

PROJECT TITLE: Developing a protocol to monitor grazing effects on priority resources in sage steppe habitat at Charles M. Russell NWR.

FY
Requested Funded
2015 2015

Project Proposal

NWR: CHARLES M. RUSSELL NATIONAL WILDLIFE REFUGE

RFP ID: 61520-214-2014

Project Type:

Monitor

Focus:

Habitat Utilization

Scale:

Station

☒ Staff Biologist?

☒ This proposal has station support?

☒ FWS protocols were followed regarding data management?

☒ This proposal supports a priority in a CCP/ HMP or other refuge plan?

Understanding and applying prescriptive grazing is an important objective outlined in CMR's CCP. This proposal is to develop a tool to evaluate grazing effects on priority resources and thus determine success and failure of habitat management efforts. The monitoring of these resource effects will also be a priority for the refuge's upcoming HMP process. Developing a quality monitoring protocol for grazing effects will help CMR move closer to applying prescriptive grazing on the landscape and it will serve as a cornerstone in the refuge's Habitat Management Plans and Inventory and Monitoring Plans.

☒ This proposal supports a "Top Region 6 Priority"

PROJECT DESCRIPTION

Our purpose is to create a protocol, according to the I and M protocol handbook, for monitoring the effects of habitat management at CMR on priority resources. Fire and grazing are the 2 most significant habitat management tools available at this refuge. Of these 2, domestic livestock grazing is currently the most controllable and wide spread. CMR has a long history of grazing management and several resources that are refuge priorities that can be directly affected by grazing. Among these priorities are: greater sage grouse, sharp tailed grouse, and sage steppe vegetative communities. Furthermore, this protocol's purpose will be to provide CMR with a monitoring tool to evaluate management for the long term, it is not intended to be applied for a one-time experiment. Instead, the purpose of this protocol is to provide CMR staff a tool that can be used, as needed, without requiring significant additional resources (large contracts, specialists, graduate researchers, etc).

OBJECTIVES

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This proposal's objective is to pair refuge biology staff with biometrician and data analyst consultants to produce an experimental protocol that can be applied on CMR to assess the effects of the refuge's habitat management. The protocol would consist of an experimental design, sampling design and techniques, and analysis that specify how to set up an experiment and evaluate the treatments impact on specific refuge resources. The resulting protocol would not limit CMR to specific treatments nor would it determine the standards for success or failure in response variables. This tool would be the frame work that CMR needs to evaluate management through quantifying resource effects. Ideally, this protocol would also be useful to assess the value of other habitat management practices on the refuge, be applicable to various habitats on CMR, and relevant to similar refuges in the region (Arapaho, Red Rocks Lakes, Seedskaadee, etc).

DESIGN AND METHODS

We plan to develop this protocol with refuge biology staff, a contracted biometrician consultant and a data analyst. This protocol will include: Study design- We will collaborate with a biometrician to determine the best design for our needs; currently we are most interested in a Before-After Control-Impact design. Sampling techniques and effort- We will collaborate with USFWS staff, specialists, a biometrician and a data analyst to determine the optimal sampling techniques to address effects on our 3 response variables (greater sage grouse, sharp tailed grouse, and sage steppe vegetative communities). Optimal will be determined by considering both the quality of data that these techniques will provide, as well as the potential for CMR staff to reliably collect this data. Currently we are interested in integrating the sentinel plant work that was accomplished through I&M funding with CMR and USGS as a technique to monitor vegetative community effects. We anticipate selecting sampling options for grouse after literary review and collaborating with peers. In the spring we hope to collect pilot data with these grouse techniques and then use this pilot data in a power analysis to evaluate the techniques and determine sampling effort. Additionally, we plan to work with our staff and contractors to determine the appropriate scale to apply a habitat treatment. This scale will be a result of a combination of factors, including the habitat requirements of the species being monitored, the realistic expectations of what CMR staff can accomplish, and also the scale that CMR can expect to manage future grazing on the refuge. If this proposal is funded and the protocol is successfully developed, we plan to use it to conduct a grazing experiment at CMR. Currently, we hope to create an experimental grazing plot on UL Bend (a large area of the refuge that has not been grazed in 30 years) and apply a non-traditional grazing treatment (likely to be high intensity, low duration) which would be evaluated with this protocol for several years. This experimental plot is not a part of this proposal but it is the long-term goal for the protocol. With this protocol and experimental plot, CMR would be able to evaluate grazing treatments and quantify success or failure from a priority resource perspective. As a result, grazing managers at CMR would have the data necessary to start fine tuning habitat treatments to optimize resource response and begin to apply domestic livestock grazing prescriptively.

DATA ANALYSIS/MODELS

Data analysis will be limited for developing this protocol. There will be some power analysis of pilot data to determine sampling details. This work will be accomplished by the data analyst with data that refuge staff provides. However, methods for future data analysis and management should ultimately be included in this protocol. We would

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like to determine data analysis techniques and compose the necessary R script by collaborating with USFWS staff and the contractors. We would also like to establish a system for data entry and management within Access. Both the data analysis in R and the data management in Access are beyond the scope of this proposals funding, though they are relevant to the protocol as a whole. We hope to accomplish these goals in R and Access by working with staff within the USFWS.

REVIEWERS:

PARTNERS

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SOURCES OF SUPPORT:

Years Funding Requested:

1

Request From I&M Program:	\$20,000.00
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Contributed By Station:	\$5,000.00
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Contributed By Partners:	\$0.00
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Allocation Grand Total:	\$25,000.00
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Salary & Benefits:	\$0.00
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Equipment:	\$0.00
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Contracts:	\$20,000.00
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Travel:	\$0.00
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Other:	\$0.00
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	Year 1	Year 2	Year 3
Personnel 1:			
Personnel2:			
Personnel3:			
Salary and Benefits Sum:	\$0.00		
Equipment:			
Contracts:	\$20,000.00		
Travel:			
Other:			
Project Cost IM:	\$20,000.00	\$0.00	\$0.00
Station Contribution:	\$5,000.00		
Partner Contribution:			
Project Cost Totals:	\$20,000.00	\$0.00	\$0.00
Allocation Totals:	\$25,000.00		\$0.00

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	Year 4	Year 5
Personnel 1:	<input type="text"/>	<input type="text"/>
Personnel2:	<input type="text"/>	<input type="text"/>
Personnel3:	<input type="text"/>	<input type="text"/>
Salary and Benefits Sum:	<input type="text"/>	<input type="text"/>
Equipment:	<input type="text"/>	<input type="text"/>
Contracts:	<input type="text"/>	<input type="text"/>
Travel:	<input type="text"/>	<input type="text"/>
Other:	<input type="text"/>	<input type="text"/>
Project Cost IM:	\$0.00	\$0.00
Station Contribution:	<input type="text"/>	<input type="text"/>
Partner Contribution:	<input type="text"/>	<input type="text"/>
Project Cost Totals:	\$0.00	\$0.00
Allocation Totals:	\$0.00	\$0.00

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DATA MANAGEMENT:

Description of data entry, verification, editing and software.

n/a

Please describe metadata including the who, what, where, and when of the data.

n/a

Please describe data security and archiving. Provide the schedule and location for regularly backing up files.

n/a

STATUS AND RESULTS

ADDITIONAL INFORMATION:

LITERATURE CITED: