

A DISCUSSION OF THE DEVELOPMENT OF THE WESTERN SECTION OF THE WILDLIFE SOCIETY POSITION STATEMENT ENTITLED "LIVESTOCK FORAGING EFFECTS ON WILDLIFE ON RANGELANDS IN THE GREAT BASIN", SEPTEMBER 1995

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ABSTRACT: The management of livestock on western rangelands has become an important conservation issue during the last decade. Political forces, environmental organizations, and the scientific community have intensified their involvement with factors relative to the health of rangelands. To address this issue, the Western Section of The Wildlife Society developed a position paper regarding the impacts of livestock grazing to wildlife and their habitats in the Great Basin ecoregion. Both beneficial and detrimental effects were assessed. The position statement provides recommendations for managing livestock grazing in ways that are compatible with wildlife populations and habitats. The position statement entitled "Livestock Foraging Effects on Wildlife in the Great Basin," is provided.

Key words: Great Basin, livestock grazing, position statement, Western Section-The Wildlife Society.

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During the last decade, there has been an accelerated effort to assess the impacts of livestock management on western rangelands. This is exemplified at the national level with implementation of the "Rangeland Reform '94" program (U.S. Department of the Interior 1994). Also, national political involvement intensified with the proposed legislation "The Livestock Grazing Act" H.R. 1713 and "Public Rangeland Management Act of 1995" S. 1459. The Wildlife Society likewise increased participation by developing a position statement entitled "The Wildlife Society Position Statement on Livestock Grazing on Federal Rangelands in the Western United States" (The Wildlife Society 1996). Additional interests were accomplished in the Great Basin with development of the Hart Mountain National Antelope Refuge Comprehensive Management Plan/Environmental Impact Statement (U.S. Fish and Wildlife 1994). Implementation of this management program resulted in the eliminating of livestock grazing for 15 years from wildlife habitats in poor ecological status. A similar action was taken on the Sheldon National Wildlife Refuge in Nevada where livestock were removed due to the current poor ecological status of the rangeland.

Recognizing the aforementioned national and regional concerns with sustaining healthy rangelands, the Western Section-The Wildlife Society (WS-TWS) in 1994 instigated a wildlife biological program to assess livestock relations to wildlife. The first effort was evaluating impacts of livestock grazing on habitats in the Great Basin. Other rangeland ecosystems in California and Nevada (e.g., California annual grasslands, Mojave Desert) would be evaluated later.

METHODS

The WS-TWS enlisted the assistance of the Nevada Chapter-The Wildlife Society (NC-TWS) to develop a draft position statement regarding livestock and wildlife interactions on rangelands in the shrubsteppe region. It was contemplated this endeavor could be used as a prototype for other rangeland ecoregion position statements within the Western Section regional boundaries. The objectives of the position statement were:

1. To document the wildlife profession's findings and position regarding historical and contemporary relations of wildlife to livestock grazing in the Great Basin;
2. To produce a legally defensible statement based on scientific findings, documented with references; and
3. To make the findings available to interested parties (e.g., state and federal government agencies, political representatives, conservation organizations, professional resource societies, and interested members of the public).

Many practices of the livestock industry and various techniques of rangeland management influence the welfare of wildlife. However, it was decided that the position statement would not address these many facets, but would focus only on the effects of livestock foraging on wildlife and their habitats. The term livestock was restricted to domestic and feral ungulates: cattle, sheep, goats, burros, and horses (Holechek et al 1994). The term wildlife included all free-ranging wild vertebrates in their natural habitats (Giles 1978, Bailey 1984). Rangelands were identified as arid landscapes dominated

by a mixture of grasses-forbs-shrubs (Kie et al. 1994). The Great Basin ecoregion referred to landscapes in the Intermountain West with drainages terminating in closed watersheds and not to the ocean (Grayson 1993). Although the status of most rangelands in the Great Basin are under the administrative jurisdiction of state and federal government agencies, the position statement included private holdings and Native American Trust lands.

RESULTS

The NC-TWS completed a position statement entitled "Wildlife/Livestock Relationships on Rangelands in the Great Basin; A Position Statement of the Nevada Chapter-The Wildlife Society" (Nevada Chapter-The Wildl. Soc., Reno, Nevada. 1965. 10pp) and submitted it to the WS-TWS with the recommendation that with modifications it be considered for Great Basin environments within WS-TWS boundaries. The WS-TWS accepted the recommendation, modified the statement and adopted the position statement entitled "Livestock Foraging Effects on Wildlife on Rangelands in the Great Basin" in September 1995 (included as the Appendix).

During development of the position statement, 2 paramount issues surfaced and were evaluated. These issues were referred to in the scientific literature but were at times considered vague, misleading, or poorly understood. Consequently, the position statement addressed the subjects as follows:

First, certain references (e.g., National Academy of Sciences 1994, U.S. Department of the Interior 1994) stated livestock were the primary use of rangelands. This point may be correct if viewed from an agriculture or economic standpoint; however, should use be based on the diversity or total number of animals using rangeland, then the position statement states wildlife is the greater user of rangelands. The textbook *Rangeland Wildlife* (Krausman 1996) supported this contention by stating the following percentages of wild animals inhabit rangelands in the United States: 84% of mammals, 74% of birds, 58% of amphibians, and 38% of fishes. All total, over 3,000 species of wildlife use rangelands for life requirements. Should the number of species be multiplied by the number of individuals, it becomes apparent that wildlife is the predominant user of western rangelands.

A second major misconception was that domestic ungulate grazing was essential for sustaining or enhancing vegetation for wildlife habitats in the Great Basin (Anderson et al. 1990, U.S. Department of the Interior 1994). This concept appears true for the grasslands of the Great Plains, but is not applicable for herbaceous vegetation in the Great Basin that has developed without extensive numbers of large herbivores in recent times.

According to Wagner (1978), bighorn (*Ovis canadensis*) and pronghorn (*Antilocapra americana*) were the major ungulates during Euroamerican contact for the Great Basin, and these ungulates sustained low densities compared to the biomass of large herbivores affecting growth characteristics of vegetation on the Great Plains.

DISCUSSION

Position statements at the chapter, section, and international level provide a valuable source of information for practicing wildlife biologists, policy makers, decision makers, administrators, and the general public. Such records provide a record and assist in meeting the professional responsibilities identified in TWS by-laws.

Although the subject of livestock-wildlife relationships has been a matter of interest and concern for many years, it has infrequently been thoroughly assessed and documented in scientific literature. This short-coming has aided in misunderstandings and misconceptions. The position statement provides a cornerstone in the identification, documentation, and understanding how livestock have impacted wildlife habitat for the Great Basin ecoregion. It has provided information pertaining to ecological processes for use by other conservation and scientific sources interested in biological data for the ecoregion.

Copies of the position statement have been disseminated to state and federal legislators, conservation organizations, resource societies, and individual members of the public. Various requests for presentations to government agencies and conservation groups in California, Oregon, and Nevada have been received.

During the development process of the position statement, it was apparent that the subject of wildlife-livestock relationships was complex with many facets. Therefore, only 1 issue (the effects of livestock foraging on wildlife habitats) was addressed. The many other segments of range management (e.g., vegetation manipulation, water development, predator control, disease reservoirs) are in serious need for additional position statements. The WS-TWS encourages its members to recognize this need and step forward to develop additional position statements in the future.

This position statement is an initial attempt at better understanding stated ecological processes. It represents knowledge of today. As such, when new information is developed, periodic review and updates will be warranted. One of its primary goals is to identify biological findings and provide a position on how professional wildlife biologists and managers may work towards the use of scientific management to achieve the wise use and allocation of resources to sustain healthy rangelands. The position statement adopted by the WS-TWS is a

basis for better understanding the impacts of livestock foraging on wildlife and their habitats in the Great Basin.

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APPENDIX: LIVESTOCK FORAGING EFFECTS ON WILDLIFE ON RANGELANDS IN THE GREAT BASIN

A POSITION STATEMENT OF THE WESTERN SECTION-THE WILDLIFE SOCIETY

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INTRODUCTION

In the Great Basin of the intermountain west, wildlife is an important natural resource that is dependent on healthy rangelands (Menke 1983). Most landscapes in the Great Basin are classified as rangelands (Grayson 1993), that provide habitat for wildlife (Maser and Thomas 1983). Livestock foraging has changed the diversity and abundance of native plant species on rangelands (Branson 1985, Fleischner 1994). Apparently long-term cumulative changes in native plant structure and composition have resulted in negative impacts to some native wildlife populations (Kie et al. 1994, Fish and Wildlife Service 1994). Scientifically based and ecologically feasible management plans and practices are key to re-

storing and sustaining rangelands (Severson 1990, Heitschmidt and Stuth 1991, Heady and Child 1994, Holechek et al. 1994, Kie et al. 1994, Vavra et al. 1994).

Social perspectives and values for natural resources are reflected in the variety of laws that apply to rangelands managed by the Forest Service and Bureau of Land Management (Chaney et al. 1993). The National Forest Management Act and the Federal Land Policy and Management Act require the Forest Service and Bureau of Land Management to develop comprehensive land use plans to guide management efforts. While these laws call for rangelands to be managed under principles of multiple-use and sustained-yield, they do not provide explicit standards for defining the level of consideration

that federal agencies should provide for wildlife needs as they balance competing resource demands (General Accounting Office 1991).

HISTORY AND BACKGROUND

Intensive livestock foraging severely compromised the ecological integrity of many western rangelands during the latter half of the nineteenth and the first part of the twentieth century (Fleischner 1994, Society for Conservation Biology 1994, Department of Interior 1994), especially riparian areas (Thomas et al. 1979, Platts et al. 1989, Kie et al. 1994). Livestock foraging of riparian vegetation can result in stream banks more vulnerable to de-stabilizing effects of livestock trampling and the erosive force of water, exposing soils to dehydration by wind and sunlight, reducing water storage capacity, reducing shade and thereby increasing stream temperature, encouraging invasion of undesirable plants, speeding runoff, and reducing capture of sediments necessary for building stream banks, wet meadows, and floodplains (Platts et al. 1989, Chaney et al. 1993). Prescribed seasons of use, duration, and stocking rates are often inconsistent with practices that would improve riparian areas or meet the physiological needs of native rangeland plants (Cook and Child 1971, Trlica et al. 1977).

Excessive foraging by livestock has contributed to soil erosion, watershed deterioration, increase in exotic plants, and loss of native vegetation that provide food and protective cover for wildlife (General Accounting Office 1988, Fleischner 1994). Communities dominated by exotic plants represent low-quality watersheds with increased susceptibility to soil erosion and are prone to decertification (Buckhouse 1985). Once exotic plants dominate the landscape, fire frequency often increases and biodiversity is reduced (Young and Tipton 1989). Due to invasion of exotic plants and the resulting increased fire frequency, some large areas of native rangelands are at risk of becoming simplistic unproductive ecosystems with a consequent loss of biological and genetic diversity (Billings 1994).

Long term livestock foraging has altered native ecological communities resulting in declines in the abundance and distribution of some wildlife species (Fleischner 1994). Following are examples for Great Basin habitats:

* Contemporary concerns for diminishing sage grouse populations in the Intermountain West prompted state and federal agencies to study sage grouse trends in different livestock intensity foraging areas (Crawford and Lutz 1985, Barnett and Crawford 1994, Drutt et al. 1994, Gregg et al. 1994). Studies indicated that lower amounts of tall grass cover in sagebrush communities can result in

increased predation of sage grouse clutches (Gregg et al. 1994, DeLong et al. 1995). Current low levels of grass and forb cover in late successional stages of sagebrush communities is primarily a consequence of livestock foraging and fire suppression (Winward 1991, Fish and Wildlife Service 1994).

* Recent research has indicated pronghorn have been adversely impacted by forage competition with livestock in the Great Basin (Clary and Beale 1983, Fish and Wildlife Service 1994, Yoakum, 1995). Apparently this is most predominant on unhealthy rangelands, identified as disfunctioning ecosystems due to intensively grazed herbaceous vegetation. Nutritious herbs are needed for the production of healthy pronghorn fetuses and for quality milk for fawn survival (Ellis 1970, Yoakum In Press).

* Passerine birds were inventoried along portions of the Truckee River in 1868 (Ridgeway 1877) and 1972-1981 (Klebenow and Oakleaf 1984). The 108 species reported in 1868 decreased to 65 in 1972-1981, while 26 of these declined in abundance. Among the missing species were those requiring shrub thickets that had been removed by heavy livestock browsing in the riparian zone.

Livestock foraging can severely depress wildlife diversity as well as rangeland capability for other resources. Frequently, historical uses, economics, and political pressures, rather than ecological principles have governed customary or traditional livestock foraging practices "to the detriment of other land uses and overall health of the land itself" (General Accounting Office 1991). Livestock foraging can also be beneficial to wildlife in the Great Basin. For instance, historic increases in Intermountain West populations of mule deer was a consequence of altered habitat conditions, brought about by heavy livestock foraging, fire suppression, and regulated deer harvest (Gruell 1986).

The extent to which livestock foraging is compatible with or beneficial to wildlife depends on the amount, timing, and distribution of livestock foraging relative to (1) wildlife management goals and objectives that specify desired wildlife species or communities, (2) response of local vegetation and wildlife to the foraging program, and (3) ecological conditions of the rangeland area (Fish and Wildlife Service 1994). A limited amount of information from the northern Great Basin suggests that livestock grazing in meadows can enhance nutritional quality of forbs under some circumstances (Evans 1986). Additional information suggests that livestock grazing in a patchy mosaic in meadows can increase the use of meadows by sage grouse (Klebenow and Burkhardt 1982, Evans 1986). However, while it was demonstrated that prescribed livestock grazing can enhance nutritional

quality of grasses and forbs in biomes with higher precipitation (Rhodes and Sharrow 1990), no quantitative research was located for upland habitats in the Great Basin (Yoakum, 1995).

Because rangeland wildlife are affected by rangeland management (Maser and Thomas 1983) and livestock foraging has altered habitats throughout most western rangelands (Fleischner 1994), including the Great Basin (Young and Evans 1979), many rangeland wildlife communities are reflections of habitat conditions created and sustained by livestock foraging. Few areas in the Great Basin can be considered to be in pristine condition (Young and Evans 1979), therefore, it is likely that few areas support wildlife communities representing pre-livestock flora and fauna compositions. Restoring and sustaining native wildlife communities requires that habitat conditions under which they evolved be restored and maintained, which in turn requires the restoration or emulation of the natural processes that maintained these conditions (Noss 1983, Samson and Knopf 1993, Noss and Cooperrider 1994). Because vegetation in the Great Basin was not heavily influenced by large ungulates prior to the introduction of livestock (Young et al. 1976, Young and Evans 1979, Miller et al. 1994), foraging by livestock may not be necessary to maintain native plant communities.

Considerable research has addressed the impacts of livestock foraging on rangeland wildlife (Maser and Thomas 1983, Menke 1983, Severson 1990, General Accounting Office 1991, Chaney et al 1993, Fish and Wildlife Service 1994, Fleischner 1994, Kie et al. 1994 and others). More research is needed, but enough information exists to make sound ecological decisions to improve the health of rangelands (Maser and Thomas 1983). Some livestock foraging systems which may encourage habitat enhancement were identified by Severson (1990) and Severson and Urness (1994).

Public agencies and certain private landowners are adopting ecosystem management on rangelands (Heitschmidt and Stuth 1991, Department of Interior 1994). In many cases, management agencies have adequate research, public policies, laws, and regulations to implement sound ecological management decisions to protect, sustain, or restore ecosystem integrity in the Great Basin (Maser and Thomas 1983).

POSITION STATEMENT

Wildlife and their rangeland habitats must be managed at levels to sustain each dependent species and meet the needs of the public. The Western Section-TWS recognizes that livestock foraging directly influences the abundance and diversity of wildlife in the Great Basin. As wildlife professionals, the Western Section-TWS en-

dorses the concept and practice of ecosystem management. It advocates landscape planning across political and administrative boundaries and the use of scientific management to achieve healthy rangelands in the Great Basin by the following ^{1/}:

1. Implement and promote ecosystem management to achieve healthy rangelands. Wildlife habitat is a functional component and, therefore, a measurement of the health of each ecosystem.

- * Inter-disciplinary cooperation and coordination is required by public and private resource interests.
- * Wildlife diversity must be a criteria in evaluating rangeland health.
- * Protection and restoration objectives are priority issues for native plant and wildlife communities.
- * Disturbance events (i.e. wildfires, insects, and floods) are natural processes that influence rangeland health. Management actions must recognize natural processes in ecosystems.
- * Meaningful and professional wildlife input is essential and must be considered at all levels of decision making.
- * On rangelands that are managed primarily for native wildlife, livestock foraging should only be permitted to the extent that it does not interfere with achieving and maintaining native habitat conditions. Livestock are not essential for creating and sustaining native vegetation in the Great Basin.

2. Livestock foraging is not necessarily beneficial to wildlife.

- * On multiple-use lands and other rangelands where objectives are in place for wildlife species, livestock foraging must be managed in such a way that wildlife objectives are achieved.

3. Ecosystem management is feasible by implementing existing laws, regulations, policies and land use plans. Land managers must make meaningful resource decisions to achieve healthy rangelands under their responsibility in a timely manner.

^{1/}The WS-TWS adapted this position statement from a prototype report developed by the Nevada Chapter-The Wildlife Society (1995).

- * Establish wildlife habitat health as a criterion to determine rangeland functional condition as outlined in Rangeland Reform '94 (Department of Interior 1994).

4. Rangeland research provides ecological principles and facts to implement ecosystem management to achieve healthy rangelands. New research must focus on new opportunities to strengthen present knowledge and elevate the status of wildlife.

- * Apply the latest and best available research to all resource management decisions affecting wildlife and its habitats.
- * Develop research on large tracts of land within the Great Basin (i.e., Sheldon National Wildlife Refuge, Hawthorn Army Ammunition Depot, etc.) reserved from livestock foraging, to provide assistance in better understanding livestock foraging impacts on wildlife habitats.
- * Design research to provide trade-off analysis for management alternatives.
- * Design research to determine effects of livestock foraging on restoration of native plant and animal communities.

GLOSSARY

Wildlife includes all free-ranging wild vertebrates in their natural associated environment (Giles 1978, Bailey 1984).

Livestock refers to domestic cattle, horses, sheep, goats, and burros that forage on rangelands (Holechek et al. 1994). Feral livestock are wild and free-roaming on rangelands.

Rangelands are landscapes dominated by a mixture of grasses/forbs/shrubs; predominately occupied by wildlife; foraged by livestock; and can contain riparian and wetland areas (Kie et al. 1994). In the Great Basin, rangelands are typically vegetated with mixtures of shrubs, forbs, and grasses, and often dominated by species of sagebrush. If tree dominated, rangelands are usually open pinion/juniper woodlands or in more mesic areas, aspen or willow stands. Riparian and wetland areas are integral parts of rangelands.

Grazing refers to the consumption of standing forage (edible grasses and forbs) by wildlife and livestock: browsing is the consumption of edible leaves and twigs from woody plants (trees and shrubs); foraging is the consumption of herbaceous and/or woody plants (Holechek et al. 1994).

Great Basin refers to landscapes in the Intermountain West with drainages terminating in closed watersheds and not the ocean: primarily located in central and northern Nevada, southeastern Oregon, eastern California, and western Utah (Grayson 1993).

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