob Marshall Wilderness Complex with the signing of the Scapegoat/Danaher PNF Plan. After 17 years under this PNF plan, 71, 761 acres have burned (99.5% of them in 1988) for an average of 4221 acres per year. This helped bring natural fire back into the Bob Marshall Wilderness Complex.

In 1982, the Rocky Mountain Ranger District started conducting prescribed burns to accomplish a variety of resource objectives. These burns have been conducted to improve habitat for bighorn sheep, elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*) and grizzly bear (*Ursus arctos*), reduce fuel loadings and to help restore fire's role in shaping the vegetation along the Rocky Mountain Front. These burns have been designed to regenerate grasslands, aspen stands and shrub fields and to reduce conifer encroachment. Since 1982, fifteen burns have been conducted with 4260 acres being treated. Two thousand acres were scheduled for treated by fire for the spring of 1998, outside of the Wilderness Complex.

The Rocky Mountain Ranger District is planning to expand its use of prescribed fire into the Wilderness Complex in 1999. The district performed an Environmental Analysis (EA) to analyze sing management ignited fire in the Bob Marshall Wilderness Complex. This project is the proposed South Fork Sun Burn. It is 16,500 acres in size and is located entirely within the Scapegoat Wilderness. The district is considering introducing management ignited fire into 10,000 of the 16,000 gross acres. The public has been and will continue to be involved in the process.

The objectives for this project are two-fold. The first is to make the wilderness boundary more defensible against wildfire escaping the wilderness and burning onto nonwilderness portions of the National Forest and possibly onto private land. Second, if the boundary is made more defensible from the standpoint of fire escape, natural ignitions will more likely be allowed to burn under the PNF program uninitiated in this area in 1981.

Prior to formally announcing this project, the District considered other treatments. These treatments included the use of prescribed fire and logging to reduce the risk of fire escaping the

wilderness. Also considered was the history of lightning-caused fires not being allowed to burn and re-establish fire's role in this portion of the Bob Marshall Wilderness Complex.

Managers of wild sheep and goat herds interested in using fire to improve habitat must consider certain physical limitations. For example, fire managers will not allow an underburn of an open stand of mature Douglas fir with regeneration growing up in it. Also not allowed is stand replacement of aspen or burning of young Douglas fir interspersed with sparse grass or other fuel. On the other hand, fire can be used to rejuvenate decadent rough fescue stands or to underburn even-aged Douglas fir or ponderosa pine stands. Fire can be used to create a mosaic in even-aged mature stands, or to rejuvenate shrub fields. As the difference between what can and cannot be burned is often unclear, sheep and goat manager should coordinate with fire managers when selecting areas for burn projects.

Fire has been a major influence in shaping the vegetation and the wildlife using that vegetation along the Rocky Mountain Front. Sheep have used many of the areas that have experienced fire. We have been using fire to help maintain the native vegetation along the Front, but nowhere near the extent to which it burned prior to fire suppression. While exact outlines of the relationship are far from clear, sheep numbers have declined with the decline in areas burned along the Front.

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