

Greater Sage-grouse Responses to Pinyon - Juniper Removal

West Box Elder Sage-Grouse Field Report – March/April 2017

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Background and Purpose

We are collecting greater sage-grouse habitat-use, seasonal movement, and vital rate data relative pinyon-juniper removal projects within the Park Valley area of the Box Elder Sage-grouse Management Area (SGMA). Currently, we have deployed 18 global positioning system (GPS) rump-mounted transmitters on female sage-grouse and with 2 more to be deployed by early May. One of the GPS transmitters requires the female wearing it to come within range of a cell phone tower to download the location data. With the other 17 GPS transmitters, data downloads are being gathered every 4 hours on a 24 hour cycle throughout the study period.

The transmitters have been deployed on females near juniper treatment areas. The location data collected from transmitters will help us refine conifer removal strategies and placement, and also allow us to develop a tool for managers to use to optimize sage-grouse response to management actions within the SGMA. This larger data set will allow us to research and observe more closely sage-grouse utilization of treatment areas in reflection to overall population fitness at the landscape level. Also, a sample size of +/- 15 very high frequency (VHF) necklace-style radio-collars will be maintained for sample size robustness across the study area and to determine if vital rates may differ by type of radio transmitter. Both units weigh about as much as two silver dollars – 22 grams

Study Area

The study area is part of the Raft River subunit and was based on the Box Elder Management Area outlined in the 2002 state plan, and is embedded in the Box Elder Sage-grouse Management Area defined in the Utah Plan (2013). The Raft River subunit is located in the northwestern portion of Utah. Geographically, the core of the study area is flanked by the Raft River Range Mountains to the north, the Grouse Creek and Pilot Mountains to the west, by the Great Salt Lake to the southeast and areas of salt flats to the south. Approximately 440,750 ha are encompassed within the study area. Land ownership within the Raft River subunit is a mixture of public and private lands consisting of: Bureau of Land Management, U.S. Forest Service, Utah School and Institutional Trust Lands Administration and private.

Technicians

For the 2017 field season, three technicians were hired: Kelley Samia, Alice Morris and David Gillman. Kelly and Alice both hail from Massachusetts and David comes from New York. They have proven to be capable and knowledgeable field technicians. David will be covering the Dry Basin to Meadow Springs area, Alice will cover the Warms Springs and Dove Creek Pass area and Kelly will cover the Rosette and Park Valley area. I (Justin) will cover everything outside of their study areas and will help with locating hard to find birds and vegetation surveys. We provide this information for you should you encounter one of the technicians and wonder what the heck they are doing.

All 3 technicians were trained telemetry work before turned out into individual study areas. Telemetry training up front helps to prevent struggling in the field and learning on the fly; and unnecessary flushing sage-grouse while performing weekly locations. Vegetation identification training also has begun, and will continue throughout the field season.

We also use a rigorous operational protocol for trucks and ATVs for safety purposes and to prevent unnecessary damage to equipment. All technicians are trained on how to properly use 4wd vehicles in field conditions to include a full day on ATV field safety and maintenance. In a controlled field situation, the technicians are trained on the following: loading and unloading, hill ascending and descending, rollover angles, approach angles, maneuverability and proper gear selection and speed. The old saying “an ounce of prevention is worth more than a pound of cure” we believe this also applies when teaching field technicians to be safe while operating ATVs in rough, remote field conditions.

Equipment

For the 2017 field season, 10 new GPS transmitters and 10 new VHF collars were purchased and 5 VHF collars were refurbished. Several mortality recovered GPS transmitters will be sent back to the manufacturer to be refurbished due to their multiple season field durations and prevent field malfunctions once re-deployed. The new GPS transmitters and VHF collars will be distributed evenly across the study area or where they are needed to augment the existing radio-marked sage-grouse population. Three new VHF Yagi antennas, 1 UHF antenna, 2 UHF receivers and 2 VHF receivers were also purchased to add to existing equipment or replace older non-functional equipment. Two additional ATVs were purchased with funds provided by the Quinney Professorship for Wildlife Conflict Management (Dr. Messmer) for the 2017 field season.

Lekking and Breeding Status

For this study season, we have monitored and counted 18 unique leks for the UDWR lek count survey across the study area. Each lek was counted at least 3 times for the lekking season. We were fortunate once again for the 2017 field season to discover a new lek within the Baker Hills complex on the Pipeline Scar just southeast of Park Valley. The location of the new lek was noticed when a female wearing a GPS backpack transmitter was frequenting the location during

mid-April. It is noteworthy to mention that locating this new lek remotely would not have been possible with a VHF collar. We observed up to 21 males on the new lek this season. Although due to finding it in the mid-April, there was likely higher lek attendance earlier in the season. Currently, males are still strutting on lek sites, but their numbers are dwindling as most females have dispersed in search of nesting habitat.

Trapping

We are still trapping lekking areas to deploy the remaining GPS transmitters and redeploy any transmitters we recovered from mortalities. We are restricting our trapping to areas near the leks to alleviate possible nest disturbance(s). Any GPS transmitters recovered during the field season will be refurbished and redeployed as quickly as possible to ensure we are maximizing their capabilities relative to their cost. If possible, the last few GPS transmitters will be deployed in the Chicken Ridge and east Park Valley areas in hopes of documenting bird movements within new juniper removal locations.

Nesting

Currently, about 25% (both GPS and VHF birds) are nesting, with more females initiating nests every week. To date, no nests have been predated across the study area. As was done last season, to mitigate the potential for ravens using our activities to key in on nesting sage-grouse, we are being careful not to spend extended periods observing nesting females. This caution is warranted because we have observed ravens following us on several different occasions this season while relocating females; whether they were actual profiling me or just being curious- we are playing it safe.

Nesting has occurred later for the 2017 field season (17 days later), which could be attributed to the above average winter that was experienced in northwestern Utah and across the Intermountain West in general. The first female to nest this season occurred on April 24th. She selected a nest site in the Warm Springs Area south of Dove Creek. We currently have several females initiating nests or nesting within the same area.

Mortality

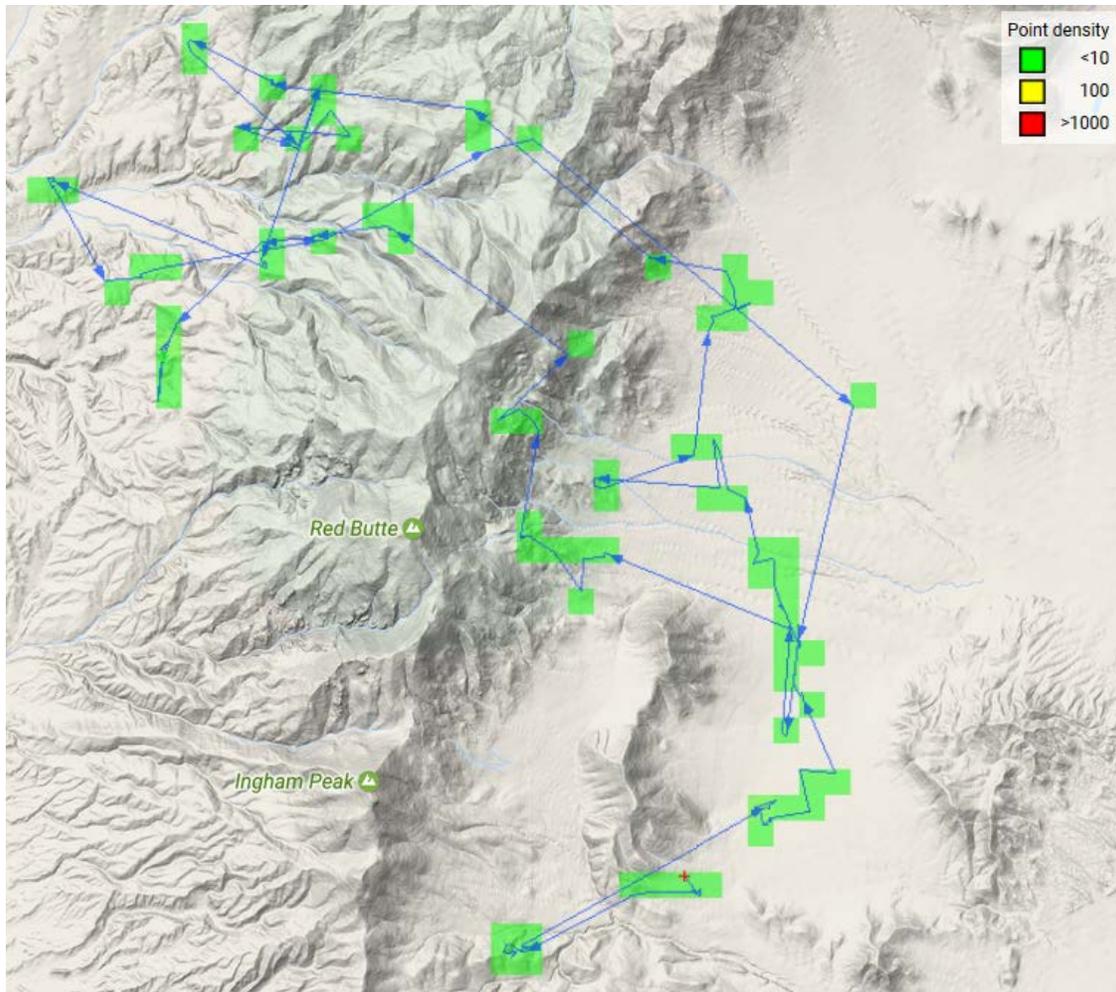
For this field season, 4 GPS and 2 VHF females have been killed. Actually 2 of the GPS harnessed females were dead before the field season began but we were unable to retrieve them due to snow depth. Both VHF mortalities were females that were collared April 2017. Of the mortalities, 1 female showed avian predation signs and 1 mammalian. Predation causes remain unknown for the other 4.

Grouse Movements

Due to the size of my study area, birds are beginning to really spread-out over the landscape now that the lekking season is tapering off and females are starting to nest. Currently, 1 VHF female is initiating a nest in Dry Basin, at least 2 females (1 GPS and 1 VHF) are nesting in Warm Springs, 2 VHF females are initiating nest in Dove Creek Pass and the Black Hills, 1 GPS female is nesting north of the Pipeline on northeast side of Table Mountain, and 1 GPS and 1 VHF females are initiating nests east of Park Valley.

Of the females we radio-marked, we have not been able to relocate 2 VHF females. We have not detected any signals for them this season. We will continue listening/checking for them throughout the field season and hopefully as the snow melts in the higher elevations we will pick up their signals.

One GPS female that was captured in mid-March 2017 in Dry Basin has decided to make several trips over to Grouse Creek and back. It is possible that she was visiting another lek on the Grouse Creek side and then returning to the Dry Basin and Meadow Springs lekking areas. We can see the exact route she used to travel back and forth. This information would simply not have been possible with VHF collared birds. Very cool movement data to look at and capture! This type of data is what we want to capture to better understand sage-grouse movements across broad landscapes. Below is an image from Movebank of her movement location data. As you can tell by the point densities of < 10 , she has not been staying put in one location very long.



West Box Elder Landowners

We are very appreciative for the amount of cooperation, interest and trust that has been given to my technicians and I for the 2017 field season; be reassured, it is not taken lightly. We are aware that we are guests and my technicians are reminded frequently of this privilege we have. Furthermore, we have really enjoyed getting to know all the different landowners within my study area and learning about their knowledge of the landscape, both past and present.

Without hesitation, please contact us if you want to know anything about what we are observing on your property, or if you just have general questions. If we do not have the answer, we will do our best to find it out for you.