David Little Livestock
Range Management Endowment
AT THE UNIVERSITY OF IDAHO

2019 Project Progress Report:

Sage-grouse habitat use on Rinker Rock Creek Ranch: preliminary data for understanding compatibility with livestock grazing and development of an "Adopt-a-Grouse" outreach program

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PRELIMINARY RESULTS for 2019:

BACKGROUND: Maintenance of livestock forage must be balanced with other needs for resources that occur in western U.S. rangelands, including the provision of food and cover for wildlife. In recent years, western rangelands have experienced an increased need for understanding how best to accommodate both livestock and wildlife. The greater sage-grouse (*Centrocercus urophasianus*; hereafter, sage-grouse), a species native to North America and entirely dependent on sagebrush steppe, has been at the forefront of management and policy decisions related to rangeland resources. Sage-grouse have declined by roughly 30% since 1985 and were a candidate species for listing under the Endangered Species Act until 2015. Sage-grouse population trends will be reviewed again in 2020 by US Fish and Wildlife Service for inclusion on the candidate list, so the future status of this species depends on current conservation actions. Successful conservation actions depend not only on reversing or mitigating population declines, but also allow for the persistence of resource-based livelihoods to facilitate social and financial support for conservation (Naugle and Walker 2007).

Because livestock grazing is to be part of mitigation and conservation plans for sage-grouse there is a need to fine-tune knowledge of how grazing affects sage-grouse habitat and demography (State of Idaho 2012). Grazing-related effects on plant species composition and structure may have implications for sage-grouse if they result in altered resource availability. For birds like the sage-grouse, changes in food availability and diet composition influence habitat use and body condition, and ultimately survival and reproduction (Atamian et al. 2010). If livestock grazing affects use or selection of habitat, management of the grazing regime within habitats used by sage-grouse (e.g., altered timing or intensity of grazing) could be an effective way to influence habitat suitability and ultimately sage-grouse demography.

Although improper livestock grazing is a threat to sage-grouse populations, it is generally accepted that well-managed livestock grazing could be compatible with the habitat needs of sage-grouse if it is approached from the standpoint of adaptive management of site-specific conditions. Our work will contribute to understanding how grouse use grazed landscapes during the breeding season, which will help land managers decide where and how to apply different types of grazing management. This work is related to the Endowment's emphasis area of wildlife habitat enhancement and wildlife-livestock conflict

and will help inform the question of whether and how livestock grazing affects habitat selection by sage-grouse.

HYPOTHESIS or OBJECTIVES: This project will provide preliminary data that will help leverage additional research funding focused on evaluating the relationship between livestock grazing management and greater sage-grouse habitat selection and demography, specifically in areas used for brood-rearing. Thus, data yielded by this proposed project is descriptive and does not involve hypothesis testing but will provide a baseline for future hypothesis testing. The following questions are addressed:

1) How do greater sage-grouse use the Rinker Rock Creek Ranch (RRCR) during the breeding season? When do they leave the ranch for winter habitat and where do they go?
2) Do hens attending leks on the RRCR use any part of the ranch for nesting or brood-rearing? If so, what does livestock management currently look like in those areas? If possible, we will quantify environmental variables on the ground near the time of use if RRCR intern time is available (e.g., habitat conditions at nest sites or sites used by broods).

PROCEDURES: *Briefly describe how/where the project was conducted and how the funds were utilized.*

In April 2019 we re-visited greater sage-grouse leks at Rinker Rock Creek Ranch (RRCR) that were detected during aerial surveys in spring 2018. Field assistance was provided by a graduate student in the Johnson lab. Little Endowment funds were used for travel to RRCR for PI Johnson and the graduate student.

Our proposal to the Little Endowment included capturing and tagging sage-grouse hens with backpack-style GPS satellite transmitter with solar panels (Pinpoint Argos Solar from Lotek, Ontario, Canada). Unfortunately, we were unable to obtain the specific model of transmitter required because of high demand, and therefore did not conduct captures in 2019. PI Johnson has since made contact with the company that builds transmitters and has placed an order; transmitters are currently being built for this effort and will be available to deploy during the lekking season in 2020. Captured individuals will receive a 6 g, 40 x 18 mm transmitter. These units are < 1% of the body weight of an adult greater sage-grouse and should not influence habitat selection or movements. Capture and handling protocols will be approved by the University of Idaho Intuitional Care and Use Committee before handling of animals.

RESULTS: Ground-based surveys in April 2019 confirmed the location and activity status of two new, previously unknown leks on the property, and confirmed the presence of a new satellite lek near an established lek. The largest lek observed (RCR 015; Table 1) was previously unknown and is located in the Lower Poison Creek Pasture on the BLM portion of the Ranch. Two leks were inactive during our surveys, but one (5B029) was subsequently determined to be active during the 2019 lekking season by an Idaho Department of Fish and Game volunteer who conducted lek surveys at RRCR.

Table 1. Maximum counts at leks at or near Rinker Rock Creek Ranch, Blaine County, Idaho. Observers had limited access in 2019 and these data do not represent a complete count of leks present on the property.

Lek ID	Date	High Count	
		Males	Females
5B327	14-Apr-19	17[a]	0
5B028	14-Apr-19	0	0
RCR_015	16-Apr-19	20	0
RCR_013	14-Apr-19	1	0
5B029	14-Apr-19	0	1

[a] Count includes total individuals at main lek and nearby satellite lek.

OUTPUTS:

Given we were not able to achieve our primary objective of tagging sage-grouse in 2019, there are no outputs to report at this time.