SOCIETY FOR CONSERVATION BIOLOGY POSITION STATEMENT:

Extent of Livestock Grazing in the Region

Grazing by domestic livestock is the most ubiquitous land management practice in the western United States. Approximately seventy percent of the eleven western states are currently grazed, including virtually all western ecosystem types—subalpine meadows, forests, grasslands, deserts, woodlands, and chaparral and other shrublands. All types of public lands are grazed, including national forests, lands managed by the Bureau of Land Management, wildlife refuges, military installations, wilderness areas, even national parks and monuments, as well as a variety of state, regional, and county lands. This represents a dramatic ecological change because most western ecosystems supported few, if any, large grazing mammals before Euro-American settlement. Those large mammals that did exist previously, such as bison and pronghorn, had very different food habits, behavior, and ecological effects.

Ecological causes for concern

Most rangelands are currently in deteriorated ecological conditions. Past grazing practices have had detrimental effects on the composition, function, and structure of native ecosystems.

Livestock grazing has led to a decrease in native species richness in a broad array of ecosystem types. Additionally, a wide variety of taxa has experienced a decrease in population densities under grazing pressure. In addition to the more conspicuous megafauna and flora, microbiotic taxa, such as mycorrhizae which are essential for higher plants, have been affected. Of particular concern are rare taxa, which can be put at high risk by livestock. Other causes for concern about the ecological influence of livestock grazing include increases in alien species, alteration of animal foraging guilds, control of native predators and grassland species for economic gains, and increases in livestock-borne diseases among native wildlife species such as bighorn sheep.

Livestock grazing also affects several ecosystem functions, such as nutrient and hydrologic cycling, and succession. The cycling of nitrogen, the most important limiting nutrient in arid and semiarid ecosystem, is disrupted through trampling damage to microbiotic soil crusts. Western ecosystems also lose nutrients because they are tied up in livestock feces, which in some cases cannot be recycled due to lack of appropriate decomposers (for example, dung beetles in the Great Basin). When livestock are exported to markets, nutrients are lost from western ecosystems on a massive scale. Livestock interfere with ecological succession, especially in riparian communities. The quality and availability of water is also diminished by the presence of livestock. Overall, these activities lead to increased evapotranspiration rates and desertification.

Physical structure of livestock-influenced ecosystems is also altered. In many cases, vegetation strata are lost because plant regeneration is disrupted by foraging and trampling by livestock. The activity of livestock removes residual ground cover and soil litter, and compacts soil, leading to decreased water infiltration, and thus increased water runoff and soil erosion. The net effect of such interactions is a loss of available water to biotic communities.

Livestock, especially cattle, spend a disproportionate amount of time in riparian habitats. Thus, these sites, which are among the biologically richest in the region, are easily damaged. Because these communities provide essential habitat for a wide variety of species, this can have severe effects on regional biotas.

In sum, livestock grazing, which occurs throughout a majority of the American West, has a host of negative ecological repercussions. Livestock grazing has reduced densities and biomass of many plant and animal species, reduced biodiversity, aided the spread of exotic species, interrupted ecological succession, impeded the cycling of the most important limiting nutrient, changed habitat structure, disturbed community organization, and has been one of the most severe impacts on one of the biologically richest habitats in the region. While undoubtedly there are exceptions to this theme of destruction, clearly much of the ecological integrity of a variety of North American habitats is at risk from this land management practice.

A Call for Action

The ecological evidence is clear that livestock grazing must be drastically reduced in the American West. We urge the public land management agencies to undertake the following for lands and resources under their jurisdiction:

1. Evaluate the ecological costs and appropriateness of livestock grazing on an ecosystem by ecosystem basis.

The public agencies must analyze the ecological dynamics of each ecosystem type to determine whether, and to what extent, livestock grazing has an ecologically justifiable role. The "litmus test" should be the following: Can livestock grazing be done in such a manner that it helps maintain or improve the health, biological diversity, and long-term productivity of this ecosystem? Livestock grazing on public rangelands is not justifiable unless the answer is a clear and substantiated "yes."

2. Remove livestock immediately from damaged areas, except where it can be shown that grazing provides benefits (as described in #3 below).

The land management agencies should act immediately to remove livestock grazing from sites that fit the U.S. Bureau of Land Management definitions of "good" with "stable or declining trends," or worse, rangeland conditions. Riparian areas are of special concern due to their great biological significance.

3. Allow livestock grazing only where, and in such a manner, that it serves positive ecological roles.

With a view to the longer term, the public land management agencies should initiate steps to phase out livestock grazing from those ecosystem types where the practice does not pass the "litmus test" for ecological justification (see #1 above), for example, in desertscrub and desert grassland ecosystems. For those ecosystem types where livestock grazing *does* have potentially beneficial ecological roles (for example, achieving and sustaining diversity of vegetation types or successional stages at the landscape scale), the agencies should bring grazing under management that ensures its positive contribution to the health, biological diversity, and long-term productivity of those systems.

4. Help society make informed choices.

Honestly articulate the ecological costs and consequences of livestock grazing, as well as the beneficial roles grazing can serve if carefully managed in certain ecological settings. Make scientific information understandable and accessible, so that society can make informed choices about public lands and resources.

5. Establish a network of significant areas where livestock are excluded, to serve as benchmarks for scientific evaluation of the ecological effects of grazing.

These benchmark areas should be established in all major ecosystem types of the American West, and should be large enough to evaluate landscape-level processes.

6. Eliminate grazing on public lands where it is accompanied by widespread control of native predators.

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This position statement was developed in conjunction with a lengthier review article which includes extensive supporting literature citations. See Fleischner, T.L. 1994. Ecological costs of livestock grazing in western North America. Conservation Biology 8(3):629-644.

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