

**Draft Compatibility Determination**  
**For**  
**Prescribed Grazing as a Habitat Management Tool**  
**Red Rock Lakes National Wildlife Refuge**

**Refuge Use Category**

Agriculture, Aquaculture, and Silviculture

**Refuge Use Type**

Grazing

**Refuge**

Red Rock Lakes National Wildlife Refuge

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

Executive Order 7023, April 22, 1935;

Executive Order 7172, September 4, 1935;

National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. § 668ddee)

National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57

Migratory Bird Conservation Act of 1929 (16 U.S.C. § 715i)

Endangered Species Act of 1973, 16 U.S.C. § 21531 - 1544

Fish and Wildlife Act of 1956, 16 U.S.C. 742a-j

Fish and Wildlife Coordination Act (16 U.S.C. 661-667e)

Federal Grant and Cooperative Agreement Act (31 U.S.C. 6301-08).

505 Departmental Manual (DM) 2, Procurement Contracts, Grant and Cooperative Agreements.

National Wildlife Refuge System Regulations, Economic Uses and Cooperative Land Management (50 CFR 29.1-2 (1960)).

Service Manual, 620 FW 2, Cooperative Agriculture Use

**Refuge Purpose(s):**

“... as a refuge and breeding ground for wild birds and animals.” Executive Order 7023, dated April 22, 1935

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

“... suitable for— (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ...” 16 U.S.C. § 460k-1 “... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ...” 16 U.S.C. § 460k-2 (Refuge Recreation Act (16 U.S.C. § 460k-460k-4), as amended).

“... the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ...” 16 U.S.C. § 3901(b) (Emergency Wetlands Resources Act of 1986)

“... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

“... conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans...” 16 U.S.C. § 668dd(a)(2) (National Wildlife Refuge System Administration Act)

"... wilderness areas ... shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness: ..." 16 U.S.C. § 1131 (Wilderness Act)

## **National Wildlife Refuge System Mission**

The mission of the National Wildlife Refuge System, otherwise known as 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 reviews and replaces the June 2009 compatibility determination for Prescribed Grazing as a Management Tool.

### What is the use?

The Refuge currently uses cattle livestock (henceforth livestock) grazing as a tool to manage wet meadow, grassland, and shrub-steppe habitats. Livestock grazing is designed to mimic some of the behaviors and grazing habits of bison, which were formerly present on the Refuge's landscape around the mid-1800s. Grazing by livestock is a preferred management tool because the effect on habitat is controllable, measurable, and can mimic bison grazing. It has the additional benefit of reducing wildfire risk by reducing the amount of light fuels that can carry a fire. Livestock grazing is utilized in a variety of ways including: high intensity–short duration, rest rotation, and complete rest. Since the mid-1990s, grazing rates have ranged from 0.31 – 0.85 animal unit months (AUMs) per acre with an average of 4,165 AUMs used annually. Actual rates per field vary substantially depending on the site and seasonal weather conditions, with some grazing unit rates being as low as 0.02 AUMs per acre and others as high as 2.17 AUMs per acre. The Refuge currently has 26 sub-units where grazing is being utilized as a management tool. Fences are used to protect riparian areas.

### Is the use a priority public use?

No

### Where would the use be conducted?

Grazing is conducted in the Refuge's 26 sub-units consisting of upland habitats, which are divided into estimated acreages: wet meadow (7,491 ac.), grassland (14,005 ac.), and shrub-steppe (6,581 ac.) and the Refuge's State leased lands, which are divided into 7 sub-units: wet meadow (190 ac.), grassland (3,140 ac.), and sagebrush-steppe (4,898 ac.).

Elk, deer, rodents, foxes, coyotes, birds of prey, migratory and grassland nesting birds are periodically present in these areas. Fifty-two and a half percent (52.5%) of Refuge lands utilize intermittent rotational grazing for habitat management. Wildlife friendly, drop, and temporary fencing is used to protect riparian areas.

### When would the use be conducted?

Grazing may commence in early/mid-summer and may continue until October 1<sup>st</sup> each year. Exact time and dates vary per unit in accordance with habitat and management objectives in the Refuge Comprehensive Conservation Plan (CCP).

## How would the use be conducted?

Grazing is administered in accordance with a Cooperative Agriculture Agreement (CAA) consisting of a Commercial Special Use Permit (SUP) having special conditions and a detailed Plan of Operations outlining allowable AUMs, on-off dates, unit locations, unit rotations, and specific instructions pertinent to grazing. The use of temporary and wildlife friendly fencing while a unit is receiving a grazing treatment will be employed to protect sensitive riparian areas.

Select grazing units may receive annual grazing treatments consisting of high intensity-short duration, extended rest, complete rest, and/or on a rotational grazing schedule where units are eligible to receive a 90-to-110-day graze and are then rested for two to three years to achieve desired CCP objectives and landscape habitat heterogeneity.

## Why is this use being proposed or reevaluated?

This compatibility determination reviews and replaces the June 2009 compatibility determination for Prescribed Grazing as a Management Tool. Reevaluation is required per policy 603 FW 2.11 H(2), less those compatibility determinations specifically authorized for a term longer than 10 years.

The Refuge lies within the Centennial Valley and was known to have bison on the landscape as their summer range; as such, the landscape's flora and fauna have evolved over millennia with grazing.

The CCP has established goals and objectives for specific habitat types (e.g. grassland, wet meadow, shrub-steppe) where prescribed grazing may be utilized. In addition, target wildlife species (e.g. sandhill crane, long-billed curlew, sage thrasher, greater sage-grouse, northern pintail, Brewer's sparrow) and their habitat requirements have been identified. This has resulted in objectives that help guide management to meet target wildlife species and their habitat needs. Different grazing strategies will be implemented and assessed in order to determine the best methods for the Refuge to meet the identified habitat goals and objectives of the CCP, as well as combat the spread of invasive graminoids and forbs present in some units. Furthermore, the Refuge will undertake periodic vegetation and wildlife monitoring in order to assess habitat and wildlife population responses to prescribed grazing.

## **Availability of Resources**

The Refuge has three staffing positions that assist with grazing. In addition, seasonal hires have assisted with monitoring and conducted research related to grazing; the Refuge expects to continue this practice into the future. The Refuge has completed a detailed vegetation inventory utilizing the U.S. National Vegetation Classification Standards. Data were collected during the summers 2005 – 2007. Field surveys were

digitized and a database for geographic information systems (GIS) was generated. The Refuge will use this data to design future monitoring protocols for assessing prescribed grazing on the Refuge. Moreover, beginning in the summer of 2023, the Refuge is embarking on a comprehensive periodic vegetation monitoring program that includes a bird monitoring component. This monitoring program will provide Refuge management information needed to make informed wildlife and habitat management decisions pursuant to goals and objectives outlined in the CCP using prescribed grazing as an adaptive management tool.

## **Anticipated Impacts of the Use**

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

Prescribed grazing as a management tool is intended to be utilized to meet habitat and species-specific goals and objectives identified in the CCP, as well as replicate habitat and landscape conditions created by bison. This management is intended to maintain and enhance habitat conditions for the benefit of a wide variety of fish and wildlife that utilize the Refuge and includes combating invasive graminoids and forbs. Grazing has the additional benefit of reducing wildfire risk by reducing the amount of light fuels that can carry a fire. Minimal negative impacts, equal to or perhaps even less than what may have occurred during the former presence of bison, are expected through the use of this tool, to include within wilderness areas. Wilderness character will remain unchanged or may be expected to improve through removal of excessive thatch. Some trampling of areas may occur around watering areas or mineral licks, though no more than what may have occurred with large numbers of bison in areas where they congregated or wallowed. Fences are maintained and strategically employed to meet habitat objectives and prevent degradation of sensitive riparian areas. Grazing will be in a mosaic pattern throughout the landscape with some areas more intensively grazed than others in certain years to achieve habitat heterogeneity, which could reasonably be expected to have happened when bison were present. In addition, while the presence of livestock may disturb some wildlife species, just as with bison, and some public visitors, the benefits of this habitat management tool are felt to outweigh these negative impacts pursuant to findings in the Refuge's 1994 Environmental Assessment (EA) for Management of Upland Habitats. Conversely, continuous rest without periodic disturbance fails to promote long-term grassland health (Naugle et al. 2000). With extended rest, introduced grasses, especially smooth brome and Kentucky bluegrass, may more rapidly displace native vegetation (Murphy and Grant 2005). The Refuge has known populations of these introduced invasive graminoids and employs grazing as a tool to help combat their spread.

While bison were mentioned during public comment, there is no existing planning document or NEPA to support the reintroduction on the Refuge. To fill this historic role by bison, the Refuge has used domestic bovines, being their closest relative.

Concurrently, the Refuge has migratory populations of elk, pronghorn, mule deer, and some moose. Establishing a herd of bison to graze the Refuge would require disruptive infrastructure to prevent them from straying onto lands other than the Refuge and subsequently being destroyed. Infrastructure of this magnitude would inhibit migratory patterns of ungulates, as well as inhibit the movement of large apex predators and meso-carnivores, provide birds of prey unnatural perches, compromise survival of grassland nesting birds, disrupt natural gene flow of fauna, and disrupt the natural ecosystem processes throughout the entire Refuge. In addition, infrastructure required for bison may degrade the visual appeal of the natural landscape. Additionally, the Centennial Valley and subsequently the Refuge, were known to be a summer range for bison; as such, bison would have to be transported to and from the Refuge, which is neither practical nor possible.

Cattle grazing occurred historically, prior to establishment of the Refuge and designated Wilderness Area. Much comparison has been made between bison and cattle. The two species are different, but cattle provide the ecosystem service of grazing similar to bison in the manner in which they feed. Excluding cattle grazing exposes the landscape vegetation that has evolved with grazing to something it has not evolved with over millennia – not being grazed, which can lead to non-native and introduced species establishing and overtaking native vegetation (Naugle et al. 2000, and Murphy and Grant 2005).

Per Chris Helzer, the Director of Science for The Nature Conservancy in Nebraska, writes in a January 2014 article within the publication *The Prairie Ecologist*: “research projects have largely compared bison and cattle under very different circumstances.” He goes on in the article to reveal that under the same circumstances, cattle generally do mimic the feeding behaviors of bison (*The Prairie Ecologist*, January 2014).

### Short-term impacts

Potential disturbance to some wildlife species and some public users may occur.

Grazing by domestic livestock removes and tramples some or much of the standing vegetation from a tract of grassland. In general, grazing will decrease vegetative heights and litter depths and affect plant composition. The measure of short-term impacts will depend upon the grazing timing (time of year), duration (length of graze), and utilization level (i.e., light, moderate, or full, as it pertains to biomass remaining in a unit). Depending on the latter of the three factors, hoof action is expected to break up litter thereby increasing the rate of litter decomposition, opening up the ground for natives to express, and aid in nutrient cycling. Areas around watering systems, along fence lines, and at the location of mineral blocks may experience heavy trampling and compaction resulting in the mortality of perennial vegetation and the establishment of early successional species, just as could have been expected in areas where bison congregated.

Varying bird species differ in their vegetation height preferences; as such, the management goal is to provide a heterogeneity of vegetation heights across the landscape. Pollinators are similar in their need for a heterogeneity of heights and plant species. Following a graze, depending on the remaining vegetation height, a site will be more or less attractive for use by certain wildlife species during the respective growing season. Birds that prefer shorter stature grasslands may benefit from the reduced vegetative height resulting from grazing while others, which typically require taller and more dense nesting structure, may be negatively impacted by grazing in the short-term.

In situations where grazing utilizations are full, there may be less litter available for grassland nesting birds who utilize this material for nest construction. However, grazed areas may attract fewer predators because of low densities of some types of prey, such as small mammals (Grant et al. 1982, Runge 2005); less cover for concealment; or both. Higher nesting success in grazed fields may occur because predators respond negatively to low prey density (Clark and Nudds 1991, Larivière and Messier 1998). If a site is completely devoid of litter prior to winter, certain pollinator larvae may lack the needed cover to survive for that year. The same could reasonably have been expected to happen with a large herd(s) of bison present on the landscape when and where they may have congregated for extended periods of time.

Research conducted on the Refuge has found impact from grazing ranging from minimally negative to favorable. Current grazing practices have been shown to have little effect on sage-grouse, a noted species of concern (Schroff 2016 MSU). In fact, a long-term study has concluded that grazing in sage-steppe areas largely occurs after nesting periods of sage-grouse (Cutting 2021 MSU). Rodents are an important component in many ecological systems, providing food sources for a number of meso-carnivore and aerial predators. Rest periods of two and three years between grazing treatments in wet meadows has shown to allow sufficient vegetation structure for voles to positively respond and that in fact, grazing units having the most rest between grazes showed the lowest apparent survival (Welham et al. 2013). The Refuge employs a 2-3 year rest period between grazing treatments which is beneficial to the rodents. Another study by (Stadum et al. 2016) found that the current grazing program provides the structure of vegetation heterogeneity that favors nesting long-billed curlews, another species of concern, on the Refuge. She also cites (Redmond and Jenni 1986) who observed curlews nesting in previously recent grazed areas. Important to note also is that the rotational grazing regimen the Refuge uses provides areas having taller grass that sandhill cranes prefer while nesting, brood-rearing, and foraging (Stadum et al. 2016). (Stadum et al. 2016) further explains how “prescriptive livestock grazing can be used to provide structurally diverse grassland and wet meadow habitats for species with seemingly disparate structural preferences within the same habitat type. Managing grassland and wet meadow habitat for species that exist on opposite ends of a disturbance preference gradient presumably incorporates the needs of species with intermediate preferences”.

## Long-term impacts

Improved habitat conditions for wildlife, to include target bird species in their respective habitats, is expected. A return to fully functioning ecosystem conditions that more closely resembles what could have been expected when bison were present on the landscape.

The effect of removal of vegetation increases the vigor of the grassland by stimulating the tillering and growth of desired species of grasses and forbs and reducing the abundance of targeted species such as cool season exotic grasses, woody species, noxious weeds, and invasive species. During periods of typical precipitation, normal regrowth following grazing activities can occur within a single growing season. While typically small in relation to the larger grazing unit, areas with heavy livestock concentrations (e.g., watering areas, mineral block sites) may require 2-3 years to fully recover from the impacts of grazing, which is the typical rest-rotation timeline the Refuge employs on most units, less those where active restoration activities are planned. Over time, a strategic prescribed grazing program could effectively alter species composition and improve overall plant diversity. Disturbance of grassland, wet meadow, and some shrub-steppe habitats is essential to maintain plant vigor and reduce infestations of noxious weeds.

As vegetative heights recover following a grazing treatment, habitat conditions will favor birds which prefer denser nesting structure and may become less favorable to species that prefer sparser vegetation. Because of rapid regrowth of herbaceous vegetation, no long-term negative impacts are anticipated for waterfowl or other grassland, wet-meadow, or shrub-steppe nesting bird species, though positive impacts of increased diversity and heterogeneity are likely in the long-term.

Negative effects of grazing on a grassland and the associated wildlife may occur under scenarios where grazing occurs every year, at the same time, using the same utilization, or where there is season-long grazing that annually occurs. Homogenous vegetation height and litter depths that would be created by this annual management scenario, will likely be attractive only to the suite of birds that prefer this type of cover type. Grazing of this type only occurs as a 30-day long high intensity, short duration graze on the Refuge and is used solely in a unit(s) where the vegetation component is greater than 70% of invasive smooth brome. This type of grazing depletes smooth brome of its energy stores, precludes its reseeding and spread of seed, and prepares this unit for further future management activities, which include a full restoration to a natural component of native grasses and flowering forbs. Upon restoration completion whereby said unit(s) have been returned to their naturally functioning ecosystem state, said unit(s) will assume a 2-3-year rest rotation grazing regimen similar to other grazing units.

## Public Review and Comment

A draft of this Compatibility Determination was released on May 31, 2023 for a 14-day



comment period through June 14. Public notification included a notice at the Refuge Headquarters and on the Refuge website. Comments from Wild Earth Guardians and two individuals were received. These comments were primarily in opposition to livestock grazing and suggested the reintroduction of bison instead. Concerns expressed during the comment period were addressed in this final document.

## **Determination**

Is the use compatible?

Yes

### **Stipulations Necessary to Ensure Compatibility**

1. All grazing activities will be conducted in accordance with the CAAs and conditions of the SUPs.
2. Implement periodic vegetation monitoring with a wildlife component to assess vegetation species composition in differing habitats and if focal bird species habitat requirements, as set forth in the CCP, are being met.
3. Maintain existing riparian fences and use wildlife friendly, drop, and temporary fencing as needed to protect riparian habitats from cattle.

## **Justification**

Conservation and management mean to sustain and, where appropriate, restore and enhance healthy populations of fish, wildlife, and plants utilizing, in accordance with applicable Federal and State laws, methods, and procedures associated with modern scientific resource programs. These definitions denote active and adaptive management and are in keeping with the House report on the Act which states that the “Refuge System should stand as a monument to the science and practice of wildlife management.” It thus follows that if an economic use of a natural resource is shown to be conservation and management as defined in the Act, it does contribute to the mission by the very definition of terms used. If a use contributes to the mission, it thus meets the standard or threshold established in 50 CFR 29.1. In accordance with 50 CFR 29.2, cooperative grazing as described in this compatibility determination, significantly contributes to the mission, purposes, goals, and objectives of the Refuge.

To maintain and enhance habitat for migratory birds and other wildlife, some habitat management must occur. Prescribed grazing utilizing livestock is one option that can be used to achieve these desired habitat conditions. Prescribed grazing is a useful tool because it can be controlled, and results of the grazing can be periodically monitored (e.g. vegetation monitoring) so that adjustments in the grazing program

can be made to meet habitat goals and objectives.

The Refuge's CCP provides detailed information and rationale for grazing as a management tool to achieve habitat management. Notably, adaptive management through prescribed grazing "...is most responsive to the purpose for which the Refuge was established", "...insures that the management of upland habitats remains compatible with the Refuge purpose of providing a '...refuge and breeding ground for wild birds and animals'", and "Overall, desirable animal impact occurs as dead plant material is removed, regrowth stimulated, capped soils broken up, and nutrients cycled. Periodic removal of decadent plant material by cattle provides succulent forage for elk, moose, and improved structure of nesting cover for wildlife."

Importantly, the EA and CCP provides some insight about the former presence of bison in the Centennial Valley as their summer range, which would also subsequently include the Refuge, and [some of] their behaviors and grazing habits, along with those of domestic cattle livestock, and the impacts each species has or could expect to have had on the landscape. This information is harnessed and employed in an effort to reproduce what is thought to have occurred in the mid-1800s relative to bison grazing and pursuant to the guidance of the goals and objectives found in the CCP as they relate to grazing wet meadows, grasslands, and shrub-steppe habitats.

### **Signature of Determination**

### **Refuge Manager Signature and Date**

### **Signature of Concurrence**

### **Assistant Regional Director Signature and Date**

### **Mandatory Reevaluation Date**

2033

### **Literature Cited/References**

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