

Sheeprock Sage-grouse Management Area Translocation Field Update

May-June 2018

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

In recent years, 10 of the 11 Utah SGMAs have shown an upward trends in the number of greater sage-grouse (*Centrocercus urophasianus*) males counted on leks. The Sheeprock SGMA has been the notable the exception. This SGMA is located in central Utah and is comprised of 611,129 acres in Tooele and Juab Counties. Key threats to sage-grouse 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.

Technicians and Training

This 2018 field season, four technicians were hired: Sam Lau (Wisconsin), Nathan Redon (Washington), Abby Stone (Connecticut), and Shivani Upadhyayula (India). In addition, Holland Rupp (California), a Utah State University Extension Intern, has been conducting predator surveys as part of her undergraduate research project. We provide this information for you should you encounter one of the technicians and wonder what they may be doing. The technicians received bird handling, telemetry, vegetation monitoring, OHV and vehicle safety training.

Survival

To date, we have confirmed 15 mortalities in 2018 (Figure 1). Six mortalities were from birds marked in 2017: 4 translocated females, 1 translocated male, and 1 resident male. We have also had nine confirmed mortalities from our birds marked in 2018: 5 translocated females, 2 translocated males, and 1 resident male. Three were believed to be mammalian-caused, six caused by avian predators, and six from unknown causes upon discovery of the mortality.

Two intact female grouse carcasses were found and sent to the diagnostics lab to be necropsied. One of these females marked in 2018 had some internal damage to the cloaca and died from egg binding, and another 2017-marked female died of an infection.

2018 Sheeprock SGMA Mortality Locations: March-June

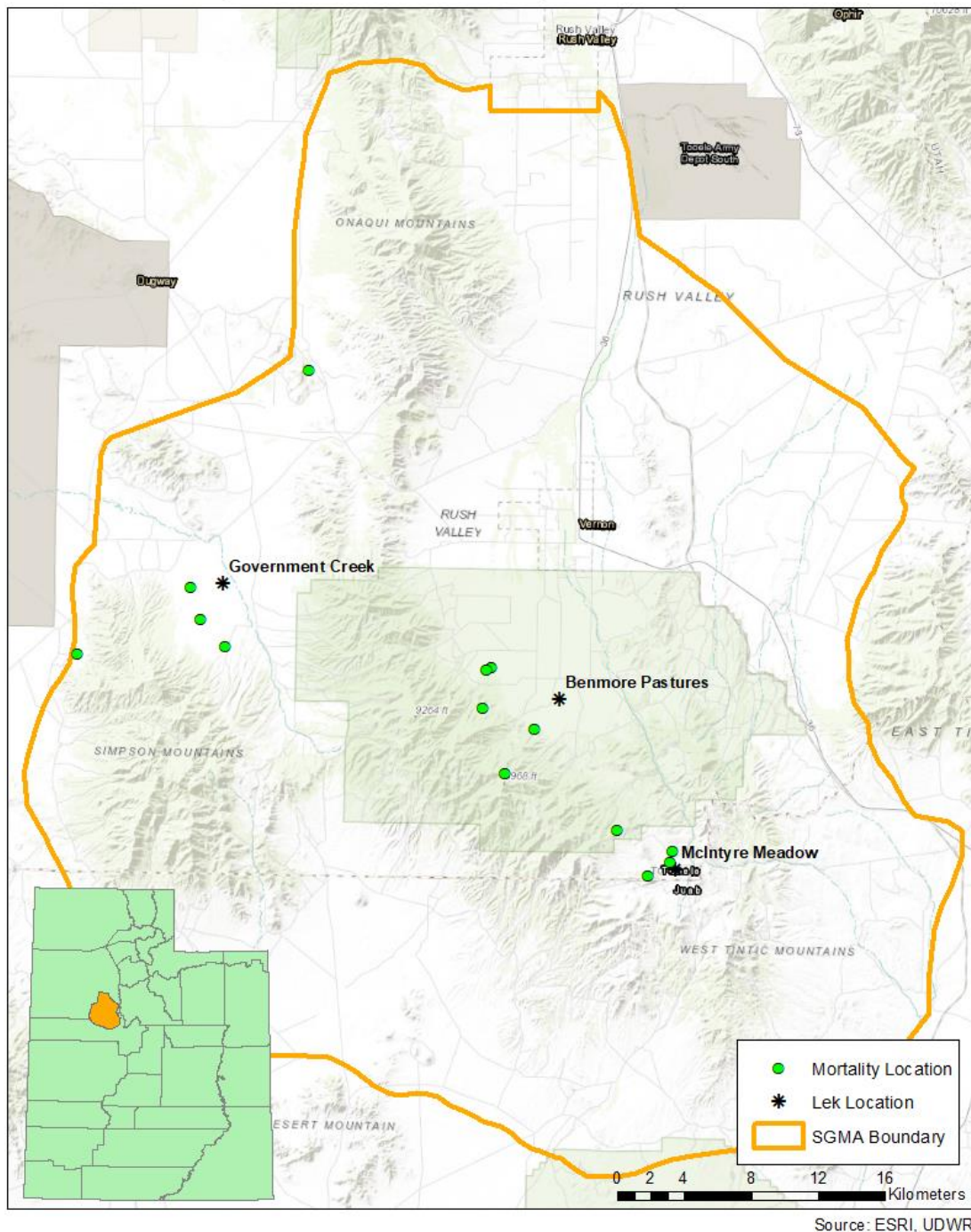


Figure 1. Locations of greater sage-grouse mortalities, Sheeprock SGMA, 2018.

Radio-Marked Grouse Movements

Most of the transmitters for the VHF-marked birds from 2016 have stopped transmitting. Thus we will be unable to document their movements, survival, and nesting effort in 2018. There were six VHF-marked birds in 2016 that were still alive in the fall of 2017 and could currently be alive; however, we do have two GPS-marked resident females from 2016 that are collecting data.

The movements for the 2018 translocated birds have been relatively localized as opposed to previous years. None of the birds have made any long distance movements, such as one translocated female in 2017 that flew from the release site to Spanish Fork, Utah, a straight-line distance of 54 miles.

Below is a map showing the momentary searching movements of one of our translocated females from this season that initiated a nest and failed (Figure 2). This female received the artificial insemination treatment and was released into the Benmore area in the beginning of April. Her movements show that she searched briefly for a nesting location and initiated around April 24 (Figure 2). Her nest was predated around May 12, which caused her to leave the area and begin exhibiting wide, searching movements similar to recently-translocated birds that form somewhat of a figure-eight pattern (Figure 3). She flew northwest along the Sheeprocks, turned around after the Pony Express, flew south of the McIntyre lek, then turned around again and has only recently begun to localize in the Little Valley area.

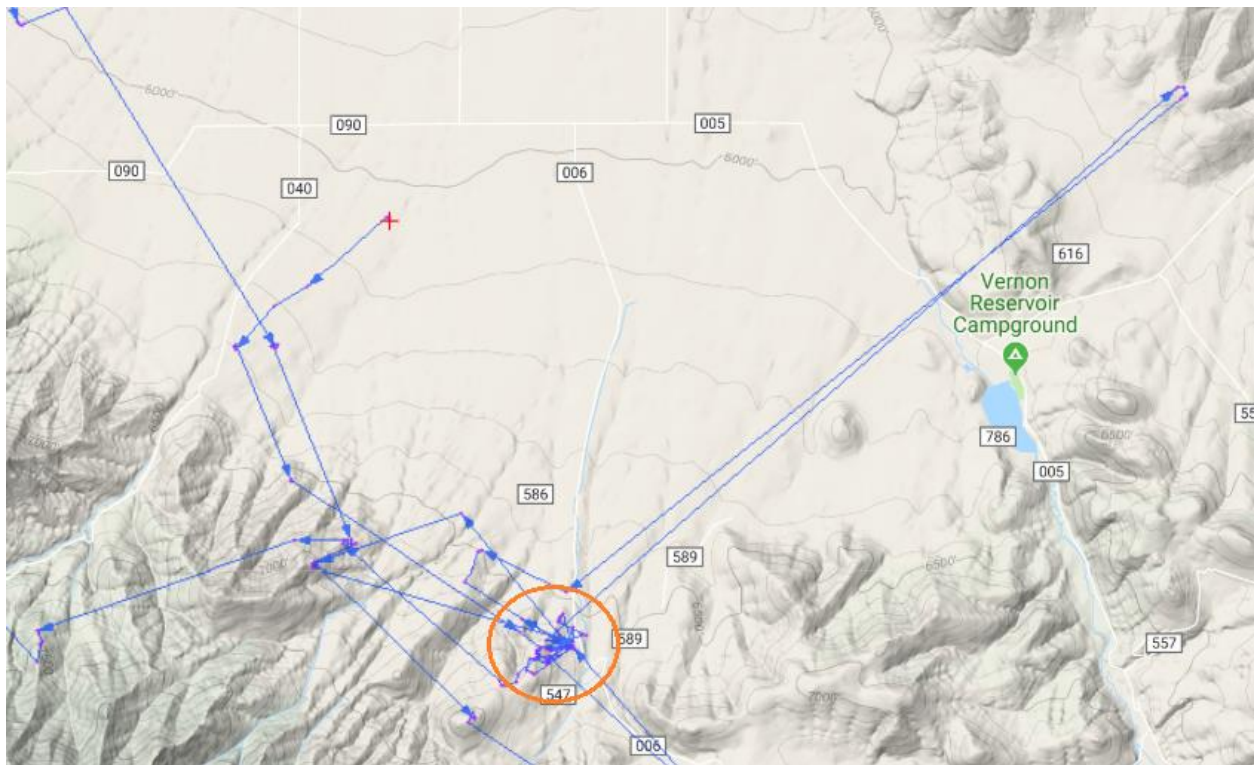


Figure 2. Movements of a 2018 translocated female sage-grouse equipped with a GPS transmitter. These movements occurred between April 6 and May 12, 2018. The red cross shows

where her transmitter started after release, the blue line with small arrows shows the direction of her movements and the orange circle shows where she nested.

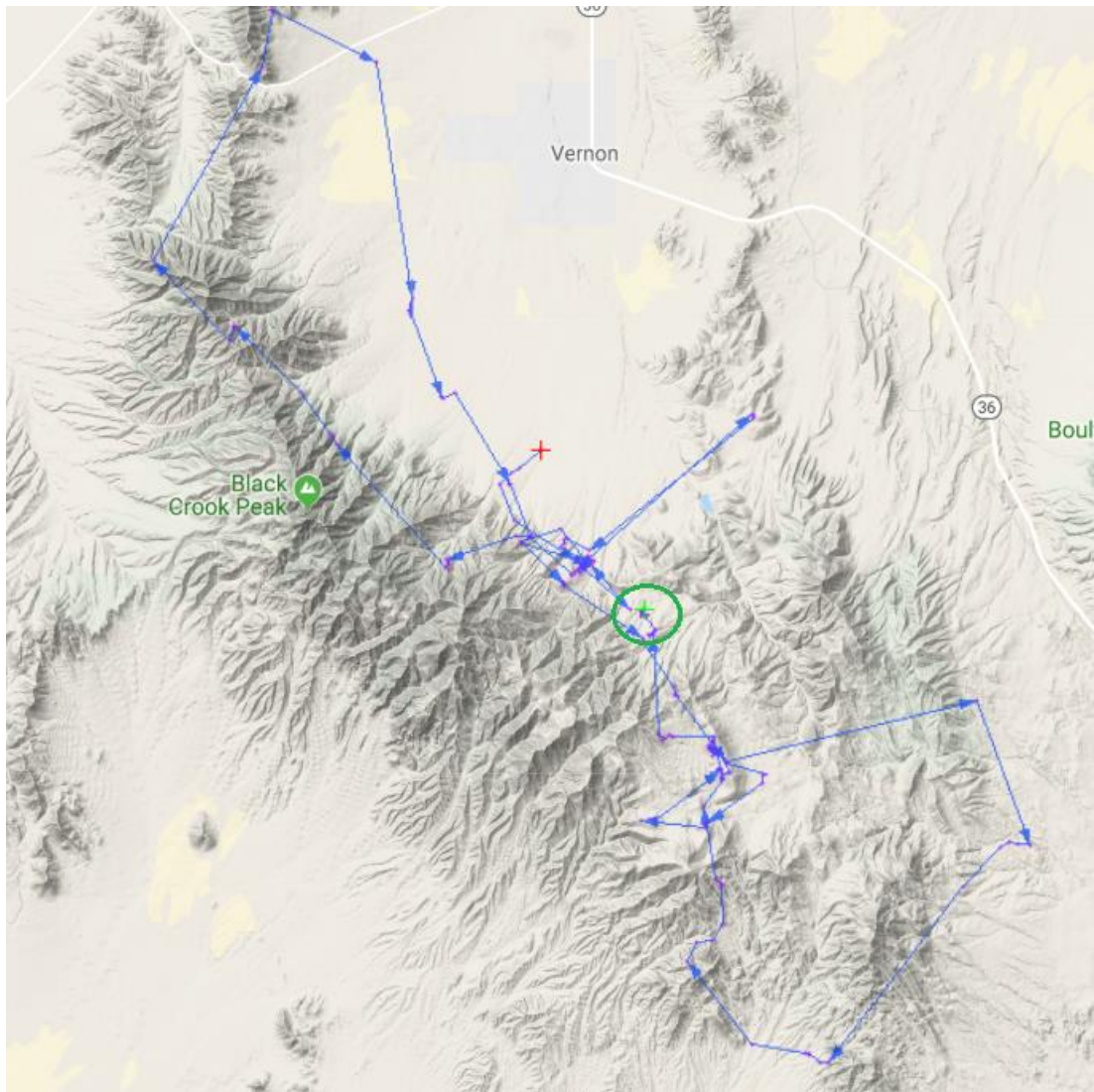


Figure 3. Movements of this 2018-translocated female sage-grouse after her nest was predated on May 12, 2018 to June 18, 2018. The red cross shows where her transmitter started after release, the blue line with small arrows shows the direction of her movements and the green circle shows where she currently resides.

Nesting

We have 17 confirmed nests this season of which 14 hatched. Nests that were depredated included a 2018-marked yearling resident female and two 2018-marked yearling translocated females, one of which received the artificial insemination treatment and another was a control. One 2017-marked resident female initiated in the beginning of April and hatched on May 4. In 2017, our earliest nesting female hatched on May 15. May 4 is three weeks earlier than our other

females initiated their nests during this study. Most of the females initiated nests between April 15- April 26 (Figure 4). Our 2018 nest information is located in Table 1. We have included a map of nest locations distributed across the SGMA in Figure 5.

Table 1. Nest initiations for translocated and resident greater sage-grouse, by age for 2016-2018, Sheeprock SGMA.

Year Marked	Number of Females Nesting	Adults vs Yearlings	Translocated vs Resident
2016	2	2 Adults	2 Res
2017	7	7 Adults	6 Trans, 1 Res
2018	8	1 Adult, 7 Yearlings	6 Trans, 2 Res

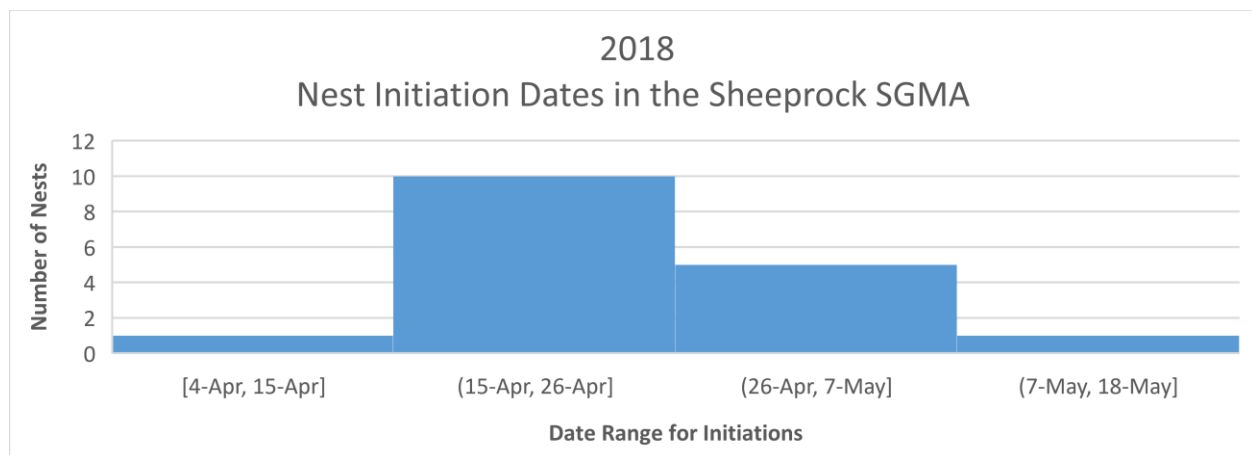


Figure 4. Nest initiation dates distributed across April and May, showing the greatest proportion of nests initiated within April 15 and April 26, 2018, Sheeprock SGMA, 2018.

2018 Sheeprock SGMA Nest Locations

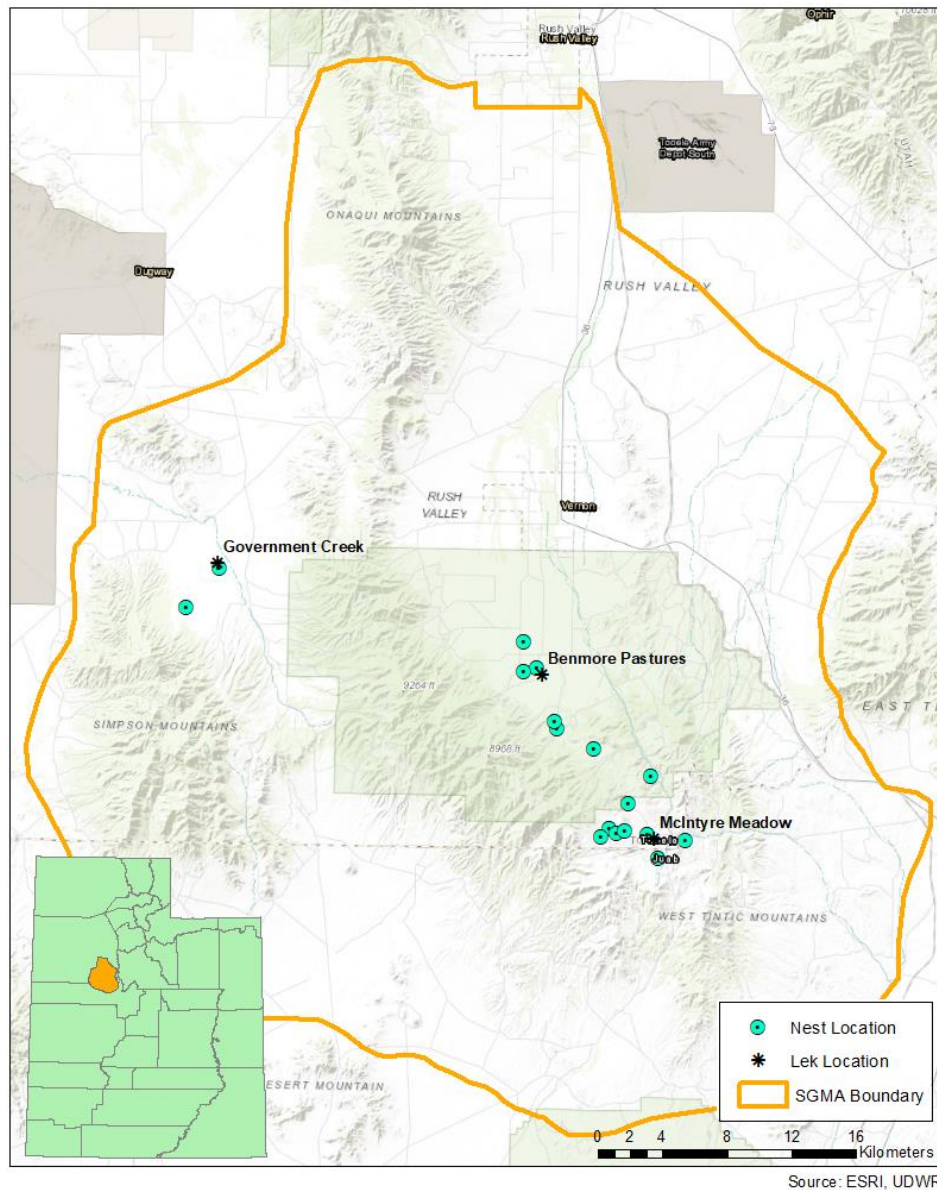


Figure 5. Locations of all nests initiated by marked females in the 2018 field season, Sheeprock SGMA, 2018.

Brooding

To date we are following 14 brooding females that hatched 85 chicks. One nest could not be found due to GPS transmitter complications, but the female was confirmed to be brooding. We have included maps to show brooding and nesting locations for the fourteen brooding females as well as the three failed nests.

2018 Sheeprock Nest and Brood Locations for Females Located in Government Creek

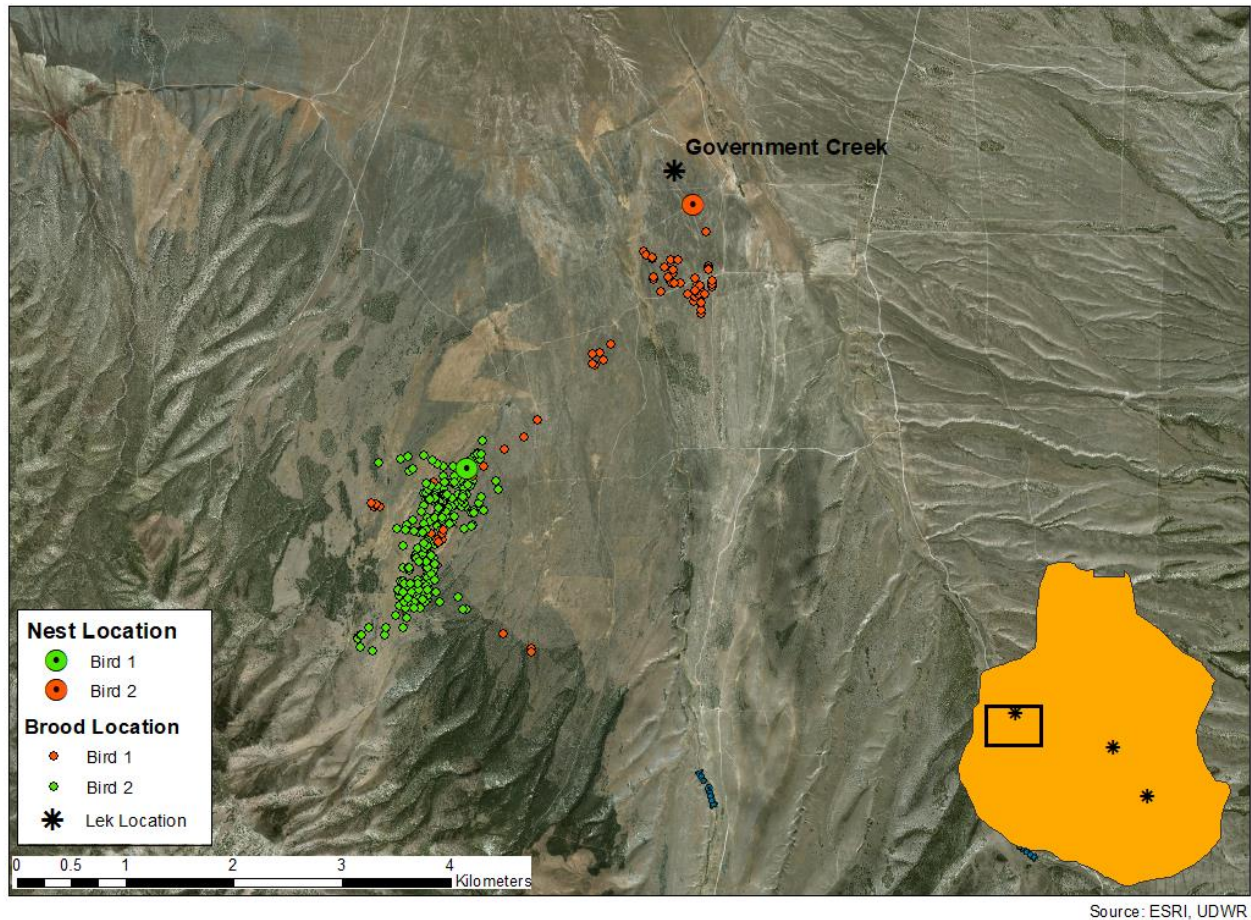


Figure 6. Nesting and brooding locations for two marked females located within the Government Creek lek area, Sheeprock SGMA, 2018. Each nest and brood point of the same color correspond to the same female.

2018 Sheeprock Nest and Brood Locations for Females Located in Benmore and Little Valley

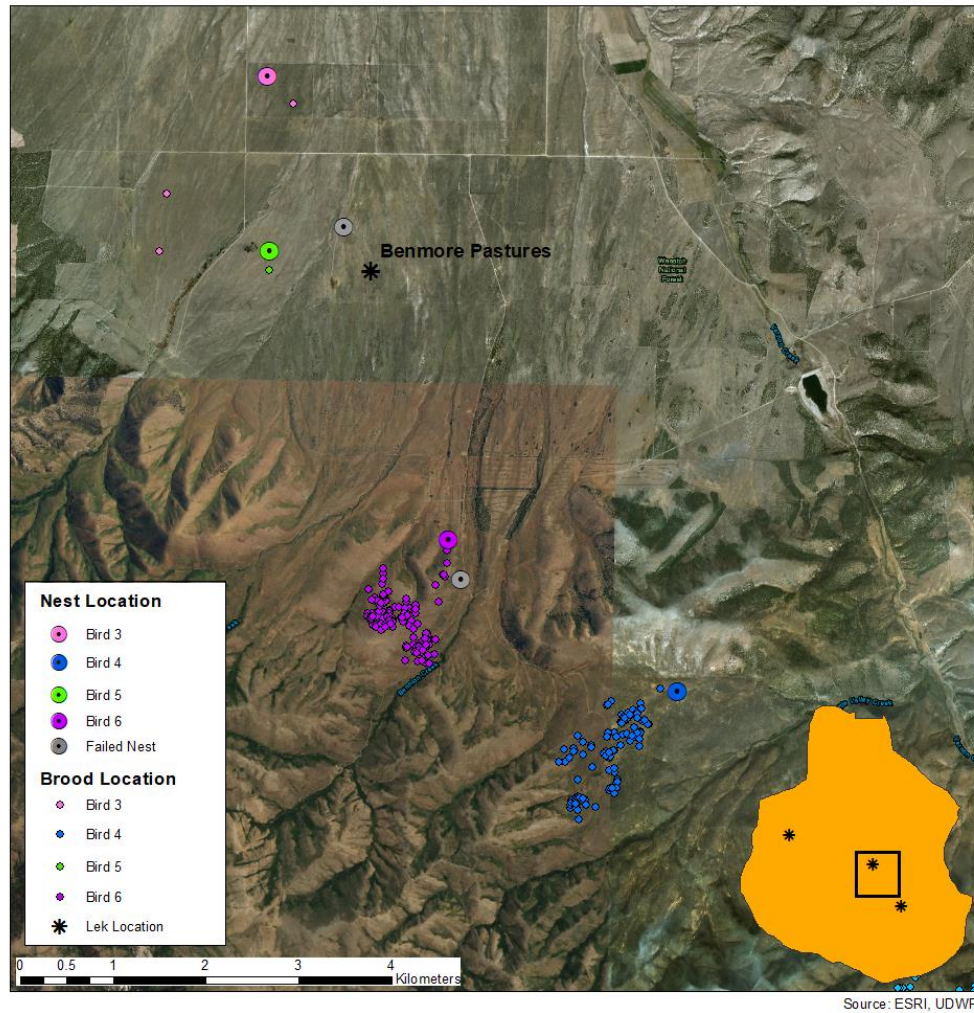


Figure 7. Nesting and brooding locations for two marked females located within the Benmore and Little Valley areas, Sheeprock SGMA, 2018. Each nest and brood point of the same color correspond to the same female. The two grey nesting locations are for our failed nests; for simplicity, failed nests are not individually labeled as with the successful nests.

2018 Sheeprock Nest and Brood Locations for Females Located in McIntyre

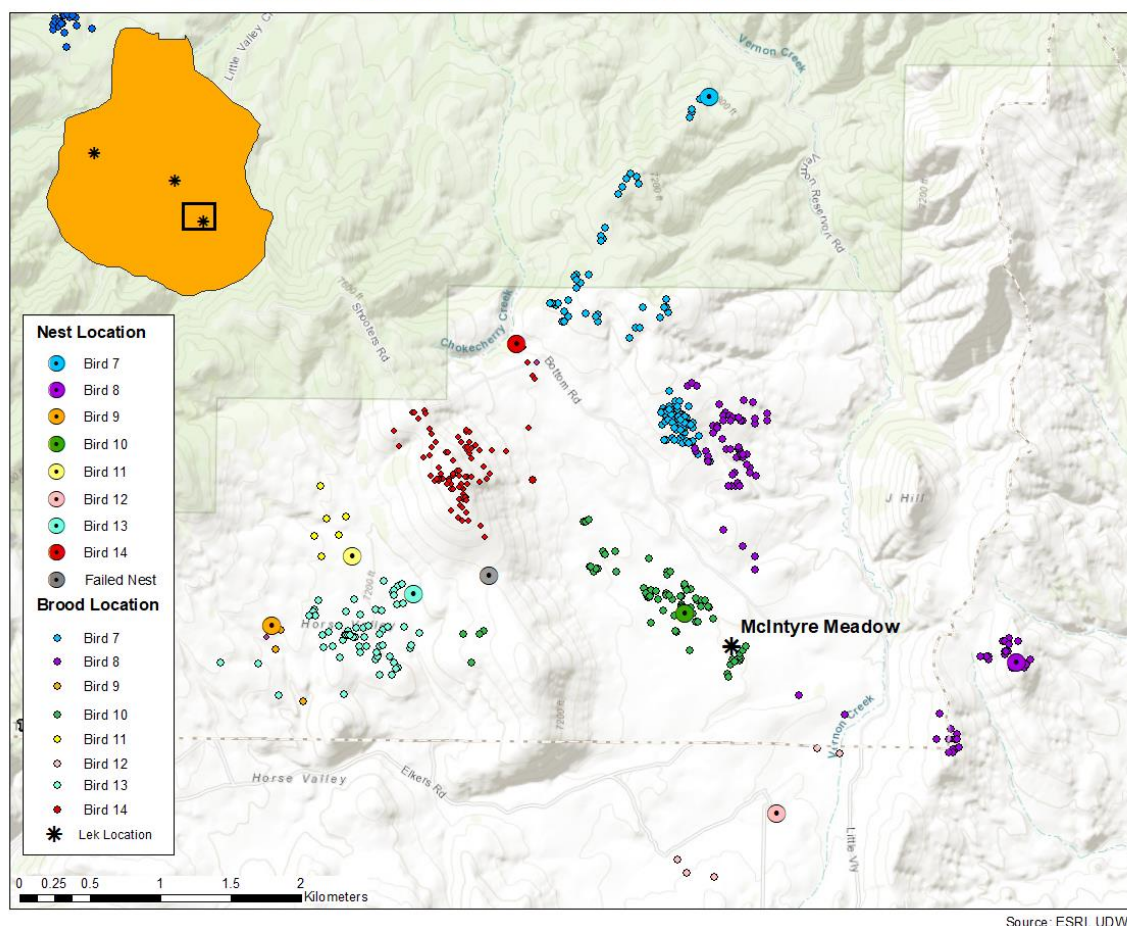


Figure 8. Nesting and brooding locations for two marked females located within the McIntyre lek area, Sheeprock SGMA, 2018. Each nest and brood point of the same color correspond to the same female. The grey nesting location is the failed nest in this area.

Landowners

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.