

Draft Compatibility Determination

Title

Draft Compatibility Determination for Grazing, Ruby Lake National Wildlife Refuge.

Refuge Use Category

Agriculture, Aquaculture, and Silviculture

Refuge Use Type(s)

Grazing

Refuge

Ruby Lake National Wildlife Refuge

Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

“...for use as ... a refuge and breeding ground for migratory birds and other wildlife.”
(Executive Order 7923, July 2, 1938)

“... for use as inviolate sanctuaries for migratory birds...” 16 U.S.C. § 715d (Migratory Bird Conservation Act of 1929)

“... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C.715d (Migratory Bird Conservation Act of 1929, as amended)

"...to provide for the management, protection, development, and enhancement of public lands..." (Federal Land Policy and Management Act of 1976 (43 U.S.C. 1716), as amended)

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System (Refuge System) is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

Yes

This compatibility determination (CD) re-evaluates and replaces the 1994 CD for livestock grazing at Ruby Lake NWR (USFWS 1994a). Grazing has been conducted in portions of the Ruby Lake area for many years both before and after the Ruby Lake NWR's establishment; however, grazing has not occurred since 2021. Grazing was described as a management action in an approved Habitat Management Plan for Ruby Lake NWR (USFWS 1981). The use is consistent with the Draft Environmental Assessment for Grazing at Ruby Lake NWR (USFWS, *in draft*).

What is the use?

Grazing is defined as the feeding on vegetation by domestic livestock. This includes trailing and watering of livestock. Grazing is a refuge economic use (see 603 FW 2.6 N). The use evaluated in this CD is grazing on Refuge lands with cattle.

Is the use a priority public use?

No

Where would the use be conducted?

Grazing would be conducted in a portion of the refuge meadow community (Figure 1). The designated grazing unit is located where grazing can provide a benefit to wildlife habitat and where adverse impacts will be minimized. Within the designated grazing unit, the extent of grazing each year will be determined by current resource conditions and other biological and administrative factors. The designated grazing unit incorporates an appropriate buffer around aquatic resources and excludes pygmy rabbit sites, sage grouse sites, and other sensitive resources. Other locations may be excluded from the designated grazing unit, as needed, at the discretion of Refuge staff.

When would the use be conducted?

Grazing would be permitted from August 1 to December 31. Refuge staff will determine annually whether and when within the temporal window grazing will be permitted in any given year, based on resource conditions, and other biological and administrative factors. If suitable conditions are not present to support grazing or if it is determined that grazing would cause adverse impacts, the Refuge Manager may use their discretion to alter or suspend grazing until suitable conditions are present for the use to resume.

How would the use be conducted?

The use evaluated in this CD is prescribed grazing on Refuge lands with domestic livestock, specifically cattle. Grazing would be implemented as a vegetation management tool to reduce excessive biomass in refuge meadows and promote a mosaic of vegetation heights, including short stubble vegetation in grazed areas, to improve habitat suitability for priority wildlife species.

While grazing has historically occurred on varying acreages and vegetation communities throughout the Refuge, future grazing, as outlined in this document, will occur in a designated portion of the refuge meadow community, provided resources are not degraded. Grazing within the dry meadow community will ensure that sensitive areas, including shrub-steppe ecosystems, riparian ecosystems, spring heads, sensitive saline meadows, playa, grasslands, and marshes will not be impacted by grazing activities (USFWS 1996).

Prescribed grazing, along with other management techniques, will be conducted to meet long-standing Refuge objectives (USFWS 1994b) related to wildlife habitat quality, including:

- Provide high quality habitat for the production and/or maintenance of sensitive species, including the sandhill crane.
- Provide and enhance feeding habitat for the production of migratory waterfowl.
- Provide and enhance feeding habitat necessary for the production of colonial nesting species and other waterbirds.
- Provide diversity of high-quality upland and wetland habitats for molting and migrating waterfowl.
- Protect and enhance important wildlife resources under the policies of good land stewardship.

Additionally, Refuge-wide habitat objectives from the Sagebrush and Salt Desert Scrub Ecosystem Management Plan (USFWS 2022) inform the design of this proposed grazing program, including improving perennial grasses and forbs and maintaining the status of annual grasses to achieve desired future habitat conditions (e.g., more than 15% perennial grass cover, 4 or more perennial grass species, less than 10% forb cover, 9 or more forb species, less than 5% annual grasses). Grazing intensity and timing would be adapted, as needed, to achieve these biological outcomes.

Whether grazing is offered in any given year, the actual acreage offered for grazing each year, and timing are dependent on resource conditions (e.g., current and likely future habitat conditions; wildlife needs; availability of adequate funding, staff, and equipment; air quality restrictions; availability of local ranchers and livestock; forage quality; site conditions, such as access, infrastructure, and fire potential and history) and the Refuge Manager's discretion. In years when permitted, grazing would be allowed between August and December, at the discretion of the Refuge Manager. Stocking rates would be determined annually by considering the guideline for appropriate utilization to "take half and leave half", or to utilize 50% of annual forage production, including both forage consumed and damage caused by trampling, loafing, and other livestock-related factors (NRCS 2009). Using this guideline, animal

unit months (AUMs) would be determined annually, based on wildlife habitat needs, vegetation/residual dry matter conditions, precipitation levels/drought, wildfire related concerns, or at the discretion of the Refuge Manager. These determinations would be made to ensure grazing contributes positively to the Refuge's habitat goals and does not adversely affect sensitive resources. Additionally, plants, especially native perennial grasses, would be grazed leaving a four-inch stubble height. In the event of a significant wildlife conflict, refuge staff can delay the initiation of operations. The refuge manager may terminate or extend grazing activities as appropriate to ensure that benefits are achieved and resources are not degraded.

Livestock operators shall use virtual fencing to contain cattle within the designated grazing unit. Electric and/or wildlife-friendly temporary fencing, in addition to virtual fencing, may be authorized by refuge staff as needed to protect sensitive resources. Operators are responsible for providing water for grazing livestock. Grazing would involve the use of a variety of equipment and infrastructure on the Refuge, potentially including trucks, trailers, off-road vehicles, horses, dogs, loading/unloading ramps, corrals, water pumps, off-stream watering facilities, virtual fencing towers, and temporary fencing as authorized; and the personnel to operate machinery and manage livestock. Ranching personnel would be on site as needed throughout the season to manage livestock and perform appropriate ranching-related functions, including providing and positioning watering facilities and mineral blocks, operating equipment, checking livestock, and assessing vegetation conditions. Some of this equipment could be on the Refuge throughout the grazing season. Livestock would be checked every third day at a minimum or more frequently, at the Refuge Manager's discretion.

In accordance with the Archaeological Resources Protection Act (16 U.S.C. 470aa), the disturbance of archaeological or historical sites and the removal of artifacts are prohibited. The excavation, disturbance, collection, or purchase of historical, ethnological, or archaeological specimens or artifacts, or mementos from the Refuge is prohibited. Livestock operators shall not disturb and are prohibited from collecting and removing archaeological or historic artifacts, abiotic or biological specimens or samples, or mementos from the Refuge.

Grazing would be permitted under a Cooperative Agricultural Agreement (CAA) issued by the Service (620 FW 2.11). Under a CAA and associated Special Use Permit (SUP), a livestock operator would pay the Service, on an AUM basis, to graze a particular location(s) on a refuge for a specified period of time; alternatively, under a CAA, the Service can accept in-kind services of comparable value in lieu of payment of a portion of the permit fees. Grazing is considered an economic use under Federal regulations. The Service may authorize an economic use by appropriate permit only when we have determined the use on a National Wildlife Refuge to be compatible (50 CFR 29.1).

Why is this use being proposed or reevaluated?

Grazing was conducted in the Ruby Lake Area for many years, both before and after refuge establishment. Due to historic overgrazing of the refuge, there have been multiple efforts since refuge establishment to review the refuge's grazing program and provide recommendations to prevent future degradation of resources (Open Range Consulting 2018, USFWS 1981, USFWS 1996). The most recent CD for livestock grazing and associated Environmental Assessment (EA) were prepared in 1994 (USFWS 1994a, 1994b). In 2021, a grazing cooperator was selected but decided not to graze on the refuge. Grazing has not been conducted since 2021, primarily due to degraded resource conditions, the availability of alternate management tools, and limited staffing. Livestock grazing has been requested by members of the local community.

The use is being considered as a tool to improve habitat for wildlife in a limited area of the refuge where adverse impacts can be minimized. In accordance with Service policy 603 FW 2.11, compatibility is being re-evaluated based on current knowledge of the impacts of grazing and current refuge resource conditions. Stipulations necessary to ensure compatibility are outlined in this determination.

Availability of Resources

To comply with the Refuge Recreation Act (Public Law 87-714), the Project Leader/Wildlife Refuge Manager must determine whether sufficient resources—financial, staffing, facilities, or other infrastructure—are available to support the proposed use without materially interfering with the refuge purpose(s) or the mission of the National Wildlife Refuge System. This determination should be informed by a review of current capacity and, where applicable, the refuge's Comprehensive Conservation Plan (CCP).

Assessment of current resources and capacity

Grazing occurs through extensive reliance on grazing cooperators. Refuge responsibilities related to grazing occur through the use of existing staff, funding, equipment, and facilities. Refuge staff are needed to administer activities such as monitoring resource conditions, determining annual grazing conditions, preparing CAAs and SUPs, coordinating with livestock operators, and other related tasks. It is estimated that administering grazing on the refuge will require time from three FTE's (Full Time Employees) and the percentage of time required could vary per FTE. It is expected that grazing could require 5% of the Refuge Manager's time to conduct administrative tasks, 5% of the Biologist's time for monitoring and assessment, and 5% of the Equipment Operator's time to assist with grazing tasks as needed.

Impacts of changes to resources and capacity

The availability of resources is subject to change and the level of use provided may

vary based on current staffing, partner support, funding, or infrastructure conditions. Costs may increase over time, in relation to changes in the costs for equipment, maintaining facilities, etc. A substantial increase to the number of requests may also create the need for additional resources to administer the use. The Project Leader/Wildlife Refuge Manager will use sound professional judgment in evaluating whether the refuge or its partners can develop, operate, and maintain the use in a compatible manner.

If resource conditions shift such that the refuge can no longer sustain the use in a compatible manner, the Project Leader/Wildlife Refuge Manager may modify or suspend the use pursuant to 50 CFR 25.21 (or 50 CFR 36.42 for Alaska). The public will be notified of any changes to refuge uses, including temporary modification or suspension, re-evaluation of compatibility and/or discontinuing of refuge uses.

Anticipated Impacts of the Use

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

The effects and impacts of the proposed use to refuge resources, whether adverse or beneficial, are those that are reasonably foreseeable and have a reasonably close causal relationship to the proposed use. This CD includes the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an “affected resource.”

Impacts to wildlife, vegetation and soils, and water quality are summarized here. A comprehensive analysis of the impacts of livestock grazing is provided in the Draft Environmental Assessment for Grazing at Ruby Lake National Wildlife Refuge (USFWS, *in draft*).

Short-term impacts

Wildlife

The short-term impacts of livestock grazing to wildlife at Ruby Lake NWR are summarized here. For a full description of impacts to fish and wildlife, refer to the Draft Environmental Assessment for Grazing at Ruby Lake National Wildlife Refuge (USFWS, *in draft*).

Grazing and grazing operations may affect wildlife through temporary disturbance or displacement; changes in behavior or reproduction; alteration of wildlife habitat, including removal of available forage; and due to temporary fencing, if it is used. Disturbance would likely be highest when livestock are turned out and rounded up to be removed from the grazing area. Grazing can positively impact wildlife by creating short-grass areas for spring foraging by geese and other wildlife species. Prescribed grazing can serve as a habitat management treatment to open dense stands of

vegetation, create a diverse mosaic landscape of vegetation heights, promote new plant growth, and promote arthropod diversity, which can improve foraging and habitat conditions for some migratory birds and wildlife species.

The designated grazing unit is designed to avoid sensitive wildlife areas, such as known pygmy rabbit burrows and sage grouse areas. Grazing is not being offered in areas with known monarch habitat or milkweed and the area(s) being proposed for grazing is outside of proposed Critical Habitat for monarchs.

Wildlife disturbance from grazing would be seasonal, intermittent, and confined to access routes and the unit(s) being grazed. Refuge staff may alter or suspend grazing if unanticipated, adverse impacts to wildlife are detected.

Vegetation and Soils

The short-term impacts of livestock grazing to vegetation and soils at Ruby Lake NWR are summarized here. For a full description of impacts to vegetation and soils, refer to the Draft Environmental Assessment for Grazing at Ruby Lake National Wildlife Refuge (USFWS, *in draft*).

Grazing can adversely impact vegetation and soils through direct removal of biomass, trampling, erosion, and increased risk of spreading invasive species. Grazing during the dormant/late season (late summer and fall) would reduce the density of native and exotic grasses, including their thatch, but would be expected to have minimal effects on their long-term health and survival, because they would have already produced seed and senesced. Intensive or indiscriminate grazing in arid and semi-arid ecosystems can temporarily disturb and trample topsoil (BLM and USGS 2001, Floyd et al. 2003, Muscha and Hild 2006) and result in increased water and wind erosion (Belsky and Blumenthal 1997, van Oudenhoven et al. 2015). However, limited, seasonal grazing on nearly level sites is unlikely to trigger significant impacts to soils. Appropriate mitigation measures, including placing livestock on weed-free feed for at least 72 hours and washing all vehicles and equipment prior to entry onto the refuge, will help to ensure that invasive species are not introduced to grazed areas from outside of the refuge or other areas on the refuge where invasive species occur. When conducted appropriately, prescribed grazing can benefit vegetation in refuge meadows. Prescribed grazing may positively impact vegetation and soils by reducing residual dry matter and excessive vegetation biomass, adding nutrients to soil, providing a desirable mosaic of vegetation conditions, and promoting short-grass forage. Grazing intensity (animals per acre and duration) and time of year would be appropriately managed to capitalize on its advantages and avoid or minimize disadvantages to vegetation and soils.

There would be no expected effect to refuge wetlands or vegetation of special management concern, as these areas are excluded from the proposed grazing unit.

Impacts of grazing would be monitored, and grazing strategies would be adapted as needed to ensure that overgrazing of meadow vegetation does not occur.

Water Quality

The short-term impacts of livestock grazing to water quality at Ruby Lake NWR are summarized here. For a full description of impacts to water resources, refer to the Draft Environmental Assessment for Grazing at Ruby Lake National Wildlife Refuge (USFWS, *in draft*).

Unrestricted livestock grazing can degrade aquatic habitats and water quality through increased nutrients, sedimentation, and fecal bacteria; bank erosion due to trampling; and through alterations to stream channels and riparian areas (Grudzinski et al. 2020; Butler 2013). Grazing in riparian areas can increase the availability and transport of sediment, nutrients, and fecal indicator bacteria into streams, damaging aquatic systems and reducing water quality (Grudzinski et al. 2020; Grudzinski et al. 2016; Miller et al. 2016; Larsen et al. 2011; Hubbard 2004). Due to detrimental impacts of allowing cattle unrestricted access to streams and water bodies, cattle at Ruby Lake NWR would be confined to a limited area of refuge meadow via virtual fencing (and potentially temporary fencing if needed to protect sensitive resources), and would be excluded from known water resources and riparian areas. Limited, seasonal grazing in refuge meadows, with appropriate buffers around aquatic resources, will help to ensure that any adverse impacts to water resources are minor and temporary.

Long-term impacts

Potential long-term impacts of livestock grazing could include introduction or increase in persistence of invasive plant species; loss of residual nesting cover for some species; improved structural diversity of vegetative communities, resulting in better nesting and foraging cover for some species; and improved forage and foraging habitat for migratory birds. Grazing impacts will be assessed annually to ensure that resources are not degraded, and long-term, adverse impacts do not occur. Refuge staff reserve the right to alter grazing conditions or suspend grazing in any given year to protect resource integrity. With implementation of appropriate best management practices and the annual adaptation of grazing conditions as needed, long-term, adverse impacts are not expected.

Public Review and Comment

The draft compatibility determination will be available for public review and comment for 21 days. The State of Nevada and the Te-Moak Tribe of Western Shoshone, Duckwater Tribe, Shoshone-Paiute Tribes of Duck Valley, Ely Shoshone Tribe of Nevada, and Confederated Tribes of the Goshute Reservation have been asked directly to review and comment on the draft compatibility determination. The public will be made aware of this comment opportunity through email notifications to

potentially interested parties such as adjacent landowners, partners, and Federally recognized Tribes. A hard copy of this document will be posted at the Refuge Headquarters at 305 Ruby Valley Road, Ruby Valley, NV 89833-9802. It will be made available electronically on [the refuge website](#). Please let us know if you need the documents in an alternative format. Concerns expressed during the public comment period will be addressed in the final determination.

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

1. Livestock operators are authorized to graze on the Refuge through issuance of a Cooperative Agricultural Agreement and a Special Use Permit. Renewals are contingent upon compliance with these stipulations, general and special conditions of the permit, and the results of monitoring data demonstrating the value of the grazing program for target habitats and wildlife.
2. Generally, livestock operators are authorized to graze on the Refuge from August 1 through December 31 through the prescribed grazing program. The Refuge Manager would reserve the right to alter the dates that grazing is initiated and terminated, alter the area in which grazing would be permitted in any given year, or to not issue grazing permits during some years based upon biological needs, precipitation levels/drought, wildfire-related concerns, staffing levels, or at the discretion of the Refuge Manager.
3. Livestock operators shall be required, at the discretion of the Refuge Manager, to put livestock used in the Refuge grazing program on weed-free feed for at least 72 hours prior to letting them on the Refuge. Additionally, prior to arrival on the Refuge, livestock operators shall be required, at the discretion of the Refuge Manager, to clean all vehicles, machinery, and other equipment of non-native plant and animal matter.
4. Livestock operators shall ensure that grazing livestock are appropriately confined to identified areas/pastures using virtual fencing. Temporary fencing may be authorized at the discretion of Refuge staff. Operators are responsible for ensuring that livestock are not allowed to roam across the Refuge or onto neighboring lands outside of the identified grazing area, nor are able to access sensitive streams and springs. Operators are responsible for locating and removing livestock that stray from identified grazing areas (elsewhere on the Refuge or on adjacent lands) within 24 hours of notification by Refuge staff and for properly monitoring and maintaining virtual and temporary fencing. Operators are responsible for removing temporary fencing at the end of each

grazing season.

5. Livestock operators are prohibited from applying fertilizers, pesticides (including fungicides, herbicides, and insecticides), or biological controls on Refuge lands or waters. If, during the Refuge grazing period, there is a substantial outbreak of flies or other livestock pests, ranchers are responsible for providing all information necessary to submit an accurate and complete pesticide use proposal (PUP) to the Service for consideration. Control actions are prohibited until the Service approves the PUP. If the PUP is approved, the operator would be responsible for documenting all required information and reporting to the Service. The operator is responsible for obtaining and maintaining all necessary certifications required for pesticide application.
6. Livestock operators are prohibited from conducting predator-control activities on the Refuge.
7. Livestock operators are prohibited from bringing other animals and pets onto the Refuge, with the exception of dogs and horses used in managing livestock; guard animals; and legitimate, leashed guide/service animals. All other pets must be contained in a vehicle.
8. Livestock use would not be permitted within at least 100 feet on either side of a known water body or wetland, to protect water quality and riparian resources.

Justification

The stipulations outlined above would help ensure that grazing is compatible at Ruby Lake NWR and, as outlined in this compatibility determination, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgement, the Service has determined that grazing at Ruby Lake NWR, in accordance with the stipulations provided here, would not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose of the Refuge. Rather, appropriate and compatible grazing would be a use on Ruby Lake NWR through which the public can develop an appreciation for managing wildlife habitat.

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2036

Literature Cited/References

- Belsky, A.J. and D.M. Blumenthal. 1997. Effects of Livestock Grazing on Stand Dynamics and Soils in Upland Forests of the Interior West. *Conservation Biology*.11 (2): 315-327.
- [BLM and USGS] Bureau of Land Management and U.S. Geological Survey. 2001. Biological Soil Crusts: Ecology and Management. Technical Reference 1730-2.
- Butler, D.R. 2013. Grazing influences on geomorphic systems In: Shroder LA, James, Harden CP, Clague JJ (ed) *Treatise on geomorphology*, vol. 13 Academic, San Diego, CA, pp 68-73
- Floyd, M.L., T. L. Fleischner, D. Hanna, and P. Whitefield. 2003. Effects of historic livestock grazing on vegetation at Chaco Culture National Historic Park, New Mexico. *Conservation Biology*. 17(6): 1703-1711.
- Grudzinski, B., M.D. Daniels, K. Anibas, D. Spencer. 2016. Bison and cattle grazing management, bare ground coverage, and links to suspended sediment concentrations in grassland streams. *J Am Water Resour Assoc* 52:16-30. [Journal of the American Water Resources Association - Wiley Online Library](#)
- Grudzinski, B., K. Fritz, and W. K. Dodds. 2020. Does riparian fencing protect stream water quality in cattle-grazed lands? *Environmental Management* 66:121-135.
- Hubbard, R.K., G.L. Newton, and G.M. Hill. 2004. Water quality and the grazing animal. *J. Anim Sci.* 2004;82 E-Suppl:E255-263
- Larsen, S., Pace, G., Ormerod, S.J. 2011. Experimental effects of sediment deposition on the structure and function of macroinvertebrate assemblages in temperate streams. *River Research and Applications* 27:257-267. [River Research and Applications - Wiley Online Library](#)
- Miller, J.J., E. Bremer, T. Curtis. 2016. Influence of organic amendment and compaction on nutrient dynamics in a saturated saline-sodic soil from the riparian zone. *J Environ Qual* 45:1437-1444. [Journal of Environmental Quality - Wiley Online Library](#)
- Muscha, J.M. and A.L. Hild. 2006. Biological soil crusts in grazed and ungrazed Wyoming sagebrush steppe. *Journal of Arid Environments*. 67: 195-207.
- [NRCS] Natural Resources Conservation Service. 2009. Estimating Initial Stocking Rates, Technical Note. USDA – Natural Resources Conservation Service. Boise, Idaho.

- Open Range Consulting. 2018. Final Report: Ruby Lake NWR Habitat Assessment. Prepared for U.S. Fish and Wildlife Service, Pacific Southwest Region, National Wildlife Refuge System. August 1, 2018.
- [USFWS] U.S. Fish and Wildlife Service. 1981. Habitat Management Plan, Ruby Lake National Wildlife Refuge. Ruby Valley, Nevada.
- [USFWS] U.S. Fish and Wildlife Service. 1994a. Compatibility Determination for Livestock Grazing and Haying at Ruby Lake National Wildlife Refuge.
- [USFWS] U.S. Fish and Wildlife Service. 1994b. Environmental Assessment: Haying and Livestock Grazing at Ruby Lake NWR. Ruby Valley, Nevada.
- [USFWS] U.S. Fish and Wildlife Service. 1996. Review of the Ruby Lake NWR (RLNWR) Grazing Program. Division of Refuge Operations Support, Vancouver, WA.
- [USFWS] U.S. Fish and Wildlife Service. 2022. Sagebrush and Salt Desert Scrub Ecosystem Management Plan. U.S. Fish and Wildlife Service, National Wildlife Refuge System, Department of the Interior Unified Regions 8 & 10 (Legacy Region 8, Pacific Southwest Region), Sacramento, CA. [ServCat](#)
- [USFWS] U.S. Fish and Wildlife Service. *In draft*. Draft Environmental Assessment for Grazing at Ruby Lake National Wildlife Refuge. Ruby Valley, NV.
- van Oudenhoven, A.P., Veerkamp, C.J., Alkemade, R. and Leemans, R., 2015. Effects of different management regimes on soil erosion and surface runoff in semi-arid to sub-humid rangelands. *Journal of Arid Environments*, 121, pp.100-111.

Figure(s)



Figure 1. Proposed grazing unit at Ruby Lake National Wildlife Refuge.