

MANAGING AMERICA'S ENDURING WILDERNESS RESOURCE

Proceedings of the Conference
Minneapolis, Minnesota
September 11-17, 1989

EDITED BY:

David W. Lime
Department of Forest Resources
College of Natural Resources
University of Minnesota
St. Paul, Minnesota

PUBLISHED BY:

Tourism Center
Minnesota Extension Service
and
Minnesota Agricultural Experiment Station University of Minnesota
St. Paul, Minnesota

MANAGING NATURAL POPULATIONS OF WILDLIFE IN WILDERNESS

Robert R. Ream, Lynn L. Rogers, and James M. Peek¹

ABSTRACT. Managing wildlife populations in wilderness areas presents a distinctly different and difficult set of problems for wilderness managers. For biocentric management to succeed, state and federal agencies must work together, and the needs of wide-ranging wildlife species must be taken into account. Problems inimical to wilderness values need to be addressed and resolved, particularly those involving consumptive uses of big game populations in some wilderness areas.

WILDERNESS AND WILDLIFE

Our 91,000,000 acres of designated wilderness hold the greatest hope for long-term survival of our wide-ranging species, which include all the large predators and the largest ungulates. Wilderness areas will become increasingly important, perhaps critically important, as less protected areas continue to be developed for vacation homes and for resource extraction. In the primary wolf range of Minnesota, the number of lakeshore homes more than doubled between 1967 and 1982 (G. Radde, personal commun. 1989). A study in northeastern Minnesota showed that each permanent year-round household accounts for a non-hunting bear death every 9 years on the average (Rogers and Alien 1987). These figures show the increasing importance of protected wilderness habitats to core populations of wide-ranging species.

The wildlife resource in America's wilderness areas has not always endured and none of the areas in the lower 48 states are pristine. In 1905 and again in 1906, a forest ranger named Elers Koch made one month inspection trips of the Lewis & Clark South Forest Reserve, which included what is now the Bob Marshall and Scapegoat Wilderness areas (Graetz 1985). Though they ate grouse almost every day, after the second trip he wrote, "Again, in a month's travel in the late fall we saw no big game." Today, 11,000 elk, more than 15,000 mule deer and the largest herd of bighorn sheep in the lower 48 states live in this wilderness area. What happened prior to 1906 and since?

¹Professor, School of Forestry, University of Montana, Missoula, MT 59812; Research Wildlife Biologist, Forest Service, North Central Forest Experiment Station, SR 1, Box 7200, Ely, MN 55731; and Professor, College of Forestry, Wildlife and Range Science, University of Idaho, Moscow, ID 83843.

Presented at Managing America's Enduring Wilderness Resource: A Conference, Minneapolis, MN, September 11-14, 1989.

Most people know that bison were nearly exterminated throughout the western U.S., but antelope, deer, elk and other large mammals were also eliminated in many areas, primarily by market hunters. Predators probably flourished on bison carcasses strewn across the plains (Ream and Mattson 1982).

At the same time, rapid increases of cattle and sheep provided an alternate prey base for predators, and their depredations were eliminated by dramatically reducing or extirpating wolves and grizzly bears. As early as 1879 bounty payments for predator control were authorized by the territorial legislature of Montana (Mussehl and Howell 1971). By the turn of the century laws were also passed to limit the kill of favored animals like deer, elk, and antelope. These were some of the first "conservation" efforts in response to a groundswell of public sentiment. In 1913, the Montana legislature created the Sun River Game Preserve, which exists to this day in part of the Bob Marshall Wilderness. Thus 51 years before the Wilderness Act, the state established this wilderness preserve, and with judicious management, game populations have dramatically increased.

But are the wildlife populations and ecosystems natural? The Wilderness Act defines wilderness as "Federal land retaining its primeval character and influence... which is protected and managed so as to preserve its natural conditions." Managing for wildlife is difficult, but must not be ignored. We sense that in many cases the wildlife resource falls through the cracks, in part because wildlife is administered by state agencies, and wilderness is managed by federal agencies. Wildlife is also the only resource that is mobile, moving in and out of wilderness, seasonally or even daily. Often wildlife are dependent on areas outside of Wilderness for part of each year. Schoenfeld and Hendee (1978) state that one of the major objectives of wildlife management in wilderness is to seek natural distributions, numbers and interactions of indigenous species of wildlife. We have a long way to go on this because all the wilderness areas in the lower 48 states lack at least one of the original large predators. Only one Wilderness in the lower 48 states, the Boundary Waters Canoe Area Wilderness (BWCAW), has the major North American predator, the gray wolf. Hendee et al. (1978) make a strong case for biocentric management in wilderness rather than anthropocentric, but that is not how most wilderness wildlife is managed, if it is managed at all. Natural population structures are often not maintained.

MANAGING UNGULATE POPULATIONS: ROCKY MOUNTAIN ELK

Large wilderness areas in the northern Rockies are famous for their elk hunting. There is strong evidence that elk population levels are now regulated by hunter harvest. In the Selway River drainage of Idaho, when the either sex season was dropped in favor of a bulls only hunt in 1975, the population increased dramatically. Winter counts in the upper Selway winter range revealed about 300 elk in 1975 and 10 years later, over 2000. There is evidence that sex ratios are declining and the age structure of bulls is truncated (Oldenburg 1989). Mature breeding bulls appear to be especially vulnerable to hunters which bugle them in to rifle range in September. Near the end of the season in November, snows occasionally cause elk to concentrate at lower elevations where they are more accessible to hunters and harvests may increase again.

The Sun River elk population has been regulated by hunter harvest for over a quarter of a century (Peek and Vales 1989). When a designated quota is approached, based on monitoring antlerless harvest at a full time check station, the antlerless harvest is curtailed and the remainder of the season is for bulls only. No significant shifts in sex ratio or age structure of the male segment is apparent, so management of this population successfully maintains numbers, but problems

involving hunter congestion remain. Additionally, elk within the wilderness area move towards the Sun River Game Preserve as the hunting season progresses, in response to hunting pressure in the wilderness area outside of that preserve (Picton and Picton 1975).

The White River elk herd in Colorado is perhaps the best known population of all. A chronic problem of a diminished sex ratio exists and hunter harvest has been intensive for decades (Boyd 1970, Freddy 1987). The population, as is typical for many, occupies wilderness for a portion of the year only.

Elk populations which winter on the Jackson Hole National Elk Refuge have been maintained at an average of 7500 animals as per a cooperative agreement between all public agencies involved. However, a progressive shift in the population from the Teton and Gros Ventre Wilderness areas to Grand Teton National Park has been apparent for some time, attributable at least in part, to hunting activity within the wilderness areas.

These examples suggest that hunting extensively influences elk populations that occupy wilderness for at least a portion of the year. The problems can be categorized as ones involving excessive harvest of the bull segment, and artificial alteration of elk distribution.

What levels of harvest and hunter activity might be appropriate within wilderness? How can these levels be attained and monitored adequately, given the controversial nature of the issue? First, it should be obvious that this is primarily an issue involving the state wildlife agencies. As a first start, guidelines as to what levels of harvest are appropriate should be established. Guidelines should consider what naturally regulates big game populations, and whether these mechanisms are present or could be present. Natural regulation theory for these species centers around food limitation and predation hypotheses (Peek 1980). These theories cannot be objectively evaluated unless all potential alternatives exist in the area. The food limitation hypothesis cannot be tested if the predator component is not present, and the major predator indigenous to these wilderness areas is the wolf. As a basic principle, the natural regulation process should be allowed to operate in wilderness areas if possible, and hunter harvest should be retained at some level which allows this to occur. For the time being, or until wolf populations can be restored, it makes sense to strive for harvests which maintain adequate sex ratios, and it appears that 25 elk bulls per 100 cows, and an age structure on the bull segment of the population which extends out to at least 8 or 9 years, the age at which maximum antler development occurs in elk and when the bull appears to reach maximum breeding status. This means that harvests of both sexes can be appropriate, but that the bull segment may have to be addressed closely. If wolf populations are again restored to some of these wilderness areas, then hunter harvest may have to be adjusted to account for their presence (Peek and Vales 1989).

Hunter activity should be distributed in time and space so available elk habitat is occupied in wilderness during the hunting season. The distributions which are human induced may be difficult to correct, and may require redistribution of hunting pressure. In the case of the Sun River elk population, the elimination of the Sun River Game Preserve, coupled with better management of hunter activity may aid in redistributing elk populations.

These problems are primarily the responsibility of the state wildlife agencies. However, if these problems are to be addressed, more intensive monitoring of populations and hunter activity will be needed. The Forest Service will have to cooperate and facilitate this monitoring process.

Big game populations in wilderness areas of the west are in high demand, or in short supply, if you prefer. If hunting is to become more compatible with wilderness values, there will have to be more, not less, intensive management. Management activities will have to be compatible with wilderness values and yield the necessary information.

MANAGING PREDATOR POPULATIONS: BEARS

Well-regulated hunting may not jeopardize wilderness wildlife populations, but more can be done to minimize unregulated killing of bears, especially where populations are small and located within remnant habitats. Bears are the animals perhaps most vulnerable to the impacts of recreation. They are shot by campers, outfitters, and authorities. Some of the unregulated killing of bears stems from the climate of excessive fear fostered by sensationalized writing and excessive government warnings to campers and hikers. There is a need for more realistic public information about bears and bear behavior and how people should deal with them.

There is also a need for more effective action to prevent bears from becoming nuisances. Most bear problems stem from the unusual attractiveness of human food in the low fertility ecosystems that constitute most of our wilderness areas. Habituated bears are not a natural part of the wilderness; they are a product of an unnatural number of people and their food. Problem bears are shot by campers and outfitters if not by authorities. If campers or outfitters shoot them, the bears may be wounded so problems of burial and reporting are avoided. Soon a new bear moves in and the situation repeats, as it has for decades. More must be done to insulate wilderness bears from the impact of recreationists' food.

Bearproof food lockers at campsites have proven highly effective in the West in reducing bear problems. The longest running test has been in the White Wolf Campground of Yosemite National Park, where bear incidents have averaged less than 2.5 per year in the 12 years since these lockers were installed, compared with an average of 60 incidents in the 2 prior years on record. Tests of bearproof lockers are planned in the East, beginning in the BWCAW with redesigned lockers that will close quietly and look unobtrusive in keeping with wilderness aesthetics. Latrines are already in place to protect the land and waters. Fire grates are in place to protect the campsites and forest. The lockers will protect the bears. Large plastic tube containers that bears cannot open, are also being successfully used by backpackers in Yosemite and Denali National Parks. Other innovative ideas should be developed and tested.

Schoenfeld and Hendee (1978) stated that an objective of wildlife management in wilderness is to keep wildlife wild, their behavior altered as little as possible by human influences. Bearproof food lockers are a step in that direction. A second problem involving keeping bears wild in wilderness occurs where remnant populations live in relatively small wilderness areas surrounded by developed areas. This is most often the case where a small mountain area is protected as wilderness and the surrounding flatland is developed. In most years, these bears can live and reproduce in the mountains, with perhaps a few dispersing young males visiting the developed areas. However, when catastrophic food failure occurs in the mountains, bears of all ages and sexes descend to flatland areas that in centuries past would have been their feeding and drinking areas. Where those areas have become developed, many bears are killed or otherwise removed from the population, threatening the survival of remnant populations whose numbers are already low. This situation will occur more frequently as development around wilderness continues,

and suggests that zoning to retain undeveloped lands adjacent to wilderness may be appropriate.

Because many of the small wilderness areas are incomplete ecosystems for wide-ranging species, greater flexibility in wilderness wildlife management may be needed to deal with rare situations that can threaten remnant populations of these species. There is a continuous need to expand corridors to other areas in order to provide more complete ecosystems for long-term survival of wide-ranging species.

SUMMARY

In wilderness, "where the earth and its community of life are untrammelled by man", wildlife populations are often greatly manipulated or "trammelled", and their behavior substantially altered. Management of wilderness wildlife populations in the future will require sensitivity and ecological management of the finest degree. Specifically, it will require wilderness managers to:

- learn how to achieve "natural" population structures for game animals in wilderness.
- work very closely with state agencies in developing goals and objectives for game populations in wilderness.
- get directly involved in monitoring wildlife populations in wilderness. In the early days of the Forest Service, a major portion of each ranger's job involved surveys of wildlife in wilderness (Graetz 1985).
- learn about animal behavior and how to keep wildlife wild, altered as little as possible by human influences.
- learn more about movements and home ranges of wide-ranging wilderness species. This is important to know in allocation decisions as well as management, and in maintaining or acquiring travel corridors contiguous to designated wilderness.
- develop plans for restoring predators to make wilderness ecosystems complete.

It will also require wildlife managers to recognize the importance of wilderness and the need for maintaining natural populations of game animals and predators. Only when this happens will the mandate of the Wilderness Act be met.

LITERATURE CITED

- Boyd, R. J. 1970. *Elk of the White River Plateau, Colorado*. Colo. Game, Fish, and Parks Tech. Bull. 25. 124pp.
- Freddy, D.J. 1987. *The White River elk herd: A perspective, 1960-1985*. Colo. Div. WHdl. Tech. Publ.37. 64pp.
- Graetz, R. 1985. Montana's Bob Marshall Country. *Montana Magazine*. Helena, MT: Montana Magazine, Inc. 144pp.
- Hendee, J. C., G. H. Stankey, and R. C. Lucas. 1978. *Wilderness management*. USDA Forest Service Misc. Publ. No. 1365. Wash. D.C. 381pp.
- Mussehl, T. W., and F. W. Howell (ed.). 1971. *Game management in Montana*. Mont. Dept. Fish Wildl. & Parks. Helena. 238pp.

- Peek, J. M. 1980. Natural regulation of ungulates (What constitutes a real wilderness?). *Wildl. Soc. Bull.* 8:217-227.
- Peek, J. M., and D. J. Vales. 1989. Projecting the effects of wolf predation on elk and mule deer in the East Front portion of the northwest Montana wolf recovery area. Unpubl. rep. on file, Dept. Fish & Wildl. Resources, Univ. Idaho, Moscow. 89pp.
- Picton, H. D., and I. E. Picton. 1975. *Saga of the Sun: A history of the Sun River elk herd.* Montana Fish, Wildl. and Parks, Helena. 55pp.
- Oldenburg, L. E. 1989. *Elk surveys and inventory.* Idaho Dept. Fish & Game Project No. W-170-R-12, Boise.
- Ream, R. R., and U. I. Mattson. 1982. Wolf status in the northern Rocky Mountains. In *Wolves of the World*, eds. F. H. Harrington and P. C. Pacquet. Noyes Publ, Park Ridge, NJ.
- Rogers, L. L., and A. W. Allen. 1987. *Habitat suitability index models: Black bear, upper Great Lakes region.* U.S. Fish & Wildl. Ser. Biol Rep. 82(10.144). 54 pp.
- Schoenfeld, C. A., and J. C. Hendee. 1978. *Wildlife management in wilderness.* Boxwood Press, Pacific Grove, CA. 172pp.