Sheeprock Sage-grouse Management Area Translocation Field Update

March-June 2019

Title: Population Dynamics and Seasonal Movements of Translocated and Resident Greater Sage-Grouse of the Sheeprock Sage-grouse Management Area (SGMA)

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Purpose

The Sheeprock Sage-grouse Management Area (SGMA) is located in central Utah, The SGMA consists of 611,129 acres in Tooele and Juab Counties. Key threats to the greater sage-grouse as identified by the West Desert Adaptive Resources Management Local Working Group (WDARM) include wildfire, invasive species (annual grasses and forbs), potential loss of riparian or mesic areas, predation, habitat fragmentation, dispersed recreation, and conifer encroachment. To mitigate these threats, WDARM has implemented an aggressive habitat and predation management effort that has been augmented by translocations. We are monitoring translocated and resident sage-grouse to determine how they respond to habitat and predation management. We are also evaluating if habitat selection and vital rates differ for translocated and resident sage-grouse. In addition, we are studying off-highway vehicle (OHV) use patterns of recreationists in the Sheeprock to learn if current use is impacting sage-grouse habitat-use and are also surveying OHV users to determine their specific recreation needs and motivations for coming.

Technicians and Training

For the 2019 field season we hired four technicians to assist in the research. The technicians are Steven Hall (Utah), Tony Keith (Texas), Jen Nichols (Utah), and Celeste Silling (New Mexico). In addition, Trevon Strange (New York), a Utah State University (USU) Extension Intern, has been conducting field research with us as well before he continues his Master's this fall at USU. We provide this information for you should you encounter one of the technicians and wonder what they may be doing. The technicians all received bird handling, telemetry, vegetation monitoring, OHV and vehicle safety training. They are house at the USU Tintic Research Station, near Eureka, UT.

2018-2019 Late Fall/Winter Movements

Earlier in the year, WDARM participants requested that we provide maps showing movements of radio-marked sage-grouse movements in our updates. These maps have been provided below. As the locations represented are only for sage-grouse we have radio-marked, they may not represent all the suitable habitat areas (Appendix, Figures 4-9). To accommodate for this telemetry bias, we have also provide maps showing suitable and potential fall and winter habitat areas that were developed by a resource selection function analysis, that was completed by Dr. Michel Kohl, USU Post-Doctoral Fellow (Figure 1).

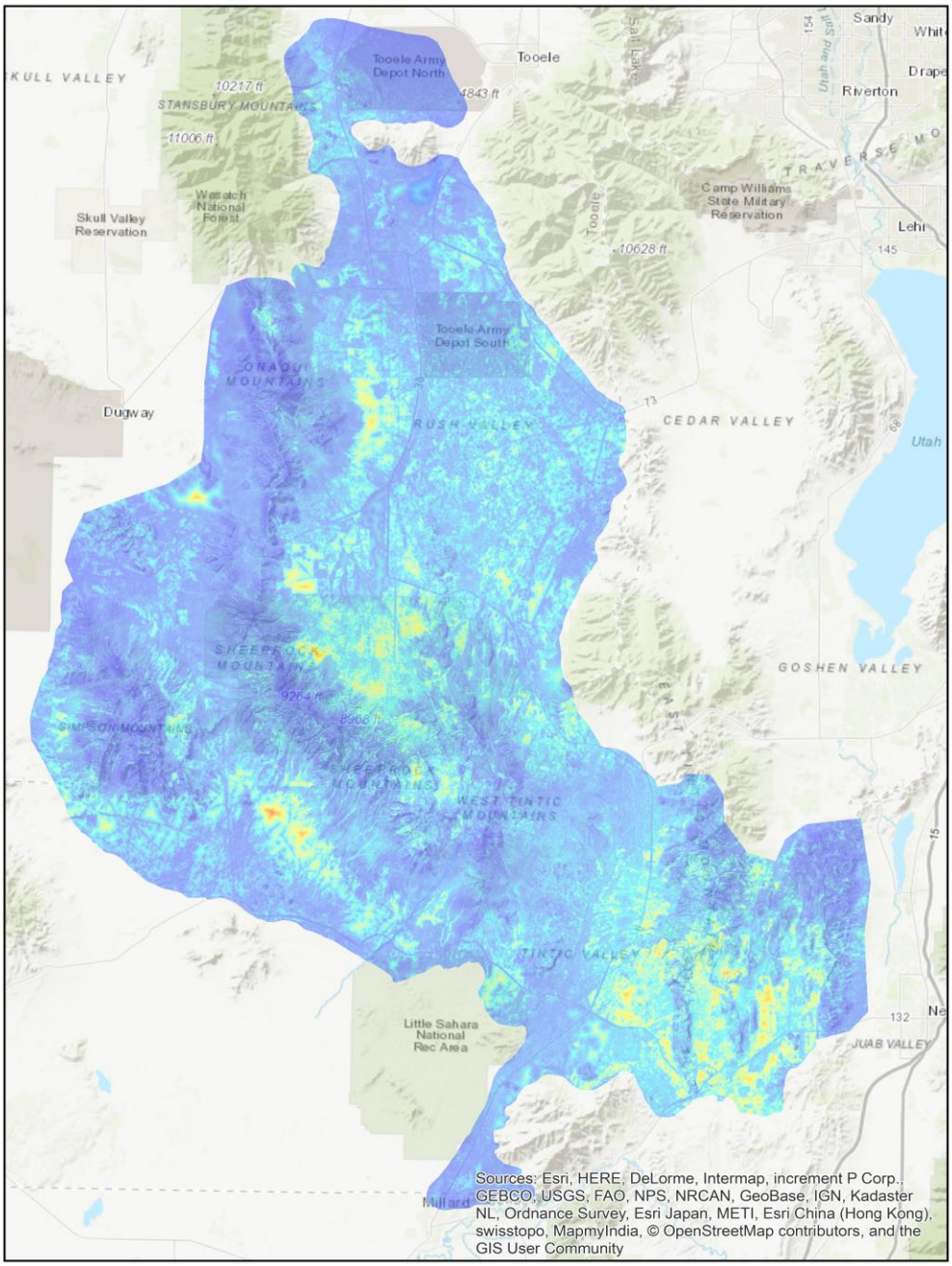

Figure 1. Suitable and potential greater sage-grouse winter habitat areas that were developed by a resource selection function analysis, Sheeprock Sage-Grouse Management Area, UT.

2019 Capture and Translocations:

Due to access issues caused by heavy snow accumulations this year, the translocations were delayed. We attempted to translocate sage-grouse from the Parker Mountain SGMA to the Sheeprock SGMA April 24-25 and May 2, 2019. We captured and translocated 26 grouse (16 females and 10 males) from the Parker SGMA to the Sheeprocks SGMA. We also attempted to capture birds for translocation in the West Box Elder SGMA on April 29, 2019. We were not able to locate any birds on April 29.

Table 1: Translocation dates, locations, and total males and females caught per night, Sheeprock Sage-Grouse Management Area, UT.

Translocation Location	**Date**	**Number of Males**	**Number of Females**
Parker Mountain	4/24/2019	9	6
Parker Mountain	4/25/2019	0	6
Park Valley	4/29/2019	0	0
Parker Mountain	5/2/2019	1	4
	Total per M/F	**10**	**16**
		Total Translocated	**26**

We also captured and radio-marked 10 sage-grouse on the Sheeprock SGMA (two males and eight females). One male, caught on the Fredrickson lek, was wearing a leg band, but no transmitter. In looking up his leg band, he was a 2018 translocated male whose collar had fallen off after our monitoring season last year. This was the first year that we have achieved our goal of 10 new resident birds radio-marked in the Sheeprocks.

We also captured two birds on Tintic leks for the BLM, a male on Copperopolis and a female on Furner Valley. The male was the only male on the Copperopolis lek, and he moved up into the southern part of the Tintic Mountains where he was predated.

Survival

To date, we have confirmed 21 mortalities in 2019, including some over winter 2018. Five mortalities were from birds marked in 2017: 4 translocated females and 1 translocated male. We have also had ten confirmed mortalities from our birds marked in 2018: 5 translocated females, 1 resident females, and 4 translocated males. Four mortalities were from 2019-marked birds: 2 from translocated females, 1 from a male caught on Fredrickson, and another from a translocated male.

Radio-marked Grouse Movements

Translocated birds began to localize around late May and early June, for those who stayed within the study area. We had a few make wide movements seen in translocated bird movements from previous translocations. There was one birds that travelled west, just past Simpson Springs, one bird that travelled to Little Sahara, and another that travelled up towards Stockton.

Below are the movements of a bird translocated into McIntyre on May 2nd. She made very wide movements and will potentially localize around McIntyre again (Figure 2).

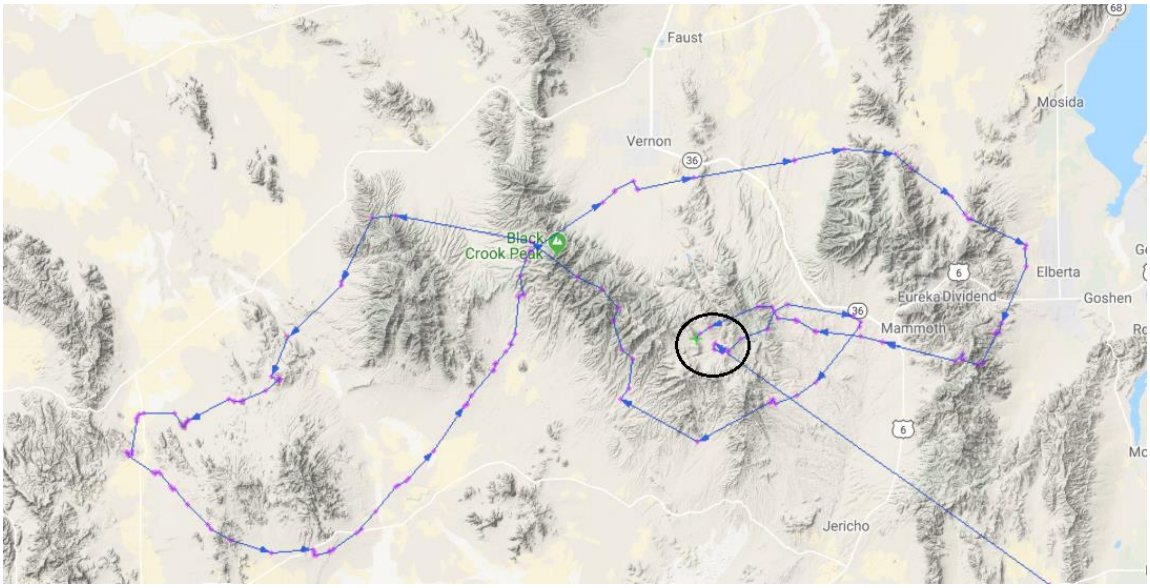

Figure 2. Movements of a 2019 female translocated into the McIntyre lek area. The black circle shows both where she was released as well as where she currently resides as of 6/16/2019. Her movements appear to be well over 100 miles, Sheeprock Sage-Grouse Management Area, UT.

Nesting

We have had 20 nests initiated this season, and 13 of those have hatched. Below, in Table 2, is a table outlining the female's information on resident/translocated, year caught, and their nest fate.

Table 2. Number of nests as well as information on the females that initiated them and their fate. Sheeprock Sage-Grouse Management Area, UT

Nest Number	Resident/Translocated	Year Caught	Fate
1	Translocated	2017	Fail- predated
2	Resident	2018	Fail- predated
3	Resident	2019	Hatch
4	Translocated	2018	Hatch
5	Translocated	2017	Hatch
6	Translocated	2017	Hatch
7	Translocated	2018	Fail- predated
8	Translocated	2018	Hatch
9	Translocated	2018	Hatch
10	Resident	2019	Fail- predated
11	Translocated	2018	Fail- predated
12	Resident	2016	Hatch
13	Resident	2016	Hatch
14	Translocated	2018	Hatch
15	Resident	2019	Fail- abandoned
16	Translocated	2019	Hatch
17	Resident	2019	Hatch

18	Resident	2019	Hatch
19	Translocated	2019	Hatch
20	Translocated	2019	Fail- predated

Brooding

Of the 12 hatched nests, 2 broods failed immediately due to predation or abandonment. One brood from a 2017 translocated female was predated along with the female, and the other brood was abandoned shortly after hatching, the chicks all very closely to the nest and dead upon discovery. The other ten broods are currently still brooding.

One female caught in Government Creek in 2019 chose an interesting spot to nest and brood. She has been in a sagebrush stand near thick juniper stands (Figure 3).

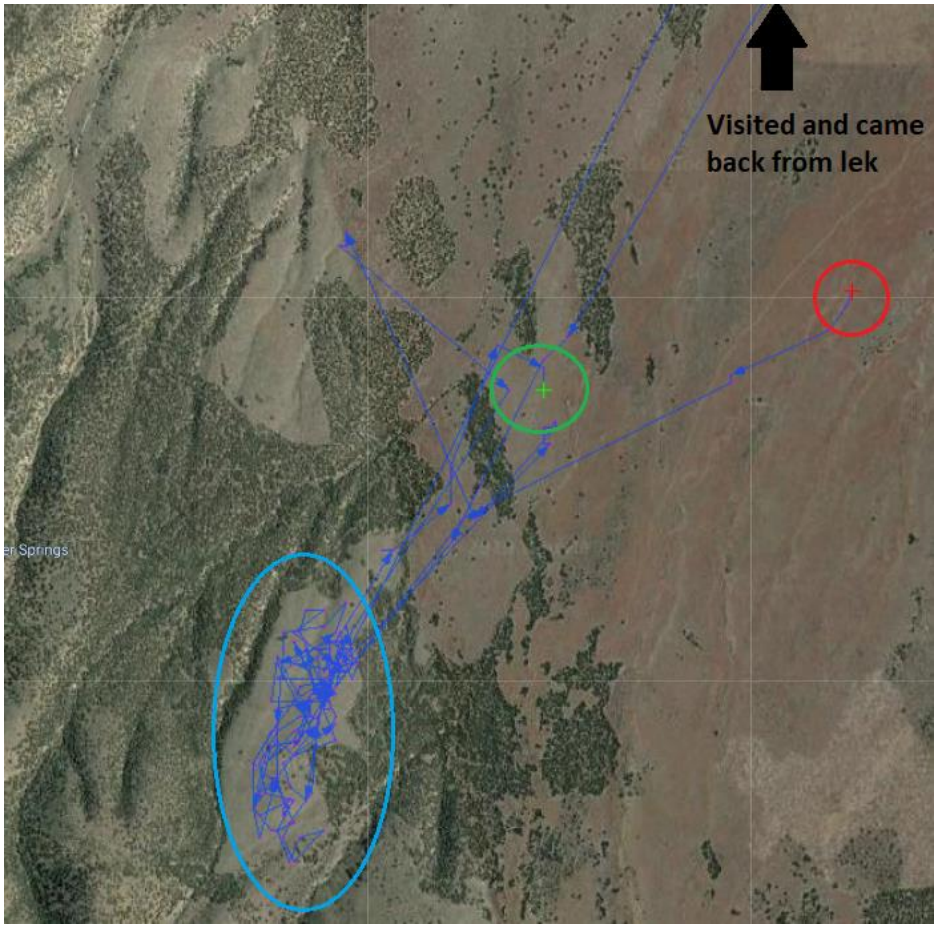

Figure 3. Movements of a resident female caught in 2019. The red circle and cross are where she was caught, the blue circle is the area in which she nested and brooded for the first four weeks, and the green circle and cross are where she currently resides.

Public and Private Partners

As always, we thank the landowners who allow us access to their properties to capture and monitor birds. We also are extremely indebted to the dozens of volunteers who have helped with the translocation effort. We particularly thank Jason Robinson and Avery Cook, UDWR for coordinating the effort through the public review process and the logistics required to complete the translocation. We also thank the Utah Public Lands Policy Coordination Office, the BLM, the Yamaha Corporation, the West Box Elder CRM, the Parker Mountain and West Desert Adaptive Resources Management Local Working Groups, the Jack H. Berryman Institute, the Quinney Professorship for Wildlife Conflict Management, the UDWR, and the US Geological Service for funding, encouragement, and project support.

Appendix A. Radio-marked greater sage-grouse winter movements relative to completed habitat projects, in the Sheeprock Sage-grouse Management Area, 2018-2019.

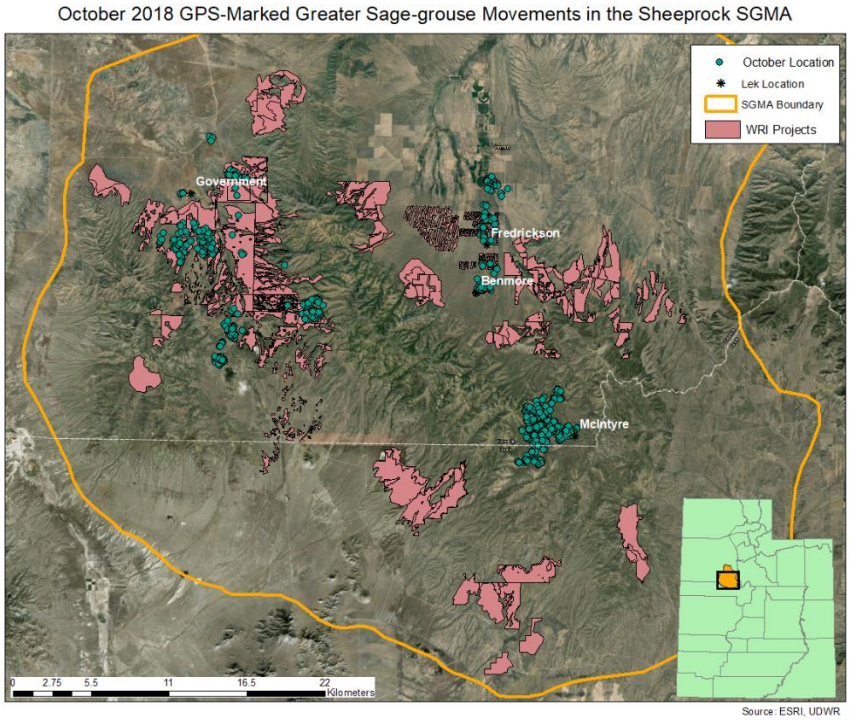

Figure 4. Movements of greater sage-grouse (*Centrocercus urophasianus*) marked with global positioning system (GPS) radio-transmitters, October 2018, Sheeprock Sage-Grouse Management Area, UT

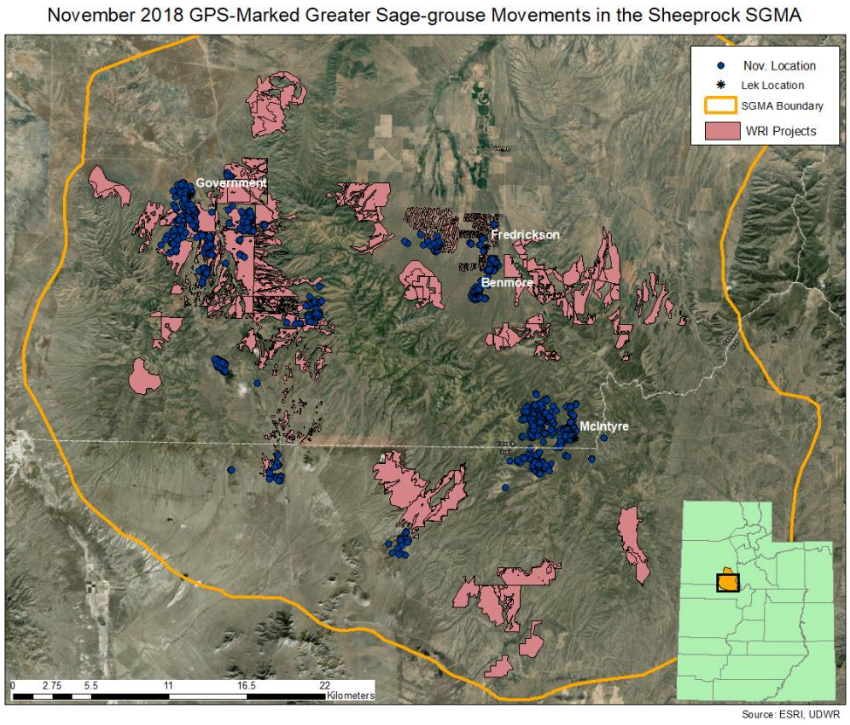

Figure 5. Movements of greater sage-grouse (*Centrocercus urophasianus*) marked with global positioning system (GPS) radio-transmitters, November 2018, Sheeprock Sage-Grouse Management Area, UT

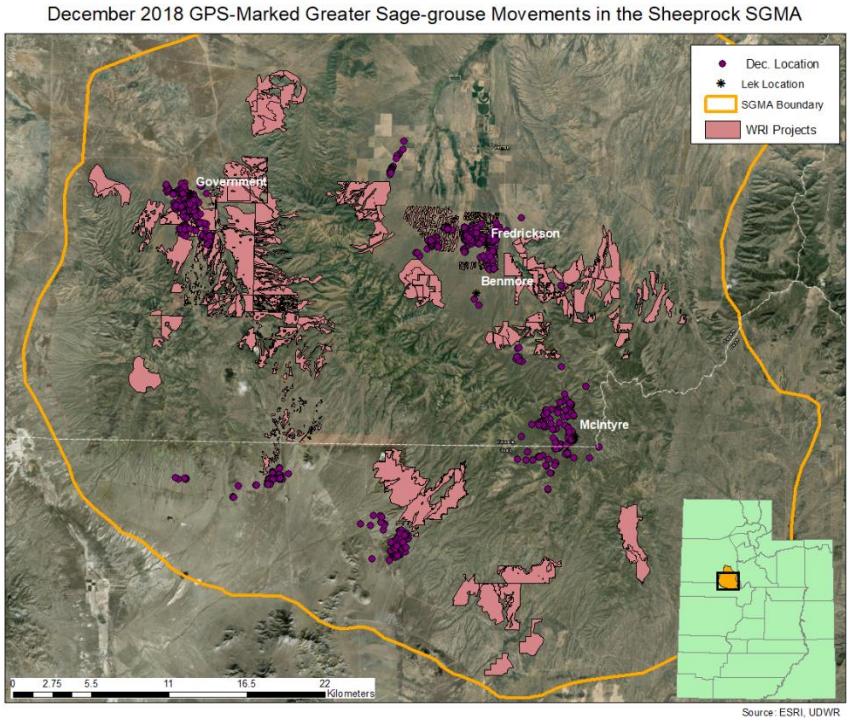

Figure 6. Movements of GPS-marked greater sage-grouse (*Centrocercus urophasianus*) marked with global positioning system (GPS) radio-transmitter, December 2018, Sheeprock Sage-Grouse Management Area, UT

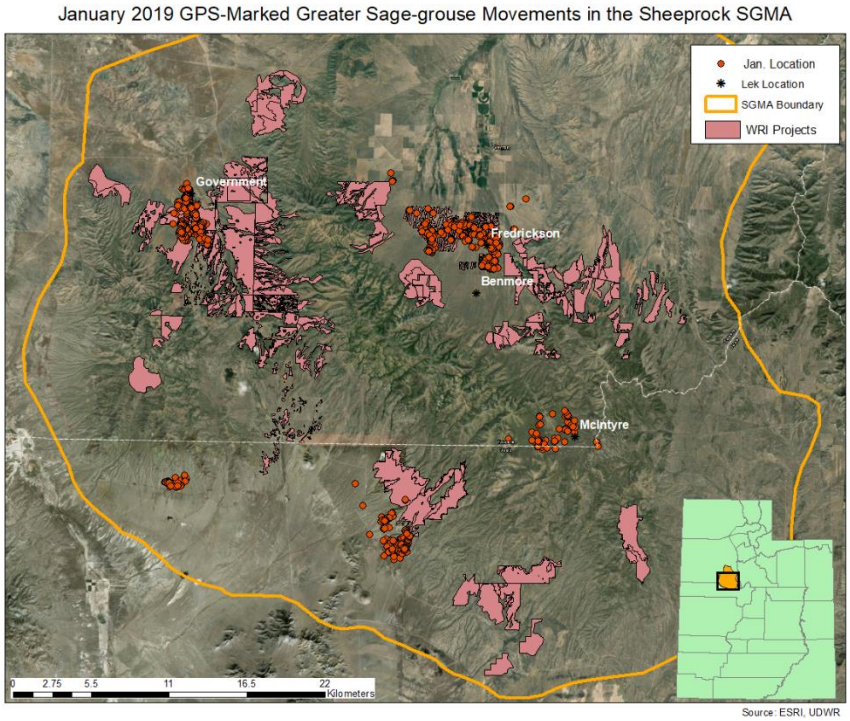

Figure 7. Movements of GPS-marked greater sage-grouse (*Centrocercus urophasianus*) marked with global positioning system (GPS) radio-transmitters, January 2019, Sheeprock Sage-Grouse Management Area, UT

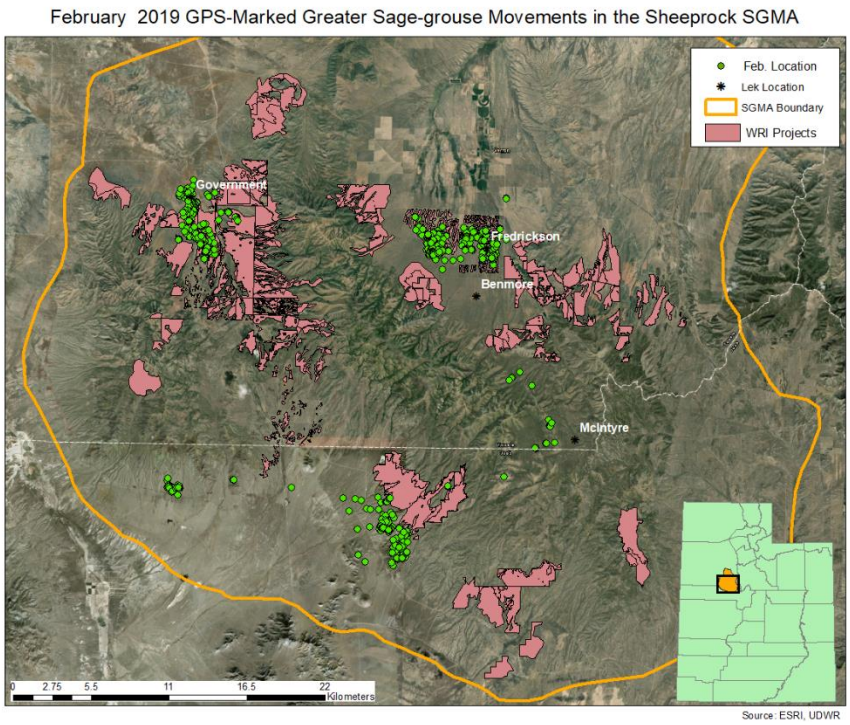

Figure 8. Movements of GPS-marked greater sage-grouse (*Centrocercus urophasianus*) marked with global positioning system (GPS) radio-transmitters, February 2019, Sheeprock Sage-Grouse Management Area, UT.

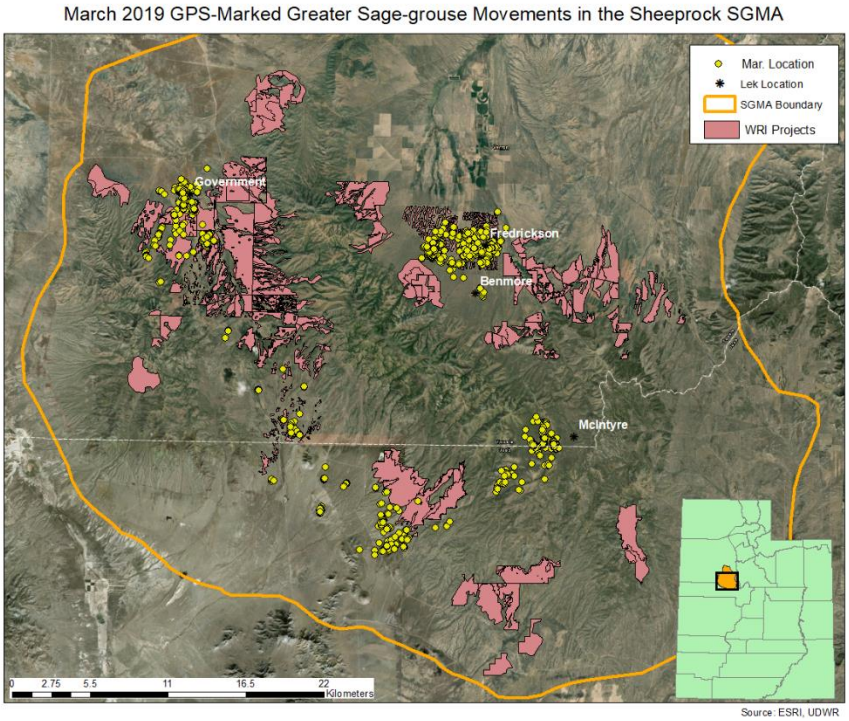

Figure 9. Movements of GPS-marked greater sage-grouse (*Centrocercus urophasianus*) marked with global positioning system (GPS) radio-transmitters, March 2019, Sheeprock Sage-Grouse Management Area, UT