

Greater Sage-grouse Responses to Pinyon - Juniper Removal

West Box Elder Sage-Grouse Field Report – May 2018

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Background and Purpose

We are documenting greater sage-grouse habitat-use, seasonal movement, and vital rate data relative to pinyon-juniper (conifer) removal projects within the Park Valley area of the Box Elder Sage-grouse Management Area (SGMA). The purpose of the research is to develop a tool that can be used to better predict sage-grouse use and survival relative to the placement of removal projects. We hope that this tool will be used as part of the Utah Department of Natural Resources Compensatory Mitigation Program to enhance mitigation credits accrual for participating landowners. This is the third of four field seasons.

Currently, we have deployed 10 global positioning system (GPS) rump-mounted transmitters on female sage-grouse. We also have 5 GPS marked females in the West Grouse Creek area that we will monitor remotely. With the GPS transmitters, data downloads are being gathered every 4 hours on a 24 hour cycle throughout the study period. Most of the GPS transmitters are additionally equipped with a small VHF antenna to aid in recovery of transmitters in the advent they default or left upside down after a mortality occurs.

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. Additionally, we have deployed 15 very high frequency (VHF) necklace-style radio-collars 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.

New for the 2018 field season, we will be marking up to 55 sage-grouse chicks with small VHF backpacks. These VHF backpacks will be sutured onto the chick's backs and will remain until around the 70 day mark. This will allow us to track the complete life cycle of sage-grouse within the West Box Elder SGMA and obtain the finest scale data possible to observe how individual sage-grouse chicks are responding to pinyon-juniper treatments across the SGMA. We will also mark chicks in the 2019 field season.

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. The entire study areas consists of approximately 440,750 ha (1,089,117 acres). 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

Lekking and Breeding Status

Lekking has concluded for the 2018 mating season. Throughout May, some yearling and juvenile males were still lingering around leks, but radio-marked adults have now dispersed from main lekking areas to summer locations.

Trapping

We have concluded trapping for the 2018 field season. 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.

Nesting and Brooding

To date, 14 females (both GPS and VHF birds) have initiated nests. Of those 14 nest initiations, 7 were predated and 1 was abandoned. Currently there are 2 females still incubating nests and they have picked good nesting locations, so our fingers are crossed they will make it. One of the females is a re-nest! This was our only re-nest this year, but still very cool to document with re-nests being extremely rare in the West Box Elder SGMA. Several nest predations showed signs of raven activity. No nesting females were killed during the nest depredations.

Similar to 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 was warranted because we have observed ravens following us on several different occasions this season while relocating females; whether they were actually profiling us or just being curious- we are playing it safe.

Currently, we have 3 brooding females (2 VHF and 1 GPS). One GPS female lost her brood in the Rudy Pipeline reclamation area within a week of hatching. Two of the brooding females are

on top of the Grouse Creeks by Muddy Creek pass and one is up Dunn Canyon north of Park Valley.

Mortality

For this field season, 4 GPS and 5 VHF female mortalities. This is a 29% increase from last year's mortalities at this point. Three of the GPS females showed signs of mammalian predation and one is undetermined. Two of the VHF mortalities showed signs of avian predation, 1 mammalian predation and 2 was undetermined.

Grouse Movements

With having decreased wet areas and runoff for the 2018 field season, birds have really spread-out over the landscape in search of quality habitat and sufficient green groceries to meet their nutritional requirements for nesting and brooding. Of the females we radio-marked, we have located all of them.

Chicks

We currently have radio marked 3 broods with small VHF backpacks (Figures 1 and 2). As mentioned beforehand, these backpacks are sutured on with sterile monofilament line, not unlike fishing line. We had one GPS female's signal fail within a few days from hatching, thus not allowing us to track her. However, thankfully her points uploaded to Movebank Friday morning (the day after hatching). So we used a bird dog "Duke" to find the brooding female and were able to mark the chicks. This will also allow us to monitor the female via the chicks radio frequencies for as long as the brood was successful. Duke found all of the 5 chicks individually, pointed and held each of them until they were picked up for marking (figure 3)! All remaining broods that hatch will get marked.

West Box Elder Landowners

We are very appreciative for the cooperation, interest and trust that has been given us in the 2018 field season; be reassured, it is not taken lightly. We are aware that we are guests and our technicians are reminded frequently of the privilege we have. Furthermore, we have really enjoyed getting to know all the different landowners within our 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.



Figure 1. VHF backpacks being sutured on brood on top of Grouse Creeks.



Figure 2. Sage-grouse chicks.



Figure 3. Sage-grouse chick being located using bird dog.