Sheeprock Sage-grouse Management Area Translocation Field Update

Seasonal Summary Report- August 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 numbers of 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 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 studying how translocated and resident sage-grouse respond to habitat and predation management. To do this we are evaluating if habitat selection and vital rates differ for translocated and resident sage-grouse. We are also 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, assisted in conducting predator surveys as part of her undergraduate research project. The technicians received bird handling, telemetry, vegetation monitoring, OHV and vehicle safety training. All technicians have finished their seasonal work and have returned home.

Survival

We confirmed 19 mortalities in 2018 field season through August (Figure 1). Six mortalities were from birds marked in 2017: 4 translocated females, 1 translocated male, and 1 resident male. We have also had thirteen confirmed mortalities from our birds marked in 2018: 10 translocated females, 2 translocated males, and 1 resident male. Four were believed to be mammalian-caused, six caused by avian predators, and nine from unknown causes upon discovery of the mortality site.

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 aspergillus infection.

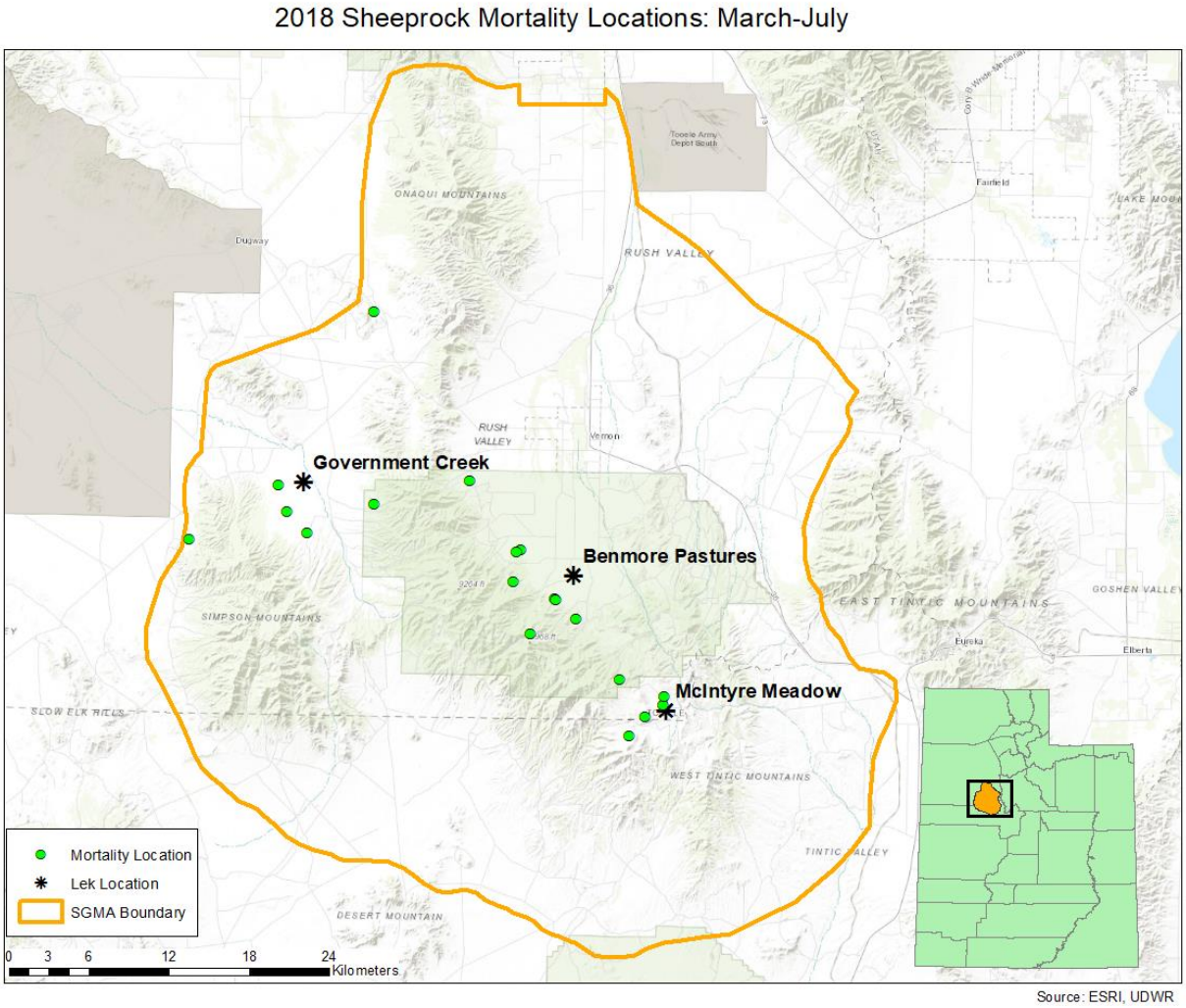

Figure 1. Locations of greater sage-grouse mortalities, Sheeprock Sage-grouse Maqnagement Area (SGMA), 2018.

Radio-Marked Grouse Movements

Most of the transmitters for the VHF-marked birds from 2016 have stopped transmitting. Thus, we were 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 transmitting data.

The movements for the 2018 translocated birds were more localized compared 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.

A continuation of the artificially-inseminated female's movements:

Below is a map showing the overall searching movements of one of our translocated females from this season that initiated a nest and failed (Figure 3). This female was artificial inseminated and released in the Benmore area in the beginning of April. Her movements show that she searched briefly for a nesting location and initiated around April 24 in the southern portion of Benmore (Figure 3). 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 returned and briefly localized in the Little Valley area. She currently resides in the southeast portion of the Government Creek area (Figure 4).

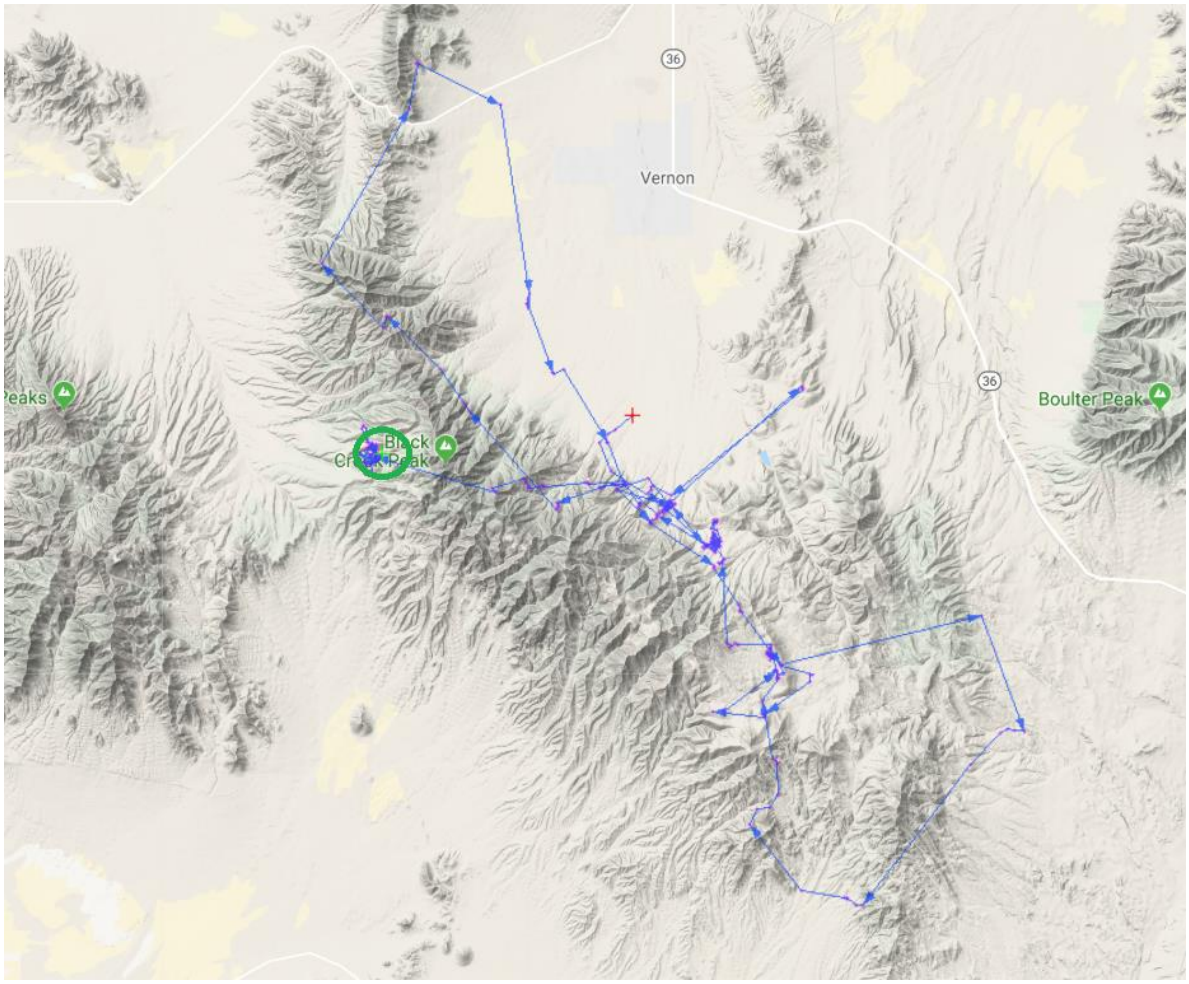

Figure 3. Movements of this 2018-translocated female after her release on April 8, 2018 until August 5, 2018, Sheeprock SGMA, 2018. The red cross shows where her transmitter began transmitting post-release, the blue line with small arrows shows the direction of her movements and the green circle shows where she currently resides.

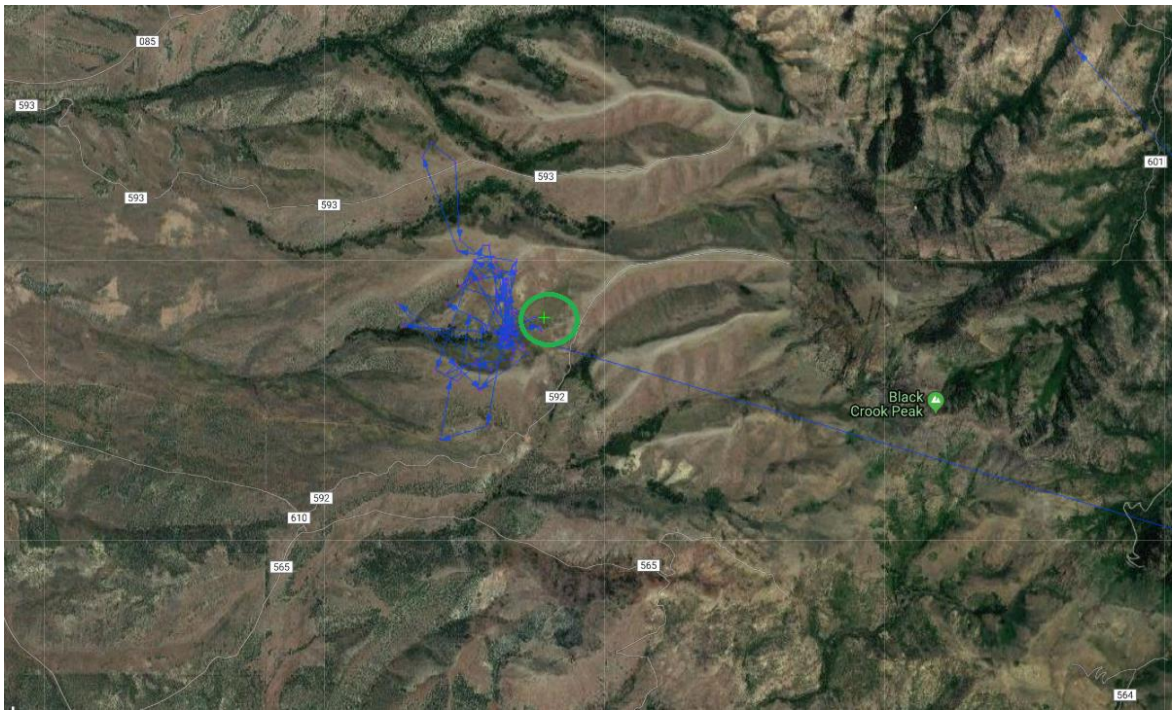

Figure 4. Late-season movements of a 2018-translocated female that had a failed nest, began wide, searching movements around the study area, and has settled near Mud Spring, Sheeprock SGMA, 2018. The green circle encompasses the green cross where her last location was recorded.

Nesting

We confirmed and monitored 17 nests this season. Three of the seventeen nests failed due to nest depredation; this was for a 2018-marked yearling resident female and two 2018-marked yearling translocated females, one of which was artificially inseminated 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. The majority of our nesting females this year initiated between April 15- April 26 (Figure 5). Our 2018 nest information is located in Table 1. We have included a map of nest locations distributed across the SGMA in Figure 6.

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

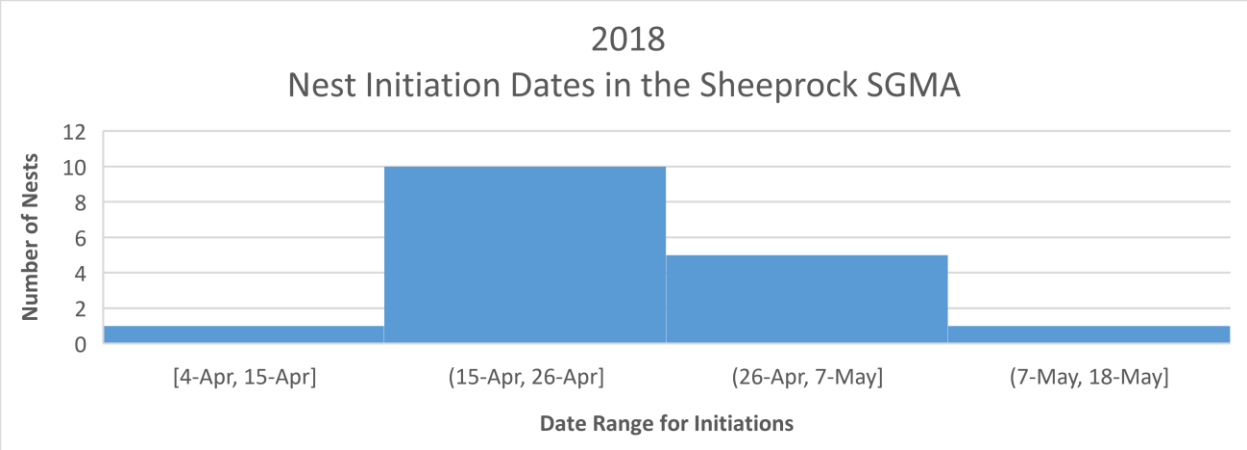

Figure 5. Nest initiation dates distributed across April and May, showing the greatest proportion of nests initiated within April 15 and April 26, 2018, Sheeprock SGMA, 2018.

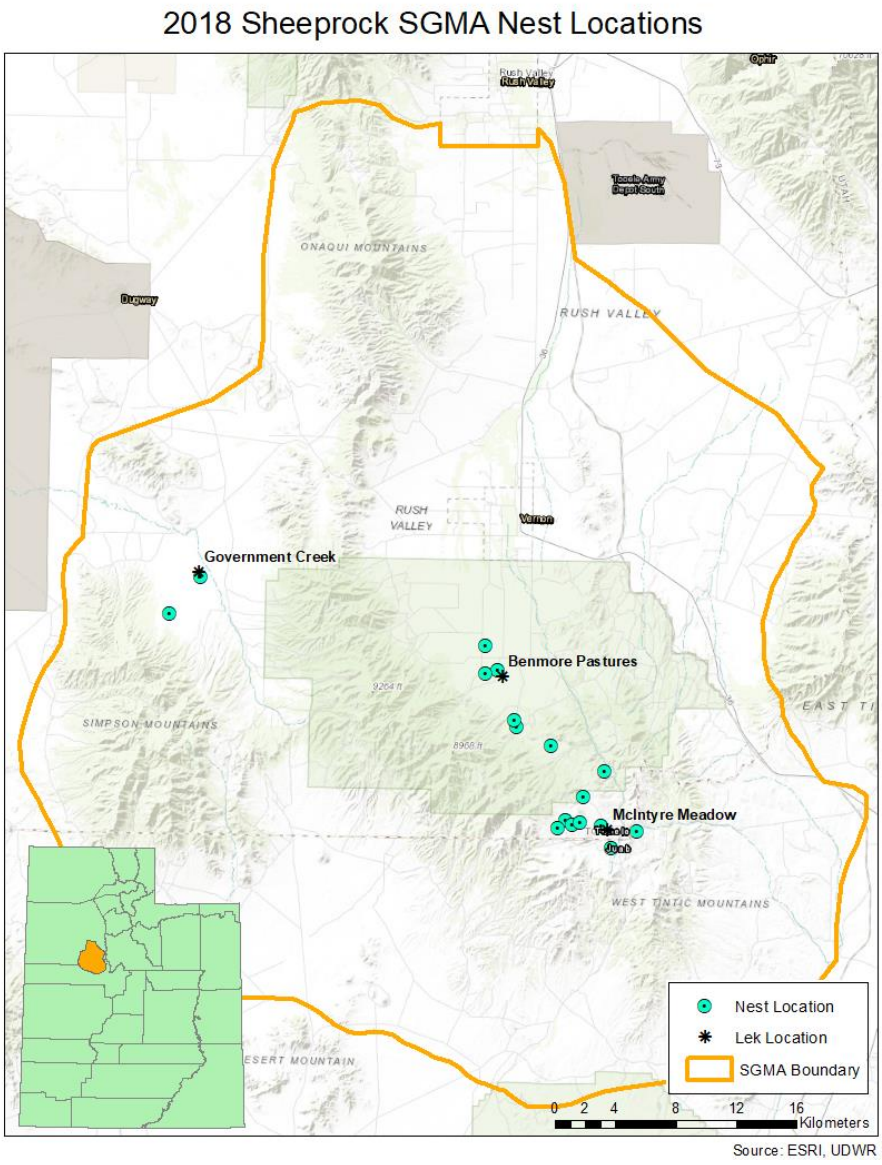

Figure 6. Locations of all nests initiated by marked females in the 2018 field season, Sheeprock SGMA, 2018.

Brooding

We had 14 successful nests that yielded 85 chicks at initial nest hatch. 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. The end of the brooding season yielded 8 broods with one of more chicks the survived to 50 days and 19 confirmed chicks.

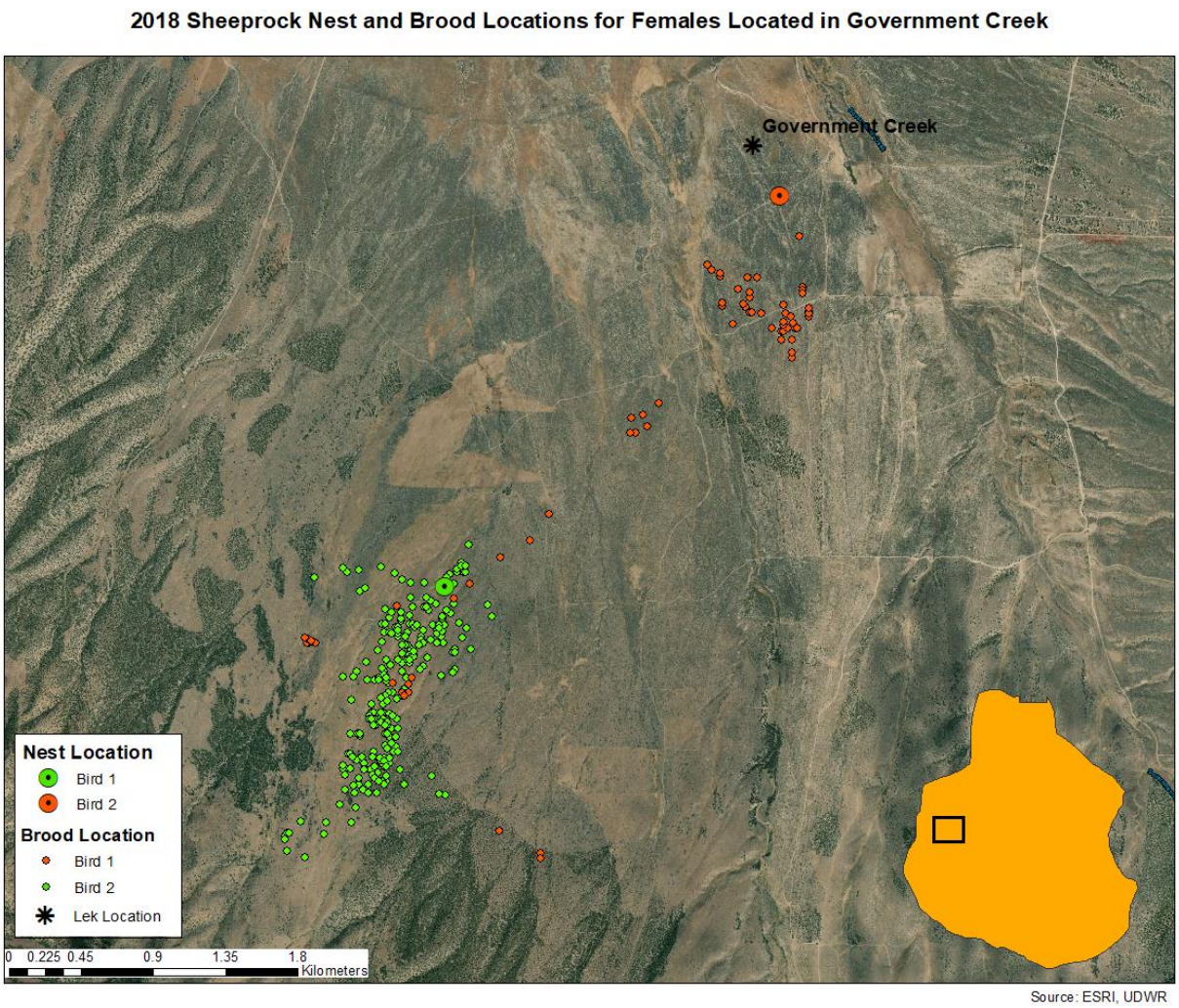

Figure 7. Nesting and brooding locations for two marked females located within the Government Creek lek area, Sheeprock SGMA, 2018. Each nest and brood point of the same color correspond to the same female.

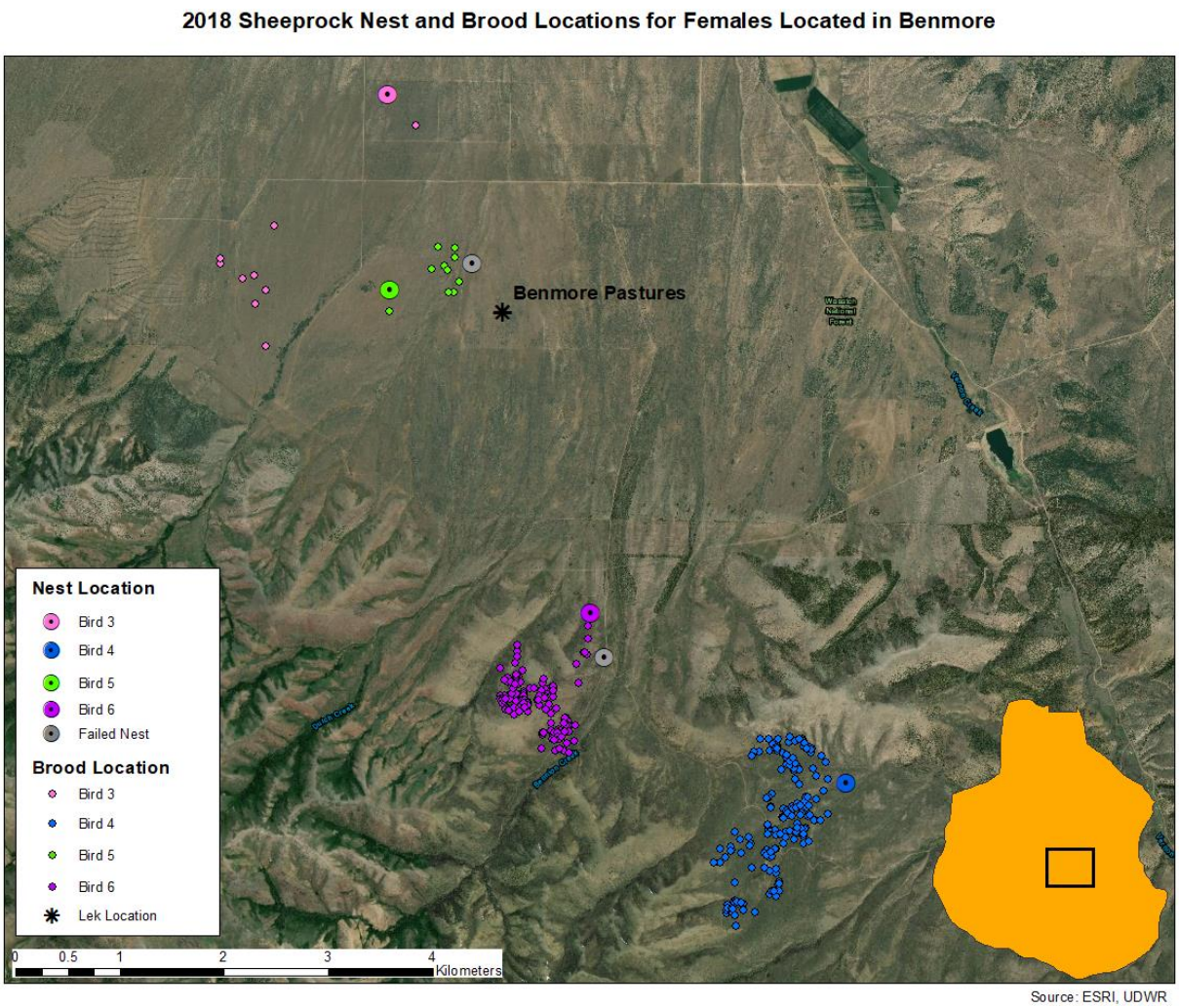

Figure 8. Nesting and brooding locations for six marked females located within the Benmore and Little Valley areas, Sheeprock SGMA, 2018. Each nest and brood point of the same color correspond to the same female. The two grey nesting locations are for our failed nests; for simplicity, failed nests are not individually labeled as with the successful nests.

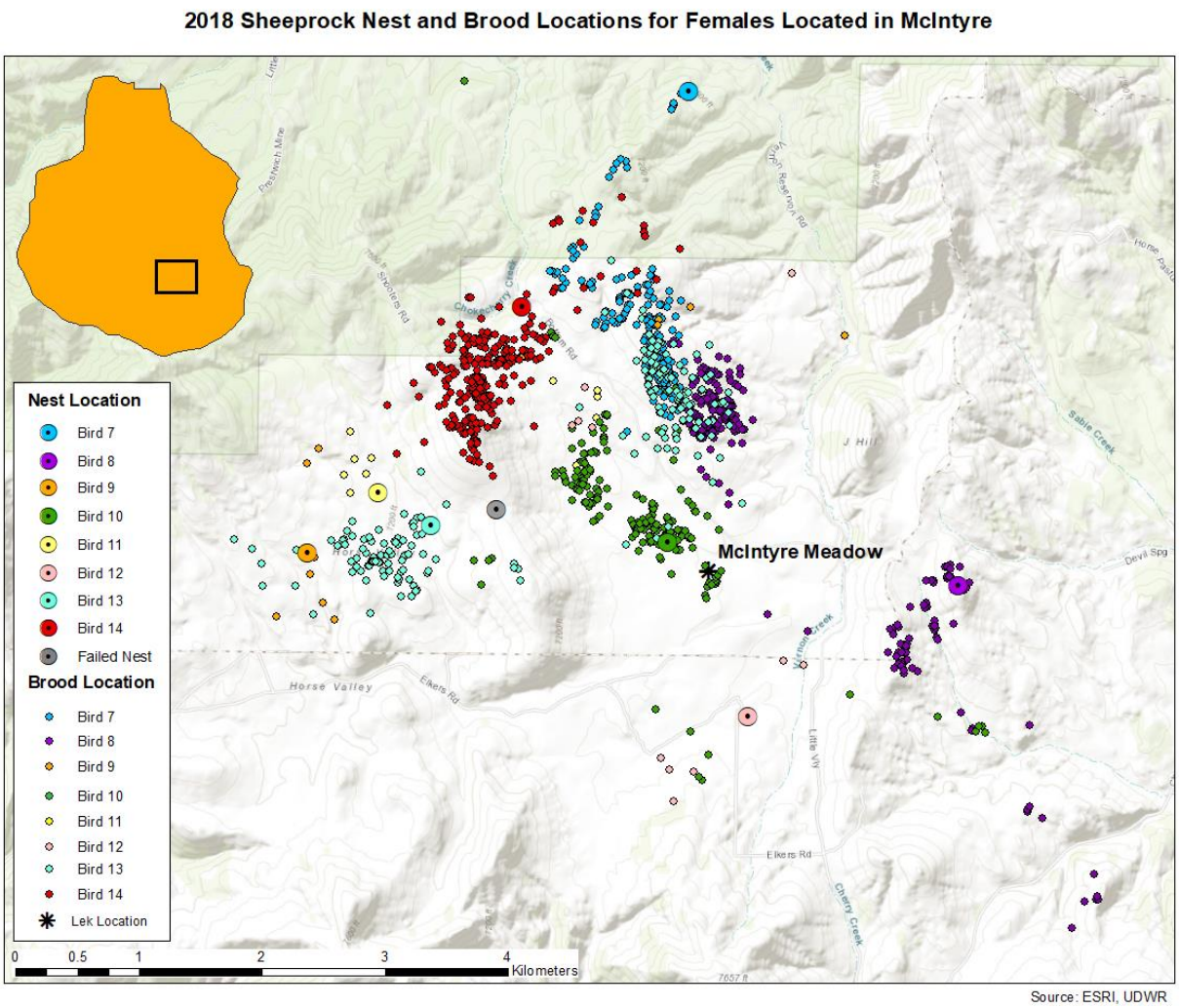

Figure 9. Nesting and brooding locations for nine marked females located within the McIntyre lek area, Sheeprock SGMA, 2018. Each nest and brood point of the same color correspond to the same female. The grey nesting location is the failed nest in this area.

Landowners

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, the Forest Service and the US Geological Service for funding, encouragement and project support.