

## HABITAT IMPROVEMENT FOR TAYLOR RIVER BIGHORN SHEEP HERD

WILLIAM C. SHUSTER, USDA Forest Service, Gunnison National Forest, 216 N.  
Colorado, Gunnison, Colorado 81230

**Abstract:** This paper reports on past and present habitat conditions of a bighorn sheep (*Ovis canadensis*) range in central Colorado along Taylor River. Hibbs and Woodard (1969) analyzed habitat conditions. The Colorado Division of Wildlife (DOW) have made winter counts of the herd since 1940 (Fig 1). These counts show a cycling population usually crashing when the population nears 100. Both summer and transitional range have become overgrown with conifers due to lack of fires within the past 80 years. The U.S. Forest Service (USFS) has started a program of habitat improvement to improve the range thru a variety of manipulation techniques. This program and future plans are discussed.

### AREA DESCRIPTION

The Taylor River bighorn herd uses a 25 km long segment along the Taylor River from the town of Almont north to Taylor Reservoir. The winter range consists of steep Mesozoic rock formations with loose shale slides along the Taylor River. The winter range is approximately 8 km in length and .5 km in width. Ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), and juniper (*Juniperus scopulorum*) are scattered along the east and south facing cliffs. Understory is dominated by fringed sagebrush (*Artemisia frigida*) big sagebrush (*Artemisia tridentata*) and rabbitbrush (*Chrysothamnus* spp.). The most common grasses include Indian ricegrass (*Oryzopsis hymenoides*), mountain muhly (*Muhlenbergia montana*), needle and thread grass (*Stipa comata*), and sedges (*Carex* spp.).

At the top of the cliffs the terrain changes to big sagebrush flats with a minor understory of rabbitbrush. Grasses in the understory include western wheatgrass (*Agropyron smithii*) and junegrass (*Koeleria cristata*).

The summer range, some 15-20 km up river, is dominated by an overstory of lodgepole pine (*Pinus contorta*) and Engelmann spruce (*Picea engelmannii*). Only 20% of the entire summer range area is nonforested, with a majority of this nonforested area being barren. The openings which are present near timberline are dominated by Thurber fescue (*Festuca thurberi*), vetch (*Vicia* spp.), and sedges.

### VEGETATIVE HISTORY

Since the early 1900's, the habitat has progressively converted to a timbered stand through natural succession and the lack of any large fires. The available summer range is becoming increasingly isolated with heavy stands of timber forming barriers between these "island habitats".

Risenhoover and Bailey (1980, 1985) and Bailey (1980) point out the importance of visibility in grazing areas and along migration corridors. Visibility for the Taylor River bighorns has decreased to the point where abandonment of the summer range in the future is a possibility.

The winter range, while not as heavily timbered, is showing the same trend towards reforestation.

#### HERD HISTORY

Herd size has been cyclic, starting from a low of 25 and gradually building up to around 100 when a crash usually occurs (Feuerstein, et. al. 1980 and USFS 1940-1985). The herd is infected with lungworm though not at an epidemic stage. In comparing with other herds in Colorado, the Taylor River herd appears quite healthy (Bear and Jones 1973). Some sheep are now starting to remain on the winter range yearround however and speculation is this is due to the migration routes closing in with trees. The USFS is concerned that the migration pattern may be lost.

There has been only one transplant into this herd. In 1969 10 sheep were brought in.

#### HABITAT HISTORY AND MANAGEMENT

At the turn of the century, the Taylor River drainage experienced extensive wildfires. The summer range and transitional range was almost totally inundated with fire during this time. Lodgepole pine has since invaded this range to its present dense condition.

In 1976, the USFS became concerned with conflicts between sheep and people. Consequently, since 1976 the winter range has been officially closed to all human use from December 1 to March 31.

Actual habitat improvement for the bighorn sheep began in the spring of 1983. A 50 acre sage flat in the upper winter range was burned to test response of both vegetation and the sheep to the burn. A herd of 22 sheep immediately moved into this burned flat and grazed throughout the summer and fall on the *Stipa*, Kentucky bluegrass (*Poa pratensis*) and Thurber fescue which came up after the burn.

Since then, approximately 1,800 acres have been burned. Burns on the winter range have resulted in a large increase in grasses and sedges. Seventy acres on the winter range were reseeded with timothy (*Phleum* spp), smooth brome (*Bromis inermis*) and sweet clover (*Melilotus officinalis*). Three native plants in the burn area (*Stipa*, *Carex* and *Wyethia*), have been lightly utilized since the burn.

In May and June of 1985, the first large fire was completed in the summer transitional range. Over 1,200 acres of lodgepole timber were burned by ground crews using driptorches and by using the helitorch, an aerial ignition device. This burn received considerable attention from the local and national media. The media coverage was all positive and displayed the needs for habitat improvement for the sheep.

#### PUBLIC RELATIONS

An intensive public relations campaign was initiated prior to and during these burns. All landowners in the canyon were individually notified and the project was explained. Ground patrols talked to the public during the burns and distributed information sheets on the objectives.

In addition, the USFS erected information signs where burns were visible from the Taylor Canyon road. These signs described what the USFS was trying to accomplish and why.

#### FUTURE MANAGEMENT PLANS

The entire range for the sheep was analyzed in 1985 using the Ram 1 computer model (Hoover and Willis 1984). Present habitat capability for bighorn sheep after the 1,200 acre burn is 26% of potential with a summer population capability of 64 sheep.

The document which establishes management direction for USFS in this area is the approved Land and Resource Management Plan for the Grand Mesa, Uncompahgre and Gunnison National Forest. Minimum standards for bighorn sheep habitat quality are described in this document. Habitat for bighorn sheep will be maintained at least at 40% or more of potential. In order to meet the 40% level, 5,000 acres need to be returned to early successional stages. Following determination of the need, the USFS analyzed locations and potential projects. Listed below are project plans resulting from our analysis:

1. Proposed burning of 10,000 acres within the next ten years. (Past burns have shown that you need to double the burn acreage you want in order to achieve your goal. Some acres won't burn no matter what you do, due to a lack of carrying fuels.)

These burns would be predominantly in lodgepole and are considered 2 stage burns. The first burn's objective is to kill as many mature trees as possible. Following the burn, there will be a large amount of seed released from burned cones. For the next 20 years, there will be a buildup of regeneration as the dead and dying timber falls down. The second burn will attempt to burn the regeneration and slash resulting from the first burn.

This burn should be much more extensive as the fuels will be more continuous.

2. Seeding of areas which experience intense fires. If the prescribed fires are hot enough, the cones will be burned up, resulting in a single stage burn. At this time it will be worthwhile to seed desirable grasses.

3. Clearcut, burn and seed spruce stands within the summer range. Part of the summer range has gentle topography where logging is possible and the timber present makes the sale financially feasible. The cutting units would be designed to imitate natural snowchutes.

Because of the burning and seeding, we anticipate these units to be very slow (20 years or longer) in reverting back to spruce. All roads would be obliterated following completion of the sale.

4. Create openings in the migration corridor. This would be via small timber sales where possible, and felling and burning where timber or topography make the site unfeasible for commercial harvest.

5. Maintain herd population at 100 sheep through trapping and hunting. The Colorado DOW has agreed to keep the population at this level in hopes of keeping down stress and maintaining the quality of the winter range. Transplanting will continue to be the major management technique as the DOW is attempting to restock the historic sheep ranges and supplement existing herds state wide.

#### DISCUSSION

The Taylor River bighorn sheep herd is at peak population levels. The USFS is attempting to improve the range thru burning and logging. These improvements will hopefully put the sheep in better physical condition where they will be able to withstand the winter. Trapping for transplant by Colorado DOW should keep the population down to a point where winter carrying capacity is not exceeded.

The burns which have been completed were used by sheep within 1 growing season. The seed mixture used in reseeding has proven to be very successful.

To date, 1,800 acres have been burned with 3,100 acres planned for 1986. Public response has been very positive despite the immensity and visibility of the program. Much of this can be attributed to the intense public relations campaign initiated to inform the public.

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