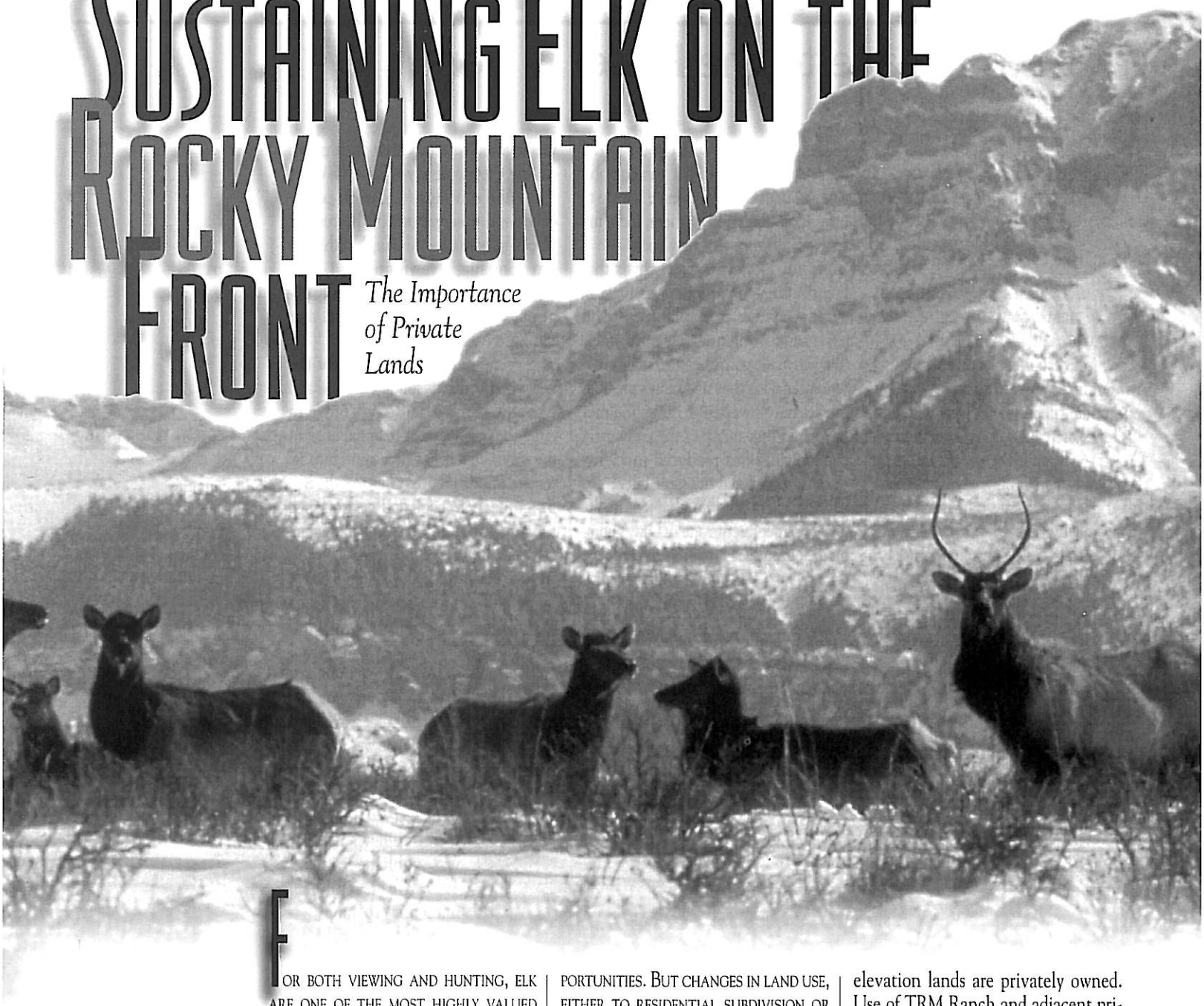
Sustaining Elk on the Rocky Mountain Front

The Importance of Private Lands



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For both viewing and hunting, elk are one of the most highly valued wildlife species on the Rocky Mountain Front. The presence of this species alone draws people to north central Montana from around the U.S. and the world. These activities draw people from afar and bring national renown to the Front for its diversity and abundance of wildlife. As a result, local economies benefit from wildlife-oriented businesses. Sustaining local economies in this region is, in turn, directly tied to maintaining quality habitat for desired wildlife species. In the case of elk, maintaining productive grasslands as winter range sustains an abundant elk population that offers recreational opportunities. But changes in land use, either to residential subdivision or more intensive agriculture, would alter the quality of existing habitats.

Theodore Roosevelt Memorial Ranch (TRM Ranch), located at the base of rugged mountains that lead into the Bob Marshall Wilderness, plays an important role in the distribution of elk on the Rocky Mountain Front. The Boone and Crockett Club purchased the 6,000 acre TRM Ranch in 1986 as a field station for research and demonstration as part of the Club's Wildlife Conservation Program at The University of Montana.

Elk abound on the slopes and foothills along the face of the Rocky Mountain Front. Most of these low-elevation lands are privately owned. Use of TRM Ranch and adjacent private lands by elk typically increases with the onset of winter weather. During summer, elk are dispersed more widely to the west of the Ranch in the mountains and it is mainly cow-calf groups that graze in the lush alfalfa fields of the ranch. Bull elk spend the summer at higher elevations in areas with denser forests. The rut, in September, brings bull and cow elk back together on the ranch. From then on, elk use the ranch intensively until the snow melt in spring allows them to expand their ranges from the ranch back into higher elevations once again. During winter, resident ranch elk are joined by migratory animals that sum-

mer in the rugged mountains along the Continental Divide.

The TRM Ranch is also managed as a working cattle operation. Cattle are grazed during the snow-free period and are either sold in fall or kept and fed in winter pastures. Winter feed is grown on the ranch in areas not grazed by cattle. The difference in seasonal distribution of cattle and elk allows both species to use the ranch with a minimum of competition for forage. The suitability of the area as elk habitat in combination with a conservative hunting regime has helped establish a resident elk herd along the face of the Rocky Mountain Front which continues to grow in numbers.

The seasonal distribution and movements of elk that currently exist, is actually a more recent phenomenon. Historically, elk roamed prairie grasslands far to the east, especially during winter. Settlement of the West during the latter part of the nineteenth century, however, eliminated elk from these areas. By the turn of the century, the foothills of the Rocky Mountain Front that once provided valuable elk habitat were now supporting large numbers of cattle and sheep. Following the homesteading boom, additional ranching operations were established and some of the most fertile prairie lands were converted into farms. The cumulative effects of changes in land use and a marked increase in subsistence hunting left little or no winter habitat and few animals for recovery of the remnant elk herd.

At this point conservation entered the scene. The rapid expansion of human developments into pristine areas during the late nineteenth century and its associated adverse effects on elk and their habitats eventually generated public concern. The potential for extinction of elk, in light of the lesson learned from extermination of bison, haunted many people and spurred the movement to preserve elk as one of the original elements of the pioneer heritage. In 1913, the Sun River Game Preserve (Preserve) was created in the mountains of the Sun River headwaters to provide habitat for the recovery of elk.

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Under protection within the Preserve, elk numbers grew rapidly. This growth was favored by the termination of livestock grazing and hunting, and the natural regeneration of elk forage after fires and logging within the Preserve. The Preserve, however, lacked sufficient winter range for the increasing numbers of elk and the herd began spilling out on to private lands. By the mid-1920s the herd had assumed a regular migration off the Preserve, and although they moved onto winter ranges that had been used historically, much of the land by this time had been converted into pastures and farms.

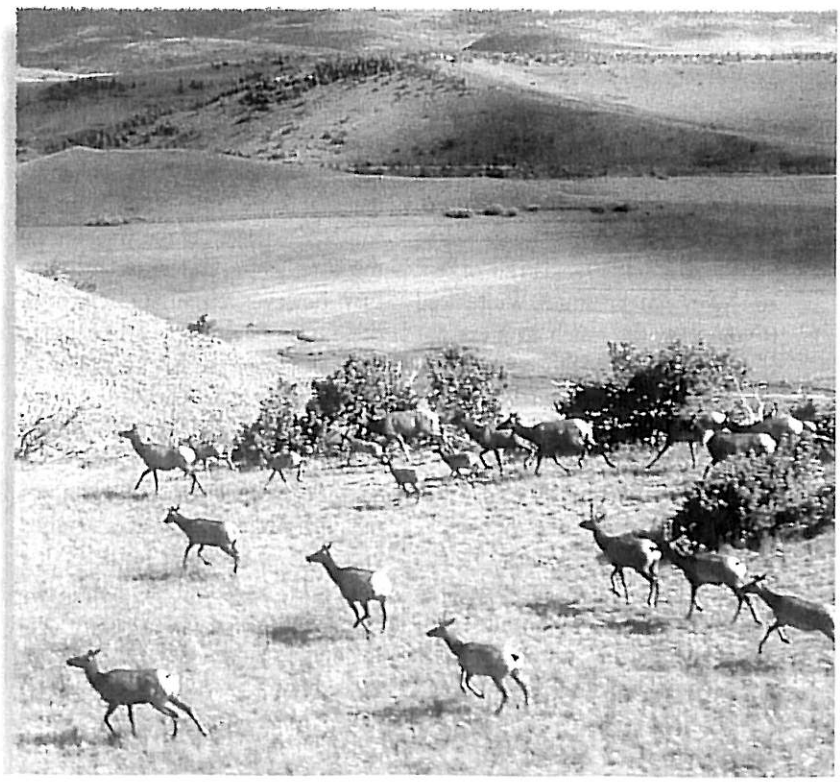
The problem created by the lack of scientific knowledge about wildlife management at this time was compounded by political instability. Influential sportsmen pressured the state wildlife agency away from implementing a program for increased harvest. Sportsmen cited cases of overexploitation in the late nineteenth century to argue that only under strict protection would elk have a future. Ranchers were forced to endure forage depredation caused by wintering elk, which jeopardized the livelihood of local communities only slowly recovering from years of economic depression. The vision of local conservation-minded individuals finally brought a solution to the conflict between ranchers and the needs of wintering elk. These individuals helped to establish a secure place for elk. Private lands were thus purchased to create the Sun River Game Range (Game Range) for the exclusive benefit of wintering elk. Livestock grazing was immediately terminated on the Game Range to minimize competition with elk for forage.

From this Game Range came the first contribution of wildlife science to the management of this important species. Initially, wintering elk used the grasslands on the Game Range extensively. In subsequent years, elk started moving out of the Game Range and once again grazed on private lands. This change in distribution could not be explained simply by population growth as before, because hunting had become a more effective tool for reducing population numbers. Studies seeking to explain the migration to private lands revealed that the quality of grasslands on the Game Range had declined.

Grasslands on the Rocky Mountain Front evolved with frequent wildfires and often with heavy grazing by large ungulates. Without grazing or fire, grasslands on the Game Range accumulated large amounts of dead plant material that reduced productivity and palatability as elk forage. Controlled cattle grazing proved effective in improving forage condition without reducing forage quantity for elk.

The quality of grasslands for elk is largely a function of the availability of rough-fescue as forage. Results of our research suggest that high use of TRM Ranch by elk is related to rough-fescue in the grasslands. The research was based on data collected by Gary Olson, Montana Department of Fish, Wildlife and Parks, and Les Marcum, The University of Montana, on the distribution of radio-collared elk on the Rocky Mountain Front. Fifty percent of elk winter observations on TRM Ranch were recorded in rough-fescue dominated grasslands. This use of rough-fescue dominated grasslands was higher relative to the availability, indicating preference by elk. Distribution of elk on TRM Ranch during other seasons indicates similar patterns of preference for rough-fescue dominated grasslands. Previous research on the Rocky Mountain Front also documented the importance of rough fescue in the diet of elk. This grass evolved under frequent wildfires and heavy grazing by large ungulates and may have adapted to those conditions to the extent that some form of disturbance is essential for the species to remain healthy and productive.

Although conservationists established preserves to help maintain elk on the Rocky Mountain Front they did not recognize the importance of integrating the biophysical with the socioeconomic components of current ecosystems. Earlier, it had not been fully recognized that human settlement had permanently altered the pioneer landscape. The biological characteristics of the pristine landscape, with an abundance of bison and other ungulates, had been transformed to a human-dominated landscape by the turn of the century. Current conditions now require more integrative and holistic conservation programs rather than simple preservation, especially when wildlife preserves contain only

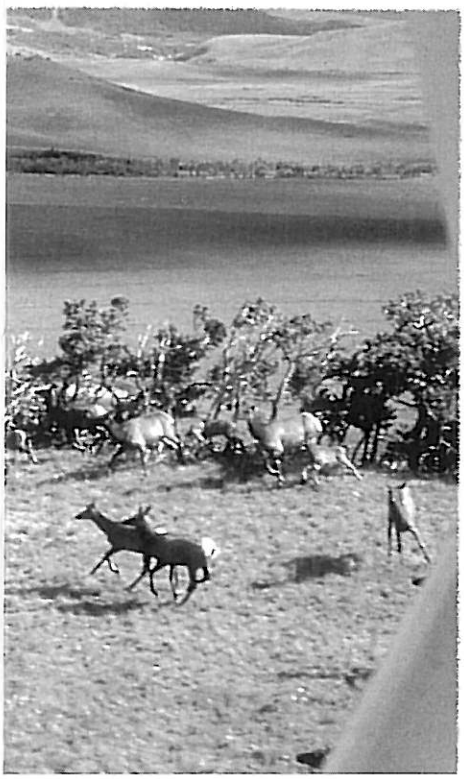


PHOTOS COURTESY OF MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS BIOLOGIST, GARY OLSON.

fragments of habitat and altered ecological processes such as fire, grazing, and predation.

Both the historic creation of state-managed winter ranges and current practices on private lands have helped establish a healthy elk herd of about 500 animals north of the Teton River on the Rocky Mountain Front today. Without extensive use of private lands, current elk numbers could not be maintained as public lands lack suitable winter habitats. Agricultural lands further east and wilderness areas to the west lack both the favorable mix of grasslands and forests and the climatic conditions that characterize foothill habitats. To the north and south other elk populations already inhabit similar grassland habitats.

The value of private lands as elk habitat is primarily a function of the type of land use practices employed on these lands. Livestock grazing managed below the full capability of the land to support a cattle operation throughout the year provide the most valuable elk habitat in this region. These lands are typically moderately grazed and portions are managed to grow winter feed. This form of ranching maintains healthy and productive grasslands that provide quality forage for both livestock and elk. Heavy use by both domestic and wild ungulates, however, has the potential to cause local overuse that may subsequently result in a reduction in quality grasslands.



Scientifically-based knowledge on the ecological relationships of grasslands and grazers on the Game Range opened new doors for integrative management. This may eventually provide an incentive to stimulate alternative approaches to traditional conservation strategies for elk on the Rocky Mountain Front and other areas. Sportsmen's dollars have traditionally been spent to help purchase lands on the Rocky Mountain Front to preserve habitat for elk. On these lands, modern management practices include the use of cattle to maintain quality forage production for elk. This management strategy could also be applied to existing ranching operations and may accomplish similar results without the initial cost of land purchase. Such a conservation strategy, however, requires close cooperation between private landowners and the state wildlife management agency. Some form of compensation may be necessary to provide the incentive to initiate cooperation with some private landowners. Compensation could include an expansion of the existing landowner preference program for hunting permits or tax reductions for good stewardship programs of natural resources, among others.

On the other hand, some changes in land use practices on private lands may alter the quality of existing moderately grazed grasslands or put more human activities on the landscape. These likely would affect the ability of elk to use these lands in the future. Conservation strategies need to focus on perpetuating essential ecological components and processes necessary to sustain productive grasslands as part of the desired ecological condition of the Rocky Mountain Front landscape.

Conservation efforts on the Rocky Mountain Front must focus on perpetuating human lifestyles that ensure quality wildlife habitats by developing approaches that ensure human livelihood into the future. Ensuring healthy and productive wildlife populations may require new strategies to integrate the needs of wildlife with that of people. This is the direction of our research during the next three years.