

**DETERMINATION OF COMPATIBILITY
OF CURRENT LIVESTOCK GRAZING PRACTICES
WITH PROTECTING THE OBJECTS OF BIOLOGICAL INTEREST
IN THE CASCADE-SISKIYOU NATIONAL MONUMENT**

Background

The Cascade-Siskiyou National Monument (CSNM) proclamation directed the Secretary of the Interior to “study the impacts of livestock on the objects of biological interest in the monument with specific attention to sustaining the natural ecosystem dynamics.” The Medford District released the findings of the CSNM Livestock Impacts Studies on January 24, 2008. The studies were designed to provide inference about livestock impacts to objects of biological interest within the historic and landscape context of the monument. Additionally, Rangeland Health Assessments (RHAs) were conducted in accordance with the Oregon/Washington Standards for Rangeland Health (1997) for each allotment overlapping the monument.

The results of the Livestock Impacts Studies and the RHAs were used to determine whether or not current livestock grazing practices are compatible with “protecting the objects of biological interest.”

Determination

The Livestock Impacts Studies, RHAs and professional opinions by BLM staff identify negative interactions between livestock and individual biological objects of interest, as well as underlying ecological processes and ecosystem dynamics. Therefore, based on the following rationale, it is my determination is that there are locations within the CSNM where current livestock grazing practices are not compatible with “protecting the objects of biological interest” as directed by the presidential proclamation.

Four criteria need to be achieved for current livestock use to be assessed as compatible with protecting the objects of biological interest as directed by the proclamation for the CSNM:

- 1) Meet the Rangeland Health Assessment Standards and Guidelines, since these five standards address both the tangible and intangible objects identified for protection in the proclamation.

This criterion has not been achieved because RHA Standards and Guidelines have not been met across all allotments overlapping with the CSNM (see Table 1 and Summary of Rangeland Health Standards for Lands within the Cascade-Siskiyou National Monument).

- 2) Maintain and improve populations of native plants and animals because the proclamation emphasized their protection.

Many areas influenced by historic grazing from the late-1800s and early-1900s and other management activities show increased abundance of native grasses over the past 10-20 years. However, this criterion is not met because increased abundance of noxious weeds and bulbous bluegrass are indicative of continuing rangeland health problems in areas of moderate-to-severe utilization by livestock and native ungulates.

- 3) Minimize moderate-to-severe livestock use in sites that occupy small portions of the landscapes, like riparian areas, in order to protect these special habitats.

This criterion has not been achieved because riparian areas continue to receive moderate-to-severe use by livestock in some locations throughout the monument. Maps of average utilization indicate that some allotments include areas of moderate-to-severe use by native and non-native ungulates in excess five percent of the allotment. At higher elevations, areas with forage tend to be found within riparian areas, the balance of the landscape being covered by conifer communities. Grazing at higher elevations is consequently concentrated in riparian areas, particularly since higher elevation areas are grazed late in the grazing season when upland grasses have become dormant and less desired by livestock.

- 4) The trends for recovery of ecological processes from historic grazing impacts must be similar in grazed and ungrazed areas.

Studies in grazed and ungrazed areas indicate that the rate of recovery of riparian vegetation subsequent to historic disturbance is slower in grazed areas compared to exclosures, indicating that current grazing practice fail to achieve this criterion.

None of the above-defined criteria used to determine the compatibility of current livestock use with protecting the objects of biological interest in the CSNM have been achieved. Therefore, current livestock grazing practices in some locations within the CSNM are not compatible with the “protecting the objects of biological interest” as directed by the monument proclamation.

SUMMARY OF RANGELAND HEALTH STANDARDS FOR LANDS WITHIN THE CSNM

The proclamation for the Cascade-Siskiyou National Monument (CSNM) requires studies to determine the influence of livestock on objects of biological interest and ecosystem dynamics. Objects of interest were determined to be tangible (for example, individual species) and intangible, the ecological processes and ecosystem functions supporting the objects of interest. The Rangeland Health Assessments associated with the range allotment lease renewals provide a basic summary of the studies and other inventory and monitoring efforts across the CSNM landscape to determine the health of upland and riparian ecosystems. Because the Rangeland Health Assessments are ecological assessments, and not just grazing assessments, the basic influence of livestock on ecological processes, functions and ecosystem dynamics are adequately assessed in the Rangeland Health Assessments and Determinations for individual Allotment leases overlapping with the CSNM (USDI 2008).

The proclamation for the CSNM requires a stricter assessment of rangeland health standards. While non-native plants are considered to fulfill the same ecological functions as native plants, the focus on sustaining native biota on the CSNM identifies the additional need to favor ecological processes (including ungulate herbivory) resulting in the increased abundance by native species. While localized impacts by livestock might be acceptable within grazing allotments, such disturbance is not considered appropriate in the CSNM, particularly in habitats limited spatially (e.g. riparian areas). Making significant progress towards the attainment of rangeland health standards is considered to be sufficient for the renewal of allotment leases without changing current management. The enforcement of the CSNM proclamation guidelines requires the rate and direction of successional processes within grazed areas to be similar to areas of low livestock use. The proclamation identifies the need to protect specific objects of biological interest characteristic of the region. The CSNM proclamation standards are thus considered more stringent by the following requirements: 1) livestock grazing protects and enhances native species, 2) any localized disturbance must be outside of spatially limited habitats, and 3) rates of improvement from historic livestock impacts be the same in livestock grazed and ungrazed areas.

Rangeland Health Assessments

This document summarizes the outcome of Rangeland Health Assessments for individual allotments overlapping with the CSNM, as well as a monument-wide summary for the area within the monument, using the stricter guidelines as defined above.

Standard 1—Watershed Function in the Uplands

The primary determination of whether watersheds are meeting the upland watershed standard is through examination of the interaction of livestock with soils, vegetation cover, and vegetation composition. Livestock influence soils directly through soil compaction. Soil compaction reduces water storage capacity and the ability of plant roots to penetrate the soil. To meet the standard, watersheds are required to support sufficient vegetation cover to prevent raindrop impacts directly on the soil. Not only does bare soil shed water more easily than soil covered

with litter and vegetation, but raindrop impacts aid the formation of vesicular crusts at the soil surface further impeding the infiltration of water into the water profile. Altered vegetation composition (through soil compaction and selective utilization of individual plants) influences upland watershed functioning in a couple of ways. Domination by annuals that complete their life-cycle early in the summer result in reduced primary productivity in comparison with deeper-rooted plants that remain photosynthetically active over a longer growing period. Deeper-rooted plants also bring nutrients from deeper in the soil profile to the soil surface through the proliferation/dieback of roots and litter-fall.

The upland watershed standard was met on the Keene Creek, Jenny Creek, Deadwood and Box R allotments, but not on the Soda Mountain, Dixie, and Buck Mountain allotments. The major reason for not meeting the standard on the Soda Mountain Allotment is due to the recent invasion of broadleaved weeds and bulbous bluegrass, and their effect on upland watershed function. While bulbous bluegrass is considered to be a perennial grass, it functions as an annual in terms of its shallow rooting depth, rapid phenology, and early summer dormancy. While soil compaction and low vegetation cover were discovered at isolated locations within the CSNM, these were generally considered to be too isolated to influence attainment of the upland watershed function standard. Longer fire-return intervals have likely acted synergistically with heavy historic livestock grazing to result in the loss of open vegetation to woody plant domination. Increased water-uptake and evapotranspiration has likely reduced water yields from the uplands to the riparian areas.

Standard 2—Watershed Function in Riparian/Wetlands

Riparian watershed functions important in the southwest Oregon region include the stabilizing influence of riparian vegetation on streambanks and the delivery of clean water cool enough to sustain native aquatic invertebrates, amphibians, and fish. Deeper rooted vegetation forms protective fibrous root networks that favor the stabilization of streambanks. Stubble heights greater than six inches are recommended to trap sediments within and adjacent riparian channels as part of the riparian function for providing clean water. Taller-statured vegetation is crucial to shading riparian areas to minimize summer water temperatures. Allowing riparian successional processes to establish willows and other woody vegetation is considered key to creating favorable riparian conditions, particularly on DEQ listed creeks.

All of the allotments failed to meet the riparian/wetland watershed function standard. On two of the allotments (Box R and Buck Mountain), current livestock grazing practices were determined not to be significant factors in the failure to meet this standard. The Jenny Creek Allotment is not meeting, but making significant progress towards meeting this standard. In general, where livestock are responsible for not meeting the standard, several factors are at play. In seeps and springs, deep-rooted and mat-forming plant life-forms are being lost as a result of livestock grazing and trampling and forage utilization are resulting in bare soil. These issues are more localized in streamside vegetation. However, the lower rate of succession in streamside riparian areas likely increases the time before the standard will be attained in the Jenny Creek Allotment (identified as not meeting the standard, but making progress – acceptable by RHA standards, but not more stringent CSNM proclamation standards). Apart from direct measures and observation of bare soil, cutbanks, and pedestalling, the assessment of macroinvertebrate communities

provides additional inference that riparian areas are not able to function adequately in their provision of clean and cool water.

Standard 3—Ecological Processes

The maintenance of ecological processes is essential to sustaining natural ecosystem dynamics and the support of individual objects of biological interest. The dominant ecological processes in southwest Oregon include fire (particularly for the maintenance of fire-dependent plant communities and the habitat they might provide for wildlife), herbivory, weed invasion, and plant community succession. These forces can act interdependently, and fire, herbivory, and weed invasion are often most easily discerned by their influence on successional processes.

Five allotments (Soda Mountain, Keene Creek, Jenny Creek, Deadwood, and Dixie) out of seven are not meeting the standard for ecological processes at least partially because of the undesired influence by livestock. Two allotments (Jenny Creek and Box R) are meeting the standard and one allotment (Jenny Creek) is not meeting, but making significant progress towards meeting this standard. Successional processes are considered to be strongly influenced by livestock in seeps and springs of the allotments not meeting this standard. The slowing of successional processes in streamside riparian areas is acceptable under Rangeland Health Standards (following the provision for “not meeting but making significant progress towards” the standard within Rangeland Health Assessments and Determinations), but remains unacceptable under the CSNM proclamation. Assessment of succession in the Jenny Creek Allotment riparian areas is complicated by the fact that the recommended grazing regime has not been implemented due to recurrent nonuse.

In the uplands, historic livestock grazing and elongated fire-return interval have predisposed formerly herbaceous-dominated areas to become dominated by woody vegetation. The increase in woody character of the landscape has likely resulted in the loss of forage at many locations of the CSNM, causing livestock to focus on riparian areas. The major measure of current livestock influence on successional processes is the association of broadleaved weeds with areas of moderate-to-severe livestock use in upland and riparian communities. The ability of bulbous bluegrass to invade gentle slopes visited by livestock provide additional indirect evidence that disturbance by livestock allow succession towards communities dominated by undesired species.

Standard 4—Water Quality

Water quality is a direct measure of one of the ecosystem services provided by the CSNM landscape. Water quality is also critical for the maintenance of aquatic plant and wildlife. Measures of water quality include temperature, oxygen availability, and turbidity.

Jenny, Johnson, Mill, South Fork Keene, Corral, Beaver, Grizzly, Carter, Emigrant, Hobart and Tyler creeks do not meet minimum DEQ water temperature standards. Studies indicated that seeps and springs impacted by livestock had higher temperatures, lower dissolved oxygen and macroinvertebrate communities with a greater abundance of taxa tolerant of poor water quality conditions. Four allotments overlapping with the CSNM did not meet water quality standards because of livestock (Soda Mountain, Keene Creek, Deadwood and Dixie allotments). Two allotments (Box R and Buck Mountain) did not meet this standard for reasons other than

livestock. One allotment (Jenny Creek) is not meeting, but making significant progress towards meeting this standard.

Standard 5—Native, T&E, and Locally Important Species

This standard determines whether current management meets the need for maintaining populations of threatened and endangered (T&E) and other locally important species. Locally important species include many of the individual objects listed in the proclamation as well as common species that provide habitat or a food source for objects of biological interest (e.g., bunchgrasses). This standard also includes noxious weeds since these plants have the ability to disrupt ecological processes and replace more desired native species.

The major reasons for not meeting this standard include the threat to special status species (yellow legged frogs, Mardon Skipper, shorthorn hopper, and Greene's mariposa lily); the favoring of noxious weeds (yellow starthistle at lower elevation, and Canada thistle at high elevations) over native plants; and the invasion of bulbous bluegrass on gentle slopes. Livestock negatively influence more common species such as small mammals, shrub-nesting birds, pebblesnails, redband trout, and butterflies using herbaceous hosts as a food-source. The reduced abundance of native riparian-obligate species, particularly sedges and willows in riparian areas is considered a negative influence by livestock. Apart from stabilizing riparian soils, sedges and willow help define critical and restricted habitat for other plants and wildlife. Four allotments (Soda Mountain, Keene Creek, Deadwood, and Dixie) do not meet the Rangeland Health Standard for maintaining Native, T&E, and Locally Important Species. A fifth allotment (Jenny Creek) meets the RHA standard, but not the more stringent monument standard because of rapid improvements as a consequence of intermittent grazing on a year-to-year basis. Only the Box R Allotment was considered to meet this standard. The Buck Mountain Allotment did not meet this standard for reasons other than livestock.

Summary

In summary, studies and professional opinions by BLM staff identify negative interactions between livestock and individual biological objects of interest, as well as underlying ecological processes and ecosystem dynamics. Current livestock management practices are, therefore, not compatible in some locations with the proclamation for the Cascade-Siskiyou National Monument. This conclusion applies to the portions of Soda Mountain, Keene, Dixie and Jenny Creek Allotments overlapping with the Cascade-Siskiyou National Monument. The Box R and Buck Mountain allotments do not meet Rangeland Health Standards for reasons other than livestock grazing (Table 1).

Table 1. Rangeland health standard determinations for individual allotments overlapping with the Cascade-Siskiyou National Monument.

Allotment (% acres within CSNM)	Conformance with Individual Rangeland Health Standards					
	Watershed Function – uplands (Standard 1)	Watershed Function – riparian (Standard 2)	Ecological processes (Standard 3)	Water Quality (Standard 4)	Native, T&E, and Locally Important Species (Standard 5)	Summary RHA Procl.
Soda Mountain (99%)	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	0/5 0/5
Keene Crk (45%)	Meeting standard	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	1/5 1/5
Deadwood (<1%)	Meeting standard	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	1/5 1/5
Jenny Crk (100%)	Meeting standard	Not meeting standard but making progress*	Not meeting standard but making progress*	Not meeting standard, but making progress*	Meeting standard*	4/5 1/5
Box R (100%)	Meeting standard	Not meeting standard, not due to livestock	Meeting standard	Not meeting standard, not due to livestock	Meeting standard	3/5 3/5
Dixie (23%)**	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	Not meeting standard, livestock caused	0/5 0/5
Buck Mountain (9%)***	Not meeting standard, not due to livestock	Not meeting standard, not due to livestock	Meeting standard	Not meeting standard, not due to livestock	Not meeting standard, not due to livestock	1/5 1/5
Summary	RHA Procl. 5/7 4/7	RHA Procl. 3/7 0/7	RHA Procl. 3/7 2/7	RHA Procl. 3/7 0/7	RHA Procl. 3/7 1/7	

* denotes non-conformance consequent to higher standards demanded by the CSNM Proclamation

** RHA for Dixie was completed in 2000; changes in livestock grazing practices were implemented in 2002 on this allotment.

***RHA for Buck Mountain was completed in 2001.