

CREATING GRAZING HABITAT MANAGEMENT STRATEGIES FOR A NATIONAL WILDLIFE REFUGE

S.C. Davis^{1*} and K.A. Cutting²

¹Department of Animal and Range Sciences, Montana State University, Bozeman, MT 59717
and ²Red Rock Lakes National Wildlife Refuge, Lima, MT

Impact Statement

This report should be useful for land managers interested in using prescriptive cattle grazing to create desired habitat states. It can aid in understanding the process of developing grazing-related habitat management strategies.

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SUMMARY

A habitat management plan for grazing serves to guide the management of conservation lands and explains how prescriptive cattle grazing can be used to prevent a decline in rangeland quality and maintain or improve wildlife habitat. Habitat management strategies developed for a National Wildlife Refuge focus on using stocking rate, period of rest, timing of grazing, invasive species control, and prescribed fire and grazing to help meet wildlife habitat objectives. Adaptive management and future monitoring are key to ensuring the success of this habitat management plan.

INTRODUCTION

Land managers have the ability to create and modify wildlife habitat by utilizing various management tools. Prescriptive cattle grazing has been used as a management tool for maintaining or creating wildlife habitat at Red Rock Lakes National Wildlife Refuge (RRLNWR) in southwest Montana. Grazing predominately occurs in three habitat types at RRLNWR- wet meadow, grassland, and shrub-steppe.

Prescriptive grazing could be used to meet habitat objectives that have been defined in the RRLNWR Comprehensive Conservation Plan (CCP); a 15-year vision used to direct land management. CCP

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objectives are based on habitat type to create a desired habitat state for target wildlife species. Target wildlife species for wet meadows include northern pintail, short-eared owl, long-billed curlew, sandhill crane, and greater sage-grouse. Target species for grasslands include Swainson's hawk and Ferruginous hawk, while Brewer's sparrow and greater sage-grouse represent target species for shrub-steppe. The overarching management goal for RRLNWR is to provide a mosaic of habitats that meet the life history requirements of the target species.

Despite several scientific studies and targeted management actions, little has been done to synthesize this existing knowledge for a more comprehensive assessment of grazing management across the refuge. The objective of developing a habitat management plan (HMP) for grazing is to guide the management of refuge habitat and provide managers a decision making framework. Grazing habitat management strategies are developed through the utilization of existing studies done at RRLNWR, monitoring data, scientific literature, and staff expertise (Figure 1).

PROCEDURES

Red Rock Lakes National Wildlife Refuge is located in the Centennial Valley of Beaverhead County in southwest Montana. The elevation ranges from 6,670 to 9,400 feet above sea level. Management takes place within grazing units that range from 25 to 2,789 acres and occupy 34,684 of ~60,000 acres of total RRLNWR land. Vegetation

surveys were conducted in 2014 in all grazing units (35 total) at RRLNWR. We randomly selected one sampling point within each habitat type per grazing unit for permanent monitoring (63 points total).

As defined in the CCP, certain vegetation attributes (e.g., vegetation height, forb cover, etc.) are important habitat components that influence wildlife populations. To examine if habitat requirements for target species are being met, we sampled 1) vegetation height using averages, 2) canopy cover of various groups (i.e., native graminoid, exotic graminoid, forb, litter, and bare ground) using a 7.87 in x 19.69 in Daubenmire frame (Daubenmire, 1959), and 3) shrub canopy cover using a line intercept technique (Bauer, 1943). Stocking rates were updated for each grazing unit based on useable forage production data collected in 2014. We also established two permanent photopoints at each sampling point to assess long-term changes and revisited historic transects to understand 40-year trends in native versus exotic grasses.

Interpreting the current habitat state will give an assessment of grazing management and if the habitat requirements are being met for target species. Assessing monitoring data by grazing unit will allow land managers to understand how the grazing history may have led to current habitat attributes and allow for focused prescriptive grazing plans.

RESULTS AND DISCUSSION

Grazing habitat management strategies by habitat type and prescriptions by grazing unit were developed through the process outlined in Figure 1. Achieving desired habitat objectives for target species can occur through altering components of the grazing regime such as stocking rate, period of rest, and timing of grazing.

For each habitat management strategy we provide a definition, how it can be implemented as a management tool in this

type of environment, and current usage at RRLNWR. To balance the sometimes conflicting habitat requirements of target species, management strategies are recommended by habitat type and prescribed by grazing unit to create a mosaic of habitat attributes across the refuge. Prescriptions by grazing unit take into account the past grazing history of the unit and management constraints (e.g., consideration of wilderness, management flexibility, climatic conditions, and budgeting). Examples of grazing habitat management strategies are given below:

Stocking rate: A mixture of conservative and moderate updated stocking rates should be followed in wet meadow dominated grazing units to provide habitat for a variety of target species with conflicting habitat requirements.

Period of rest: Continue following a three year rest-rotation, but give a minimum of five years rest in grazing units in which there is less than 5% exotic graminoid cover in order to prevent potential spread of exotic graminoids into fairly pristine units. Longer periods of rest may be required for riparian willow recovery (3+ years) and temporary electric fencing should be used to protect a portion of sensitive riparian areas from heavy grazing.

Timing of grazing: Limit early season grazing (prior to mid-July) in known key areas for bird nesting and brood-rearing in order to help mediate grazing impacts on target species that require forbs and Hemiptera as a food source in June (Davis et al., 2014).

Invasive species control: Experiment with prescribed burning at the time of smooth brome tiller elongation in units where there are more than 20% of tall, native grasses (Willson and Stubbendieck, 2000). Preventative measures to limit the spread of invasive species can also include restricting travel by ATVs to established roads and trails and avoid moving livestock from weedy

areas into weed-free areas (Goodwin et al., 2012).

Prescribed fire and grazing: Conduct prescribed burns before the onset of grassland bird nesting or in the fall to avoid potential negative effects on grassland birds. Increased stocking rates for 1-2 years after controlled fire has been suggested as a potential way to reduce vegetative cover, allow reinitiation of active blowouts, and increase the proportion of early seral vegetation in the Centennial Sandhills (Lesica and Cooper, 1999). This strategy should be tested and monitored in grazing units with sandhill areas.

A key point to this HMP is the importance of adaptive management and an emphasis on future monitoring of wildlife populations and habitat. Grazing management needs some flexibility, especially in a high-elevation system with varying climatic conditions. Additionally, some grazing management strategies may need to be further examined and tested before implementing across large areas (e.g., prescribed burning to target invasive species). Therefore, monitoring habitat conditions before and after treatment, with replication, will be key to understanding the success of the strategy.

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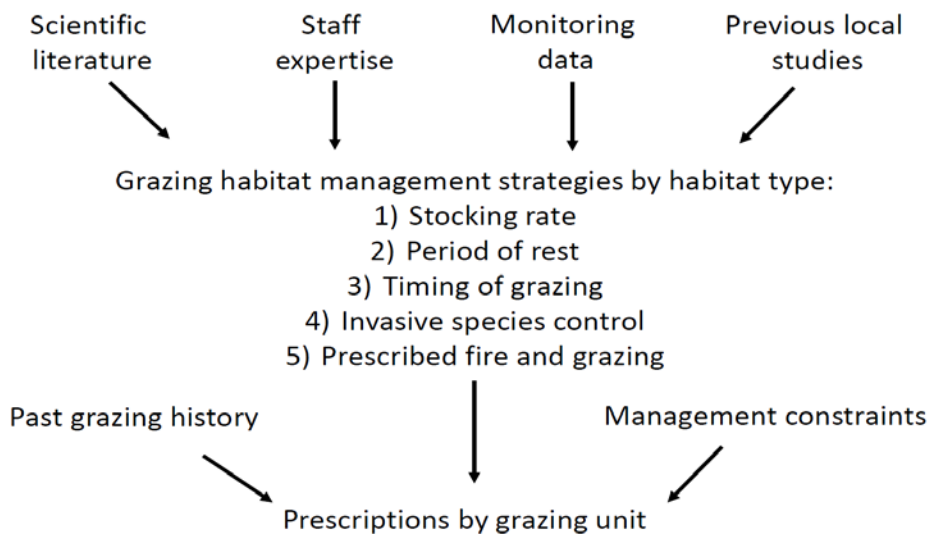


Figure 1: Conceptual diagram of the process of developing grazing habitat management strategies and prescriptions