THE WILDLIFE SOCIETY
Leaders in Wildlife Science, Management and Conservation

February 25, 2020

Bureau of Land Management
Attn: Seth Flanigan
3948 S Development Avenue
Boise, ID 83702

RE: DOI-BLM-WO-WO2000-2019-0001-EIS Proposed Grazing Regulation Revision (43 CFR Part 4100, exclusive of Alaska)

Dear Mr. Flanigan:

A Notice of Intent to prepare an environmental impact statement (EIS) was published by the Bureau of Land Management (BLM) in the Federal Register on January 21, 2020. BLM is proposing to revise its livestock grazing regulations (36 CFR part 4100) and will prepare an EIS to assess and document the impacts of implementing the revised regulations. BLM requested public review and comments on this proposal to identify relevant issues.

The Wildlife Society appreciates the opportunity to comment on this important matter, and have identified 14 issues that we believe are substantive and relevant to livestock grazing management and the proposed changes in grazing regulations. Our goal in submitting these comments is to help facilitate a well-informed public and science-based decision-making process. We request that this letter and the supporting references cited in this letter be included in the administrative record.

Founded in 1937, The Wildlife Society (TWS; wildlife.org) and our network of affiliated chapters and sections represents over 15,000 wildlife biologists and managers, dedicated to excellence in wildlife stewardship through science and education. Our mission is to inspire, empower, and enable wildlife professionals to sustain wildlife populations and their habitat through science-based management and conservation.

Our members are leaders in wildlife science, management and conservation and includes current and retired wildlife educators, biologists, managers, scientists and others from state, provincial, tribal, and federal agencies, academic and private institutions. TWS is committed to bringing science to national and international issues that affect the current and future status of wildlife in North America and throughout the world.

The revised grazing regulations will determine how BLM administers livestock grazing on approximately 155 million acres, approximately 22,500 grazing allotments involving over 15,000 livestock operators (individuals and corporations) and 4 to 5.6 million head of livestock. Enclosed is a selection of TWS' policy statements that provide a basis for our comments and will also provide guidance helpful for facilitating the inclusion of effective wildlife conservation measures into Resource Management Plans (RMP) and Allotment Management Plans (AMP) prepared under guidance of BLM's grazing regulations.

We assume that the impacts and effects analysis for each issue and alternative in the EIS will be based on full and timely implementation of the proposed grazing regulations. We recommend that each of the following issues be included and evaluated for each alternative:

ISSUE – Restoring Degraded Rangelands and Riparian Areas

Congress and the public have previously expressed concerns over the condition and management of the public rangelands administered by BLM. The following Government Accounting Office (GAO) reports identify the need for corrective actions by BLM to restore lands damaged by livestock grazing:

> GAO/CED-77-88 Report, July 1977, Public Rangelands Continue to Deteriorate,
>
> GAO/T-RCED-88-20 Report, March 1988, Restoring Degraded Riparian Areas on Western Rangelands,
>
> GAO/RCED-88-80 Report, June 1988, PUBLIC RANGELANDS – More Emphasis Needed on Declining and Overstocked Allotments,
>
> GAO/RCED-88-105 Report, June 1988, PUBLIC RANGELANDS – Some Riparian Areas Restored But Widespread Improvement Will Be Slow,
>
> GAO/T-RCED-88-58 Report, August 1988, Management of Public Rangelands by the Bureau of Land Management,
>
> GAO/T-RCED-90-24 Report, February 1990, Management of Public Lands by the Bureau of Land Management and the U.S. Forest Service,
>
> GAO/RCED-91-191 Report, July 1991, RANGELAND MANAGEMENT - Comparison of Rangeland Condition Reports,
>
> GAO/T-RCED-92-60 Report, May 1992, RANGELAND MANAGEMENT - Results of Recent Work Addressing the Performance of Land Management Agencies.

These reports are dated, but many of the findings and recommendations in the individual reports are still relevant. Although significant progress has been made in restoring many of these lands to rangeland health standards, TWS recommends that any changes made to the grazing regulations further support and expand the abilities and authorities of BLM to address restoration of degraded lands through appropriate livestock grazing management and range developments. The following publication, co-authored by BLM resource specialists, provides an outstanding state-of-the-science report on restoring degraded riparian and aquatic ecosystems:

> Swanson, S., S. Wyman, and C. Evans. 2015. Practical grazing management to maintain or restore riparian functions and values on rangelands. Journal of Rangeland Applications, University of Idaho Rangeland Center, Volume 2:1-28. https://thejra.nkn.uidaho.edu/index.php/jra/article/view/20 (Accessed 2/10/20)

ISSUE – Effects of Invasive Species and Wildfire on the Sagebrush Ecosystem

The following publications provide updated information on the science and complexities of the relationships between invasive species, wildfire, and livestock grazing in sagebrush ecosystems:

> Ielmini, M. R., T. E. Hopkins, K. E. Mayer, K. Goodwin, C. Boyd, B. Mealor, M. Pellant, and T. Christiansen. 2015. Invasive plant management and greater sage-grouse conservation: a review and status report with strategic recommendations for improvement. Western Association of Fish and Wildlife Agencies. Cheyenne, Wyoming. https://www.wafwa.org/initiatives/sagebrush_ecosystem_initiative/western_invasive_weed_summit/ (Accessed 01/30/2020)
>
> Mayer, K. E. Compiler. 2018. Wildfire and invasive plant species in the sagebrush biome: challenges that hinder current and future management and protection - a gap report update. Western Association of Fish and Wildlife Agencies, Wildfire and Invasive Species Working Group. WAFWA, Boise Idaho. https://www.wafwa.org/news/e_2097/News/2018/5/Updated-GAP-Analysis-Report-Identifies-Sagebrush-Conservation-Priorities (Accessed 01/30/2020)

Some of the most experienced scientists and managers working in sagebrush ecosystems compiled this body of science to help enhance our understanding of these relationships and find solutions for controlling annual cheatgrass and other invasive species and restoring native plant communities. TWS recommends that the EIS disclose the impacts of the proposed changes in grazing regulations on BLM's ability to manage permitted livestock grazing to help control cheatgrass and other invasive species, reduce wildfire risks, and restore native plant communities and wildlife habitat.

In this proposal, BLM is also considering ways to increase flexibility through the grazing permit system for using livestock grazing to reduce fuels, primarily annual grasses, and wildfire risks. This may have some merits in limited situations but could be used to expand over-grazing of grass and shrub ecosystems. TWS supports targeted grazing that is well-planned and monitored to create limited fuel breaks in strategic locations to help limit the potential spread of wildfire. It may also play a role to reduce cheatgrass seed production and fuels in specific and well-defined areas, especially in sagebrush ecosystems. However, other than in these specific, strategic applications, we are concerned that fuels reduction objectives would become increasingly utilized as a basis for grazing permittees requesting increases in authorized livestock use. Such increases are likely to cause reductions in ecosystem functions and habitat quality for many wildlife species. TWS recommends that BLM address this concern in the EIS by clearly specifying when and under what circumstances the agency will consider increases in authorized use to address fuels reduction objectives for rangelands.

ISSUE – Livestock Grazing Impacts in Hot Desert Ecosystems

Issues associated with livestock grazing in the hot desert ecosystems in the southwestern United States are discussed in the following report:

> GAO/RCED-92-12 Report, November 1991, RANGELAND MANAGEMENT - BLM's Hot Desert Grazing Program Merits Reconsideration.

Based on this report, hot desert ecosystems cover about 20 million acres administered by BLM. The report claims that these lands are fragile and once damaged, recovery is slow, and in some cases, may not occur. Significant areas within these ecosystems, including scarce wetland and aquatic systems, were badly damaged during the late 1880s by overgrazing. TWS' Livestock Grazing on Rangelands in the Western United States position statement supports land management agencies developing objective and quantifiable criteria for designating land unsuitable for grazing when environmentally appropriate. We recommend that the extent to which the change in grazing regulations under each alternative would support BLM in restoring degraded hot desert ecosystems through livestock grazing decisions be assessed and disclosed in the EIS.

ISSUE – Effects of Unauthorized Livestock Use on Rangelands

Damage to wildlife habitat, including wetlands and other aquatic systems, from unauthorized livestock on BLM grazing allotments by both permitted and unpermitted livestock is discussed in the following reports:

> GAO/RCED-91-17 Report, December 1990, RANGELAND MANAGEMENT - BLM Efforts To Prevent Unauthorized Livestock Grazing Need Strengthening,
>
> GAO-16-559 Report, July 2016, UNAUTHORIZED GRAZING – Actions Needed to Improve Tracking and Deterrence.

TWS' Livestock Grazing on Rangelands in the Western United States position statement advocates enforcement of grazing regulations on public lands and strong penalties for unauthorized use. TWS recommends that the EIS disclose how the change in grazing regulations under each alternative affect the ability of BLM to effectively deter unauthorized use.

ISSUE – Effects on Threatened and Endangered Species and Their Recovery

We recommend BLM consult on Endangered Species Act (ESA) compliance with the U.S. Fish and Wildlife Service. ESA defines an "action" requiring consultation to include promulgation of regulations, which would apply to this proposed revision of BLM's grazing regulations. The requirement to consult on this type of action is discussed in detail on pages 37 to 49 of a Memorandum Decision and Order filed June 8, 2007 in U.S. District Court, District of Idaho, regarding a civil lawsuit (Case CV-05-297-E-BLW) on a 2005 proposal by BLM to revise its grazing regulations.

ISSUE – Conserving Biological Diversity and Special Status Species

TWS' Standing Position on Conserving Biological Diversity contends that the foundation for conserving biological diversity begins with actions to protect, restore, and sustain the integrity of the soil, water, air and native flora and fauna. We also acknowledge that human needs and preferences are part of the equation. We are concerned that in the following GAO report, investigators found that land use decisions frequently gave deference to competing commercial interests and uses over wildlife conservation needs and considerations:

> GAO/RCED-91-64 Report, March 1991, PUBLIC LAND MANAGEMENT - Attention to Wildlife Limited.

However, the GAO report acknowledged that BLM recognizes this problem and is in the process of trying to remedy this imbalance. Obviously, the future success of BLM in conserving the native biological diversity of the western rangelands and hot desert ecosystems will largely be dependent on the agency's ability to effectively move past this bias.

The list of special status species across the western states is undoubtedly long, and we recommend that each state wildlife action plan (SWAP) be consulted for the list of species of greatest conservation need. There will obviously be some wildlife species listed by multiple states and some species identified as keystone, umbrella or indicator species. Some examples of the latter include beaver, greater sage-grouse, and the black-tailed, white-tailed, Gunnison's and Utah prairie dog. We recommend that BLM focus added attention to assessing impacts on these species.

ISSUE – Implementing the 2015 Sage-Grouse Amendments

TWS has a special interest in promoting a science-based approach towards managing the biological diversity of the sagebrush ecosystem. Of particular interest to TWS is management of greater sage-grouse as an icon of the sagebrush ecosystem and its role in the ecosystem. The following publication provides an excellent review of the science behind the threats to sagebrush ecosystems and sage-grouse populations and strategies to restore sagebrush habitat:

> Finch, D. M., D. A. Boyce, Jr., J. C. Chambers, C. J. Colt, R. K. Dumroese, S. G. Kitchen, C. McCarthy, S. E. Meyer, E. Susan, B. A. Richardson, M. M. Rowland, M. A. Rumble, M. K. Schwartz, M. S. Tomosy, and M. J. Wisdom. 2016. Conservation and restoration of sagebrush ecosystems and sage-grouse: An assessment of USDA Forest Service Science. General Technical Report RMRS-GTR-348. USDA Forest Service 54p. https://www.fs.usda.gov/treesearch/pubs/50392 (Accessed 2/10/20)

TWS supports BLM's efforts in developing and using collaborative partnerships in the conservation and management of sagebrush landscapes. TWS also recommends that the effects analysis in the EIS specifically address the impacts and effects of the proposed changes in grazing regulations under each alternative on BLM's ability to effectively implement the 2015 greater sage-grouse amendments. We also recommend that these amendments and associated records of decision be included as part of the administrative record.

ISSUE – Comingling of Bighorn Sheep with Domestic Sheep and Goats

Due to continued wildlife health issues complicating restoration of wild sheep populations across the western states, TWS also has a special interest in how implementation of grazing regulations will influence the success of BLM in reducing comingling of wild sheep herds with domestic sheep and goats. We recommend BLM consult, if it hasn't already, the following report for much of the science behind the comingling issue:

> Wild Sheep Working Group. 2012. Recommendations for domestic sheep and goat management in wild sheep habitat. Western Association of Fish and Wildlife Agencies. https://www.wafwa.org/committeesgroups/wild_sheep_working_group/ (Accessed 01/30/2020)

Several of the most experienced scientists and managers working with disease issues in wild sheep collaborated in the development of these recommendations. TWS' Livestock Grazing on Rangelands in the Western United States position statement supports agencies guarding against the potential for disease transmission between livestock and wildlife, and TWS' Joint Issue Statement with the American Association of Wildlife Veterinarians on Domestic Sheep and Goats Disease Transmission Risk to Wild Sheep recognizes that the only management solution for preventing disease transmission between domestic sheep and goats and wild sheep is spatial and temporal separation. TWS requests that the effects analysis in the EIS specifically address the impacts and effects of the proposed changes in grazing regulations on BLM's ability to effectively manage the issue of comingling of wild sheep and domestic sheep and goats on and near BLM grazing allotments.

ISSUE – Declining Quaking Aspen Stands and Forests

Aspen stands and forests support a robust diversity of plant and animal communities. For this reason, and the fact that aspen decline is so extensive across the western landscape, we recommend that it be listed and addressed as a separate issue in the EIS. The following publications clearly document the science behind this issue and the restoration of western aspen stands and forests:

> Shepperd, W. D.; D. Binkley, D. L. Bartos, T. J. Stohlgren, J. Thomas, and L. G. Eskew. Compilers. 2001. Sustaining aspen in western landscapes: Symposium Proceedings; 13–15 June 2000; Grand Junction, CO. Proceedings RMRS-P-18. USDA Forest Service, Fort Collins, CO. 460 p. https://www.fs.fed.us/rm/pubs/rmrs_p018.pdf (Accessed 02/10/2020)
>
> Kay, C. E. 2003. Aspen management guidelines for BLM lands in north-central Nevada. Final report to Battle Mountain Field Office, Bureau of Land Management. 63p. https://pdfs.semanticscholar.org/ba27/c683b635b867b117afe70d4ae617f3df01dc.pdf?_ga=2.86112656.905081097.1581373342-742510814.1572453264 (Accessed 02/10/2020)
>
> Rogers, P. C. 2017. Guide to quaking aspen ecology and management with emphasis on Bureau of Land Management Lands in the western United States. Logan, Utah, Western Aspen Alliance. 98 p. https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=8606&context=aspen_bib (Accessed 02/10/2020)
>
> Rogers, P. C. 2019. Biodiversity within aspen forests. Western Aspen Alliance. Utah State University, Logan, UT. WAA Brief #7. https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=8813&context=aspen_bib (Accessed 02/10/2020)

As discussed in these publications, heavy and repeated browsing of aspen regeneration by big game, domestic livestock, and in some areas wild horses, contribute to the decline and deterioration of aspen stands and forests. In rangeland settings, declining aspen clones eventually convert to sagebrush dominated sites and in higher elevations frequently convert to conifers. We recommend that the extent to which the changes in grazing regulations under each alternative

would support the BLM in enhancing aspen regeneration through livestock grazing decisions be assessed and disclosed in the EIS.

ISSUE – Managing Livestock Grazing During Drought

Drought on western rangelands places extreme stress on most wildlife species and populations. It is during these periods when sensitive areas such as meadow, riparian, and aquatic systems can be severely impacted and degraded by livestock grazing. This damage and impacts on wildlife are especially extreme during extended and prolong drought. Timely adjustments in livestock grazing during drought, especially prolonged drought, is an extremely important consideration for pastures with significant acreages of prairie dog colonies to reduce risks of increased soil erosion. The following publication provides a state-of-the-science review of the effects of drought on rangeland vegetation, wildlife and wildlife habitat, other resources, and land uses:

> Finch, D. M., R. L. Pendleton, M. C. Reeves, J. E. Ott, J. R. Pinto, P. L. Ford, J. B. Runyon, M. A. Rumble, and S. G. Kitchen. 2016. Rangeland drought: effects, restoration, and adaptation. Pages 155-194 in J. M. Vose, J. S. Clark, C. H. Luce, and T. Patel-Weynard, Editors. Effects of drought on forests and rangelands: a comprehensive science synthesis. USDA Forest Service, Washington Office, General Technical Report 93b, 289p. https://www.srs.fs.usda.gov/pubs/gtr/gtr_wo93b.pdf (Accessed 02/10/2020)

In addition to recommending that BLM list livestock grazing during drought as an issue in the EIS, TWS also recommends that BLM assess and disclose in the EIS how and to what extent grazing regulations under each alternative would support BLM in implementing appropriate and timely adjustments in livestock grazing during drought. The ability to implement drought contingencies is especially important considering climate change, and due to the importance and urgency of this matter, we further recommend that BLM consider developing contingency plans for drought management within 2 years following the effective date of the revised grazing regulations. The following publications are two of many dealing with drought management contingencies for livestock grazing in western states. The first publication describes the range science behind drought management contingencies used by Wyoming ranchers, and the second provides the science and strategies for drought management in the southwestern United States:

> Kachergis, E., J. D. Derner, B. B. Cutts, L. M. Roche, V. T. Eviner, M. N. Lubell, and K. W. Tate. 2014. Increasing flexibility in rangeland management during drought. Ecosphere 5(6):77. http://dx.doi.org/10.1890/ES13-00402.1 (Accessed 01/30/2020)
>
> Howery, L. 1999. Rangeland management before, during, and after drought. The University of Arizona College of Agriculture, Cooperative Extension Service Extension Bulletin AZ 1136. Tuscon. http://ag.arizona.edu/pubs/natresources/az1136.pdf (Accessed 01/20/2020)

ISSUE – Effects on Wildlife Migration Corridors and Big Game Winter Range

Secretarial Order 3362 (DOI), *Improving Habitat Quality in Western Big-game Winter Range and Migration Corridors,* fosters improved collaboration between the Department of the Interior, western states, tribal government and private landowners. It also promotes use of the best science

available to expand hunting opportunities by improving condition of priority habitat for big game species within important winter ranges and migration corridors. Other western governors are also considering similar state initiatives and guidance. TWS recommends that the EIS disclose how the change in grazing regulations under each alternative support BLM's ability to make livestock grazing and range development decisions that enhance and protect known or suspected migration corridors and big game winter range. Fence specifications (wire spacing and heights) and densities are important considerations when managing for big game seasonal movements and migration, and the following publication provides an excellent discussion on fencing impacts on wildlife and ecosystems:

> Jakes, A. F., P. F. Jones, L. C. Paige, R. G. Seidler, and M. P. Huijser. 2018. A fence runs through it: a call for greater attention to the influence of fences on wildlife and ecosystems. Biological Conservation 227:310-318. https://jhwildlife.org/wp-content/uploads/2019/01/Fence-paper-by-Paige-et-al-1.pd (Accessed 2/10/20)

We know that BLM has directives on fence construction specifications to facilitate big game movement. However, we are unsure if the agency provides guidelines in RMPs on maximum fence densities.

ISSUE – Effects on Rangeland Heterogeneity and Upland Gamebird Habitat

Presidential Executive Order 13443, *Facilitation of Hunting Heritage and Wildlife Conservation*, directs federal agencies to facilitate the expansion and enhancement of hunting opportunities and management of game species on federal lands. Managing for rangeland heterogeneity provides vegetation structural diversity needed to provide suitable cover for upland gamebirds and other wildlife. The two following publications provide excellent discussions on the benefits of managing livestock to enhance rangeland heterogeneity:

> Toombs, T. P., J. D. Derner, D. J. Augustine, B. Krueger, and S. Gallagher. 2010. Managing for biodiversity and livestock. Rangelands 32(3):10-15. https://naldc.nal.usda.gov/download/44728/PDF (Accessed 2/10/20)

> Fuhlendorf, S. D., R. W. S. Fynn, D. A. McGranahan, and D. Twidwell. 2017. Heterogeneity as the basis for rangeland management. Pages 169-196 *in* D. D. Briske (ed.). Rangeland systems: processes, management and challenges. Springer Open, Cham, Switzerland.https://link.springer.com/chapter/10.1007/978-3-319-46709-2_5 (Accessed 2/10/20)

Range management that provides for heterogeneity also enhances the availability of quality hiding and holding cover for upland bird hunting. Providing quality hunting experiences on public lands also supports efforts by state wildlife agencies to expand hunting opportunities and participation. TWS recommends that the EIS disclose how the grazing regulations under each alternative would affect the ability of BLM to manage for rangeland heterogeneity and quality hiding and holding cover for upland birds and other game species.

ISSUE – Issuing Grazing Permits Under Categorical Exclusions

This is a complicated issue and to facilitate an informed public and better understanding of the use of categorical exclusions (CE) for the issuance of term and temporary grazing permits, TWS recommends that the EIS disclose how the grazing regulations under each alternative would affect the use of CEs for permit issuance. The issuance of grazing permits is the crucial moment of action in rangeland resource allocations, so it is important for the interested public to know how each alternative would affect their opportunity to effectively engage and provide comments on their concerns and interests. Categorical exclusions should only be used where it is well documented with a strong scientific foundation that the excluded actions will have very minimal, if any, environmental impacts. TWS recommends that any changes to the grazing regulations clearly articulate what types of exclusions would be considered and the limitations of where and when such exclusions can be authorized.

ISSUE – Adaptive Management and Monitoring Workload

Congressional concern over inadequacies of rangeland monitoring by BLM is discussed in the following GAO report:

> GAO/RCED-92-51 Report, February 1992, RANGELAND MANAGEMENT – Interior's Monitoring Has Fallen Short of Agency Requirements.

We are aware that there has been significant movement forward in the use of science-based monitoring by BLM. An example of that progress is BLM's inventory and monitoring partnership with the Great Basin Institute. Another example is the following science-based protocol for monitoring and assessing sagebrush and sage grouse habitat:

> Stiver, S. J., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance, and J. W. Karl, Editors. 2015. Sage grouse habitat assessment framework: a multiscale assessment tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado. https://www.fs.usda.gov/sites/default/files/sage-grouse-habitat-assessment-framework.pdf (Accessed 02/10/2020)

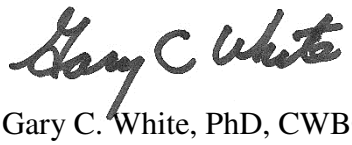
This publication was authored by some of the most experienced researchers, scientists and managers, including BLM resource staff, working within the sagebrush ecosystem. TWS strongly recommends and supports science-based monitoring. TWS' Livestock Grazing on Rangelands in the Western United States position statement also supports continued research to further develop cost-effective, quantifiable and repeatable long-term habitat monitoring and evaluation protocols for sagebrush and other rangeland systems. The workload associated with assessing rangeland health, water quality, wildlife populations, habitat and other resource values remains a daunting task, especially with the increasing use of adaptive management strategies that are monitoring intensive. Adaptive management strategies are effective only when supported by ongoing and appropriate monitoring.

We cite several GAO reports in this letter, and we recommend that introductory and background information in the EIS include an assessment of the progress BLM has made in responding to the findings and recommendations in these reports. As part of this assessment, we suggest that the

EIS include a comprehensive summary of the latest monitoring information on the current ecological conditions of these lands. This type of assessment is critical to understanding how implementation of the proposed grazing regulations and those brought forward under other action alternatives would impact wildlife habitat, rangeland health, and the environmental services provided by the lands and waters administered by BLM. This type of assessment is also critical to understanding the massive impacts of wildfires and invasive plants, including cheatgrass, on our western ecosystems and communities.

TWS recognizes the challenges that BLM faces as a public land management agency in a complex multiple-use arena. We hope our comments will assist BLM in using the best available science to meet its land stewardship mandates under the Federal Land Policy and Management Act, Taylor Grazing Act, Public Rangelands Improvement Act, Endangered Species Act, and other environmental laws and regulations. The management of lands and resources held in the public trust is vitally important to local communities, states, and the nation.

Sincerely,



Gary C. White, PhD, CWB®
President

Enclosures:
TWS Position Statement: Livestock Grazing on Rangelands in the Western United States
TWS Position Statement: Incorporating Wildlife Needs in Land Management Plans
TWS Standing Position: Conserving Biological Diversity

Final Position Statement

Livestock Grazing on Rangelands in the Western United States

Functional rangeland ecosystems, supporting a wide diversity of native plant and invertebrate species, are critically important to sustaining wildlife diversity and productivity in the western United States. Scientifically sound management plans and practices are key to restoring lands degraded by many years of poor range management that damaged soils, water, wildlife, invertebrate and plant diversity. Livestock grazing is only one of the influences on western rangelands—these lands support a wide variety of uses and values. Livestock grazing is recognized as both a land use and a management tool that can be used to alter rangeland vegetation to achieve specific objectives.

Resource management agencies must recognize, plan, implement, and quantitatively monitor livestock herbivory to sustain and improve renewable rangeland resources for the future use and enjoyment of the American public. An ecosystem approach to rangeland management is an effective starting point for restoration and conservation of rangelands. It promotes heterogeneous landscapes comprised of diverse mosaics of plant, invertebrate, and animal communities, including the full range of state and transition models for ecological sites; and is based on plans consistent with ecosystem characteristics and with local habitat objectives for wildlife species. An ecosystem approach also provides for declaring certain lands unsuitable for livestock grazing, a critical component of rangeland grazing plans.

Effective grazing management plans developed under this ecosystem approach consider multiple uses and provide opportunity for improved wildlife-livestock interactions while restoring important resource functions and values that will help sustain viable biological and human communities. An important component is to also meet conservation objectives for habitat and populations of threatened and endangered wildlife and plant species. Such plans need to be economically viable and based on fair market values.

Ecosystem-based grazing management plans must also include provisions, support, and criteria for quantitative, repeatable monitoring and adaptive management as new scientific information and studies become available. A goal of adaptive management of grazing on western rangelands would be to continue to improve wild and domestic herbivore programs and practices as new knowledge and understanding of rangeland ecosystems becomes available.

These programs involve effective coordination and cooperation among state and federal agencies and affected publics in developing policy alternatives, implementing policy provisions, and evaluating policy outcomes of grazing management strategies on western rangelands.

The policy of The Wildlife Society in regard to the effects of livestock grazing on rangelands in the western United States is to support:

1. Implementation of stocking rates (grazing intensity), timing, duration and livestock grazing systems that will improve, restore, and maintain rangeland and riparian ecosystems.

2. Implementation of scientifically-based grazing management that uses results of field-based, experimental designs accepted by relevant scientific expertise; considers all resources, trends, and interactions plus the broad spectrum of human values and needs; and provides for applicable adaptive management.

3. Enforcement of grazing regulations on state and federal lands and strong penalties when grazing agreements are violated and when non-permitted livestock repeatedly trespass.

4. Restoration of degraded plant communities using native plant species; non-native plant species should be used only when native species are not an option.

5. Consideration of alternatives to grazing for vegetation manipulation and rangeland restoration, including fire, mechanical, biological, or chemical means, or combinations of such alternatives, or grazing exclosures.

6. Agency efforts to recognize and guard against the potential for disease transmission between domestic livestock and wildlife.

7. Agencies in developing and implementing objective and quantifiable criteria for designating lands unsuitable for livestock grazing when appropriate, based on soil productivity, forage distribution and abundance, utilization by wildlife, and other factors.

8. Research and development of cost-effective, quantifiable, and repeatable long-term habitat monitoring and evaluation procedures for western rangelands.

9. Research evaluating the effects of wild herbivore foraging on rangeland ecosystems, and the results of rangeland restoration practices designed to improve degraded plant communities, especially riparian areas.

10. Development of strong professional and public education programs that clearly articulate goals and outcomes of rangeland management.

Approved by Council November 2017. Expires October 2022.

Final Position Statement

Incorporating Wildlife Needs in Land Management Plans

Land management activities and decisions can have significant effects on wildlife species and populations by influencing the amount, quality, extent, and connectivity of available habitat. Decisions about land management can alter the carrying capacity of a region and influence population dynamics of wildlife species in a variety of ways. Given that society needs natural resources and will continue to use resources from public and private lands, this use should be conducted with the intent of minimizing negative effects on wildlife.

Some environments support highly specialized indigenous flora and fauna that are sensitive to human disturbance. Alteration of riparian zones, wetlands, old-growth forests, grasslands, shrub-grasslands, and other distinct natural systems without careful planning could result in widespread disruption to those natural systems, loss of ecosystem function and potential loss of species. Many of these environments and the wildlife they support have already experienced declines in quality as human development has increased.

Land management activities can enhance habitat conditions for a wide variety of species; however, some activities can have an overall negative effect on that area's biodiversity and species richness. In areas where human activities have disrupted natural processes (e.g., fire suppression, fragmentation), land management can play an essential role in supporting biodiversity by mimicking natural disturbance regimes. In many regions, public agencies are the only landowner with a sufficient land area to provide these type of disturbance activities at a suitable scale. In other regions, private forest landowners, agricultural producers, and other landowners may be able to manage their properties to provide beneficial disturbance as part of their actions.

Integrating wildlife needs (including wildlife health) from a broad group of native species into land management decision-making can increase the positive effects of ecosystem services (such as clean water from healthy watersheds) and maintain biodiversity while mitigating the possible negative effects of human use. However, mitigation procedures to improve habitat conditions typically require time to become successful, possibly even community succession to achieve desired goals.

National, provincial, state, and local agencies have the authority and mandate to require reasonable planning and mitigation measures that will minimize or avoid deterioration of public trust wildlife and wildlife habitat. Responsible land management on public lands includes activities that sustain fish and wildlife habitat, protect environmental and ecological values, maintain biodiversity, and provide for recreational use and aesthetic considerations.

Addressing wildlife needs in land management plans can result in a readily integrated set of management objectives coordinated among planning units. Plans at each scale should provide their assigned portion of desired wildlife populations, wildlife habitat, and the conditions and

processes upon which they are controlled. Of course, such plans are of limited value unless implemented.

The policy of The Wildlife Society regarding incorporation of wildlife needs in land management plans is to:

1. Support the development and implementation of comprehensive land management plans that address wildlife needs in accordance with relevant laws and regulations and include: a) a broad range of indigenous or naturalized, noninvasive species and important ecological processes within the region; b) specific objectives for the conservation and management of wildlife within the area that considers the relationships among the biological, physical, and socio-economic factors operating within the region; c) expectations for public and private lands; d) sufficient monitoring and research to provide a basis for adaptive management; e) attention to biological resources, the management of which may not be limited to typical landscape planning units (i.e., watersheds or other hydrological units); f) climate change adaptation measures; and g) conservation across temporal scales.

2. Recognize the multiple values of rare and unique environments for wildlife habitat, societal values, and for use in scientific research. Whenever possible, recommend the conservation of these settings in land management plans.

3. Promote the coordination of resource management activities to maximize retention of biodiversity across multiple spatial scales. Encourage cooperation and collaboration by professionals that specialize in forestry, fisheries, wildlife, and other natural resource disciplines.

4. Promote research to understand and mitigate adverse effects on wildlife habitat resulting from alteration, resource extraction, and other forms of management of terrestrial and aquatic systems. Support development of collaborative research, inventory, and monitoring to evaluate the status of terrestrial and aquatic systems across multiple spatial scales, including the development and maintenance of long term databases to track changes over time.

5. Promote education about the ecological and economic values of terrestrial and aquatic environments that retain native biodiversity.

6. Promote the use of Certified Wildlife Biologists® to represent wildlife values and evaluate habitat requirements in land use planning and decision making.

Approved by Council October 2018. Expires October 2023.

Standing Position

Conserving Biological Diversity

Biological diversity is the richness, abundance, and variability of native plant and animal species and communities and the ecological processes that link them with one another and with soil, air, and water. Human quality of life and survival depend on conservation of biological diversity.

Biological diversity can vary spatially from microscopic to global scales and temporally from minutes or hours to geologic time. Attributes include structure, function, and composition of genes, individuals, populations, subspecies, species, communities, and biotic provinces. Because of this complexity and variability, conservation of biological diversity -- protection, restoration, management, and sustainable uses -- must be addressed through objectives for specific attributes at specific places and times. A variety of management actions are needed to meet the many possible objectives for diversity. No one action will meet all objectives in all places or for all times.

Scientific knowledge is essential in developing effective policies, plans, and actions for conserving biological diversity. Human needs and preferences also must be considered.

The foundation for conserving biological diversity should begin with actions to protect, restore, and sustain the integrity of soil, water, air, and native flora and fauna. Public and private lands must play complementary roles in stewardship of these basic resources.

The policy of The Wildlife Society for conserving biological diversity is to:

1. Support and promote policies and programs to conserve biological diversity that are biologically, socially, environmentally, and economically valid, effective, and practical.

2. Encourage formulation of achievable and measurable objectives for desired attributes and uses of biological diversity at specific places and times.

3. Recognize both public and private landowners' responsibility for conserving biological diversity, to further landowner goals or organizational missions. Government land management agencies should share responsibility to conserve biological diversity.

4. Support and promote efforts to educate decision makers, elected officials, educators, and the general public on the values that biological diversity provides to our society.

5. Support scientific research, management, and monitoring of wildlife as indicators of biological diversity.

6. Extend successful cooperative programs in wildlife protection, management, research, and sustainable uses to the conservation of biological diversity. Examples of useful models include the Cooperative Fish and Wildlife Research Unit Program, the North American Waterfowl Management Plan, the U.S. Conservation Shorebird Plan, the North

American Grouse Management Plan, the Northern Bobwhite Conservation Initiative, and Partners in Flight.

7. Seek new sources of funding for conservation of biological diversity from individuals, groups, legislatures, and government agencies that will benefit from enhanced biodiversity. Additionally, seek support for those individuals or organizations whose past actions have reduced biodiversity.