

## **Greater Sage-grouse Responses to Pinyon - Juniper Removal**

### **West Box Elder Sage-Grouse Field Report – July-August 2018 Update**

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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 11 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.

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

## **July-August 2018 Grouse Activity**

By the end of July, we redeployed 3 GPS transmitters and 5 VHF collars. All functional GPS transmitters recovered during the field season were refurbished and redeployed as quickly as possible to ensure we maximized their capabilities relative to their cost.

For the 2018 field season, 14 females (both GPS and VHF birds) initiated nests. Of those 14, 7 were predated and 1 was abandoned. The last 2 nesting females hatched in late June. One was a re-nest and she had 6 chicks and her first predated nest had 9 eggs. This was our only re-nest this season. Historically, re-nesting has been rare in the West Box Elder SGMA. But we have now documented at least one re-nest each over the past three field seasons.

Four out of 6 broods were successful for the 2018 field season. One GPS female lost her brood in the Ruby Pipeline reclamation area within a week of hatching and one VHF female that hatched late lost her brood in Dunn Canyon. Three of the successful females brooded on top of the Grouse Creeks by Muddy Creek pass and 1 resided up Dunn Canyon north of Park Valley.

For this field season, there have been 6 GPS and 8 VHF female mortalities. This is a 27% increase from last year's mortalities at this point. Five of the GPS females showed signs of mammalian predation and one is undetermined. Five of the VHF mortalities showed signs of avian predation, 2 mammalian predation and 1 was undetermined.

Because of the dry 2018 field season, our radio-marked birds dispersed over the landscape in search of quality habitat and sufficient green groceries to meet their nutritional requirements for nesting and brooding. From June through August, all marked birds occupied higher elevation habitat or lower irrigated agriculture fields; no birds utilized any dryer transitional areas within the SGMA. For the 2018 field season, all females we radio-marked were located and monitored.

We radio-marked 5 broods with small VHF backpacks, for a total 25 individual chicks. This gave us the ability to observe at a finer scale, not only how the brooding females were interacting with the habitat, but also their chicks. Furthermore, it gave us the ability to know for sure just how many chicks were present throughout the brood monitoring period and at the 50 day flush. Of the 25 chicks marked 12 survived to 50 days (48% success rate). We will replicate this process for the 2019 field season.

## **Technicians and Equipment**

The 2018 field has concluded and all technicians have moved on. The 2018 technicians were an efficient crew and really enjoyed interacting with the West Box Elder landowners and working throughout their respective study areas. No accidents or injuries occurred during the field

season. We are always thankful when the field season come to a close with no injuries or accidents! All equipment was effectively maintain over the duration of the 2018 field season.

### **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.