

Grazing Private and Public Land to Improve the Fleeceer Elk Winter Range

Michael R. Frisina and Forest G. Morin

Competition for forage between elk and domestic livestock has generated controversy on both public and private lands. As a result, numerous studies documenting relationships between cattle and elk were conducted in Montana and other western states. In Montana, dietary comparisons and intraspecific competition on seasonal ranges have been evaluated by numerous studies. Range relationships between elk and cattle within "rotational" grazing systems were described by Campbell and Knowles (1978), Komberec (1975), Frisina (1986), and Gniadek (1987). Lyon et al. (1985) reported that elk generally avoid cattle-occupied areas, and Mackie (1978) described impacts of livestock grazing on wild ungulates.

Historically, most intense conflicts occur where domestic livestock and elk are competing for forage on elk winter ranges. Anderson and Scherzinger (1975) described a program of coordinated elk and cattle use on the Bridge Creek elk winter range in Oregon. However, practical solutions for resolving these conflicts on elk winter ranges are lacking. To address this issue, the Montana Department of Fish, Wildlife and Parks, United States Forest Service, and Smith 6 Bar S Livestock Company (6 Bar S) initiated a program in 1987 to combine existing research with sound range management principles to design a grazing system with the following six objectives:

- 1). Maintain soils, vegetation, and riparian zones in good or better condition on public and private lands.
- 2). Increase elk to potential on all land ownerships.
- 3). Increase cattle grazing potential.
- 4). Minimize impact of winter and spring use by elk on private land by providing adequate habitat on public lands.
- 5). Manage the entire elk winter range in the Fleeceer area as one unit, regardless of land ownership.
- 6). Maintain optimum level of livestock production on 6 Bar S lands.

Description of Area

The Fleeceer Coordinated Grazing Program is located on the southeast face of Mt. Fleeceer, approximately 25 miles southwest of Butte, Montana. The area ranges in elevation from 5,500 feet to approximately 7,000 feet, and

is mostly nonforested. Bluebunch wheatgrass and Idaho fescue grasslands are the predominant vegetation with some Douglas-fir occurring along ridgetops and southerly aspects. Some rough fescue is also present. Aspen and willow stands are common along stream banks and in wet areas. Average annual precipitation varies from 14 to 18 inches. Soils were classified as Ochrepts, Boralfs, and Borolls by the Forest Service.

The area in the grazing program is a combination of public and private lands. Approximately 9,920 acres are Forest Service, 4,160 acres are Montana Department of Fish, Wildlife and Parks, with 2,490 acres in private ownership by Smith 6 Bar S Livestock.

The area is historically important for providing livestock grazing, habitat for wintering elk, and hunting oriented recreation. Forest Service range surveys conducted in 1953 indicated range deterioration due to past heavy livestock use on a season-long basis (unpublished FS data 1970). These same records also indicate range condition has improved steadily since the 1953 survey. Livestock numbers were increased during the 1980's to a current level of 714 cattle or 1,342 animal months (AM's) (Figure 1). Recent history of the Fleeceer elk herd began in

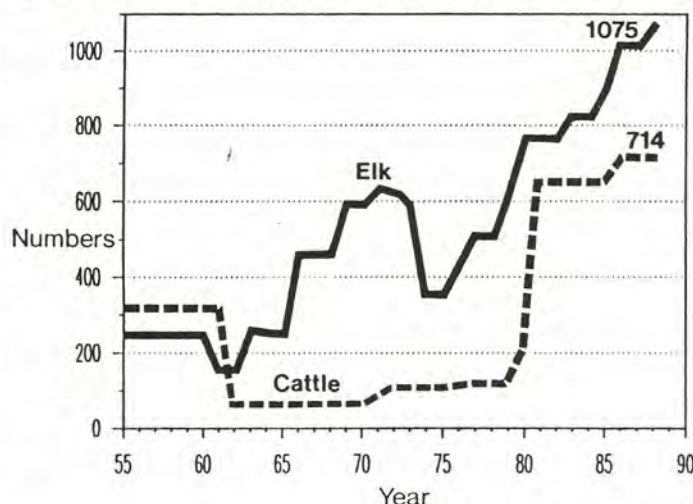


Fig. 1. Elk and cattle number trends for the Fleeceer area.

1910 when 25 elk from Yellowstone Park were transplanted to augment a native remnant herd. The Fleeceer Wildlife Management Area was purchased by Montana Department of Fish, Wildlife and Parks in 1962 to expand winter elk habitat provided by the Forest Service lands. Restrictive hunting seasons, improvements in habitat,

Michael Frisina lives in Butte, Montana, where he is a Wildlife Biologist with the Montana Department of Fish, Wildlife, and Parks. He manages the Fleeceer WMA and has worked with wildlife-livestock coordinated programs on Department lands since 1976.

Forest Morin is the Range Specialist on the Butte Ranger District on the Deerlodge National Forest, USDA Forest Service, Butte, Montana.

and additional use of 6 Bar S lands has enabled the elk herd to increase to its present wintering population of 1,100 with about 800 wintering in the Fleecer Coordinated Grazing Program (Figure 1). The Fleecer's are one of the most heavily hunted areas in Montana because of the large elk population, the large proportion of public land, and proximity to Butte (Frisina 1982).

Grazing Program

The Fleecer Coordinated Grazing Program was fully operational in 1988. It follows rest-rotation grazing principles described by Hormay (1970), and includes 9,730 acres of suitable livestock range. The program was implemented gradually from 1981 to the present as planning, range improvements, and necessary agreements were completed. With the exception of fall grazing on Montana Department of Fish, Wildlife and Parks lands, it was completed in 1987.

LIVESTOCK ROTATION BY YEAR				SEASONAL RANGE USE	
PASTURES	1988	1989	1990	ELK	CATTLE
1-MFWP	REST	SPRING	LATE FALL	WINTER	SPRING & FALL (LATE)
2-MFWP	LATE FALL	REST	SPRING	WINTER	SPRING & FALL (LATE)
3-MFWP	SPRING	LATE FALL	REST	WINTER	SPRING & FALL (LATE)
4-6 BAR S	SUMMER	FALL	REST	WINTER	SUMMER & FALL
5-6 BAR S	REST	SUMMER	FALL	WINTER	SUMMER & FALL
6-6 BAR S	FALL	REST	SUMMER	WINTER	SUMMER & FALL
7-FS	EARLY SUMMER	REST	REST	WINTER	SUMMER (EARLY)
8-FS	REST	EARLY SUMMER	REST	WINTER	SUMMER (EARLY)
9-FS	REST	REST	EARLY SUMMER	WINTER	SUMMER (EARLY)
10-FS	FALL	REST	SUMMER	SUMMER	SUMMER & FALL
11-FS	SUMMER	FALL	REST	SUMMER	SUMMER & FALL
12-FS	REST	SUMMER	FALL	SUMMER	SUMMER & FALL

LEGEND: Rest - Non use by livestock
 Early Summer - June 1 to Mid July
 Fall - Mid August to October 1
 Spring - Mid April to late May
 Summer - Mid July to Mid August
 Late Fall - October 1 to Mid October

Note: AFTER THREE YEARS THE LIVESTOCK ROTATION IS REPEATED.

ON 6 BAR S LANDS SUMMER CATTLE USE CONSISTS OF EARLY SUMMER AND SUMMER COMBINED. FALL CATTLE USE EQUALS FALL AND LATE FALL COMBINED.

Fig. 2. Livestock grazing formula by year and pasture showing seasonal elk and cattle use within the Fleecer Coordinated Grazing Program.

The grazing program consists of 12 pastures with the rotation of livestock, pasture ownership, and seasonal use by cattle and elk (Figures 2 and 3). There are nine pastures providing winter habitat for elk: three each of Montana Department of Fish, Wildlife and Parks; 6 Bar S; and Forest Service lands. The remaining three pastures on Forest Service land are used by elk during summer and fall. Each year, seven of the 12 pastures are used by cattle

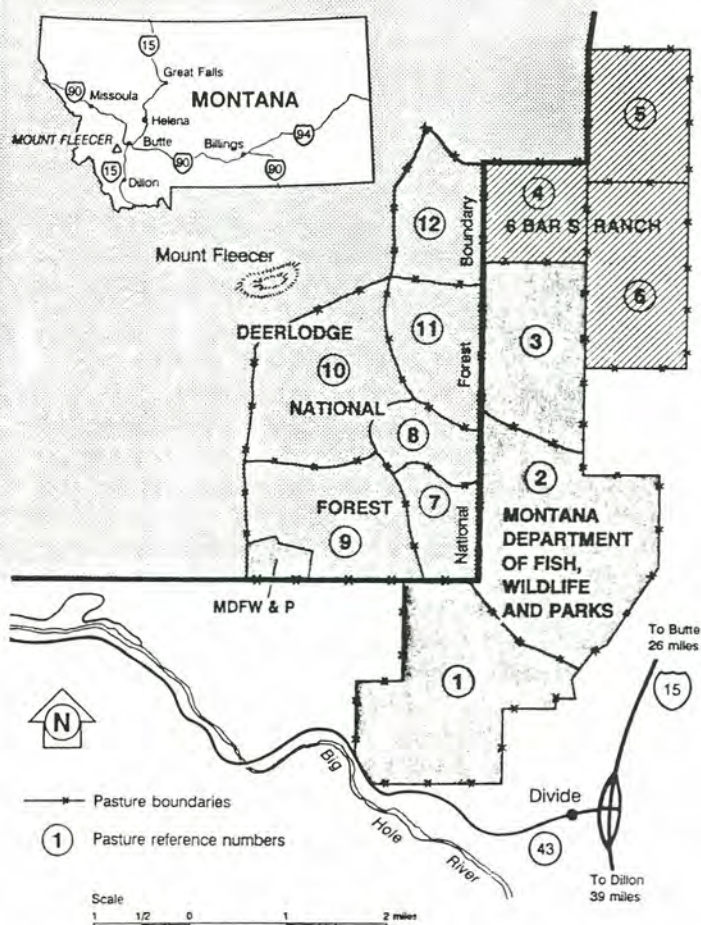


Fig. 3. Schematic showing pasture location and ownership within the Fleecer Coordinated Grazing Program. Pasture numbers correspond to those on Figure 2.

during summer and fall, and the other five pastures are rested from livestock use. One of three Montana Department of Fish, Wildlife and Parks pastures provides spring use (April to May) for livestock each year.

At the start of the cattle grazing season (mid April), 500 head of livestock owned by 6 Bar S are placed in one of the three Montana Department of Fish, Wildlife and Parks pastures (Figures 2 and 3). They remain in this pasture until rapid growth of vegetation occurs (late May). Cattle are then removed, thereby allowing maximum regrowth to occur. On June 1, 187 cattle owned by Forest Service permittees are moved to one of the three Forest Service elk winter range pastures. They remain there until mid July, then they are moved to one of the three Forest Service elk summer range pastures. The remaining two Forest Service elk winter range pastures are rested from livestock use all year (Figures 2 and 3). Cattle remain in one of the Forest Service elk summer pastures until seed ripe time (mid August), then are moved to a second Forest Service elk summer pasture where they remain until September 30.

The third Forest Service elk summer pasture is rested

from livestock use all year. On October 1, the livestock are moved to one of the Montana Department of Fish, Wildlife and Parks elk winter pastures for 15 days. On October 15, cattle are removed from the grazing program area for the winter.

The three pastures owned by 6 Bar S provide summer-fall grazing for 200 livestock, and are all elk winter range pastures. One of these pastures is rested from livestock use annually to provide forage for wintering elk. Forage from these elk winter pastures is payment to Montana Department of Fish, Wildlife and Parks for providing 6 Bar S with 500 AM's of spring livestock grazing. After three years the cattle rotation is repeated.

Discussion

The Fleecer Coordinated Grazing Program meets the stated objectives of coordinated livestock and elk management as follows:

Objective 1. Our application of rest-rotation grazing principles described by Hormay (1970) is designed to maintain an upward trend in vegetation and soil conditions. Forest Service monitoring data indicate rangeland and soil conditions are improving (unpublished FS data 1988).

Objective 2. Elk trend count data in Figure 1 demonstrates elk numbers are increasing. This is a result of habitat provided on lands in the grazing program. General observation of elk density on the winter range and amount of forage utilized indicates the elk population is at or near habitat potential.

Two of the three elk winter range pastures on Forest Service lands are rested from livestock use each year to provide forage for elk. Prior to this arrangement, two of the pastures were grazed under a deferred system. The third was reserved for wildlife and received no cattle use for over 20 years. By incorporating the non-use pasture into the system, more rest to improve plant vigor is provided for the formerly deferred pastures. In the formerly non-use pasture, accumulated old growth is periodically removed by cattle to improve the quality of forage for wintering elk (Anderson & Scherzinger 1975 and Jourdonnais 1985). After each of these Forest Service elk winter range pastures is grazed by cattle, it is rested from livestock use for two consecutive years, thus providing substantial forage for elk.

All three pastures on Montana Department of Fish, Wildlife and Parks lands provide winter habitat for elk. Each year one pasture is rested from livestock use and provides a full growing season of plant growth for winter elk forage.

All three pastures on Montana Department of Fish, Wildlife and Parks lands provide winter habitat for elk. Each year one pasture is rested from livestock use and provides a full growing season of plant growth for winter elk forage.

A second pasture is grazed during early spring, and cattle are removed during late May to allow a maximum amount of plant regrowth to occur. The second pasture provides almost as much forage as the one rested from

livestock grazing. The third pasture is deferred from use until late fall, when about 100 AM's of cattle grazing are permitted. This light use leaves a substantial amount of forage in the pasture for wintering elk.

The arrangement between Montana Department of Fish, Wildlife and Parks and 6 Bar S through the grazing program provided an increase in the total amount of available winter habitat for elk. Prior to this program, 6 Bar S was receiving winter elk use at an increasing rate and notified the Montana Department of Fish, Wildlife and Parks that the elk population should be controlled, as it was negatively affecting their livestock operation. Incorporating 6 Bar S lands into the grazing program eliminated this conflict. All pastures are available for wintering elk use, including one pasture which is rested from livestock use. The additional winter habitat has allowed for an increase of about 300 elk beyond the previous potential.

In addition to elk winter habitat, the Forest Service elk and cattle summer range pastures are managed according to a three pasture rest-rotation grazing formula with benefits similar to those reported by Frisina (1986).

Objective 3. The number of cattle and AM's provided has gradually increased towards potential during the 1980's (Figure 1).

Objective 4. Recent research by Frisina (1986) and Grover and Thompson (1986) indicate elk prefer to forage during late winter or early spring in pastures grazed the previous growing season by domestic livestock. Abundant green growth is readily available in these pastures during spring.

Also, periodic grazing by cattle on the elk winter range pastures improves the nutritional value of forage plants by removing accumulated old growth and improves forage quality (Anderson & Scherzinger 1975 and Jourdonnais 1985). Management of the Fleecer Coordinated Grazing Program incorporates these facts to make public lands as attractive as possible to elk.

Objective 5. Incorporating 6 Bar S lands into the grazing program has allowed management of the entire elk winter range as a single unit.

Objective 6. The optimum level of livestock production is maintained on 6 Bar S lands. The exchange of use agreement with Montana Department of Fish, Wildlife and Parks has allowed 6 Bar S to provide more rest from livestock grazing on lands used for cattle production, thus helping maintain maximum plant vigor and forage production.

Management Implications

The Fleecer Coordinated Grazing Program is a practical solution to resolving elk and cattle conflicts on elk winter ranges in the West. Cattle are used to actually enhance forage quality and quantity by applying early spring cattle grazing, rest-rotation grazing principles, and integrated management of various land ownerships. Coordinated management resulted in substantially increased cattle and elk numbers, while resolving a land-owner tolerance problem.

Literature Cited

- Anderson, E.W., and R.J. Scherzinger. 1975.** Improving quality of winter forage for elk by cattle grazing. *Journal of Range Management*. 28(2):120-125.
- Campbell, B.R., and C.J. Knowles. 1978.** Elk hunter-livestock interactions in the Missouri River Breaks. Job Final Report, Survey and Inventory Project, Project No. W-130-R-9. Job No. I-6.5. 153 pp.
- Frisina, M.R. 1986.** Preliminary evaluation of elk habitat use within a three-pasture rest-rotation grazing system. *Proc. Mont. Acad. Sci.* 46: Biol. Sci. (27-36).
- Frisina, M.R. 1982.** Management Plans. *Montana Outdoors*. 13(3):31-33.
- Gniadek, S.J. 1987.** Elk and cattle relationships on summer range in southwestern Montana. Unpublished Masters Thesis, University of Montana, Missoula, Montana. 37 pp.
- Grover, K.E., and M.J. Thompson. 1986.** Factors influencing spring feed site selection by elk in the Elkhorn Mountains, Montana. *J. Wildlife Manage.* 50(3):466-470.
- Hormay, A.L. 1970.** Principles of rest-rotation grazing and multiple use land management. U.S. Forest Service Training Text No. 4 (2200), U.S. Government Printing Office, 1970 0-385-056. 25 pp.
- Jourdonnals, C.S. 1985.** Prescribed fire and cattle grazing influences on the vegetation and elk use of a Rough Fescue community. Unpublished Masters Thesis, University of Montana, Missoula, Montana. 100 pp.
- Knowles, C.J. 1975.** Range relationships of mule deer, elk, and cattle in a rest-rotation grazing system during summer and fall. Unpublished Masters Thesis, Montana State University, Bozeman, Montana. 111 pp.
- Komberec, T. 1975.** Range relationships of mule deer, elk, and cattle in a rest-rotation grazing system during winter and spring. Unpublished Masters Thesis, Montana State University, Bozeman, Montana. 79 pp.
- Lyon, J.L., T.N. Lonner, C.L. Marcum, J.D. Jones, D.W. McCleery, and L.L. Hicks. 1985.** Coordinating Elk and Timber Management. Final report of the Montana Cooperative Elk-Logging Study, 1970-1885. 53 pp.
- Mackie, R.J. 1978.** Impacts of livestock grazing on wild ungulates. Transactions of the 43rd North American Wildlife and Natural Resources Conference. pp. 462-476.
- U.S. Forest Service. 1970.** Unpublished data in Butte Ranger District files. U.S. Department of Agriculture, Forest Service, Deerlodge National Forest, Butte Ranger District, Butte, Montana.

Note: A video presentation of this grazing system was shown at the 1989 National SRM meeting in Billings, Montana. It is available upon request from: U.S. Forest Service, Butte Ranger District, Butte, Montana 59701. Telephone: (406) 494-2147.