Greater Sage-grouse Responses to Pinyon - Juniper Removal

West Box Elder Sage-Grouse Field Report – June 2019 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 conifer 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 our fourth field season.

Currently, we are monitoring 10 female sage-grouse with rump-mounted global positioning system (GPS) transmitters that are equipped with photo-electric cells to recharge their batteries. Five GPS females were marked during the 2019 field season. This is discussed in the mortality section below. The GPS transmitters are downloading bird location data every 4 hours on a 24 hour cycle. Most of the GPS transmitters are equipped with a small very high frequency (VHF) antenna to aid in recovery of transmitters in the advent they default or left upside down after a mortality occurs and the solar batteries discharge

The transmitters have been deployed on females captured near conifer treatment areas in the study area. 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 conifer management within the SGMA. This larger data set will allow us to evaluate sage-grouse utilization of treatment areas in reflection to overall population fitness at the landscape level. Additionally, we have deployed 15 VHF necklace-style radio-collars across the study area and as a side bar of the research are determining if vital rates may differ by type of radio transmitter. Both units weigh about as much as two silver dollars – 22 grams.

As in the 2018 field season, we have also marked sage-grouse chicks this season with small VHF backpacks. These VHF backpacks are 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 determine how individual sage-grouse chicks are responding to conifer treatments across the SGMA.

June 2019 Activity

For the 2019 field season, 23 females (both GPS and VHF birds) have initiated nests. Of those 23 nest initiations, 8 were predated. The last nesting female hatched in late June. She was a re-nest. This was our only re-nest this season; renesting sage-grouse have been rarely reported in the West Box Elder SGMA. We have documented at least one re-nest each over the past four field seasons.

We had 15 females hatch successfully. One GPS adult female that was captured and radio-marked as an adult in 2015, she lost her brood in the Rudy Pipeline reclamation area where she was originally marked. This shows the long lifespan that sage-grouse can have, unlike the majority of upland gallinaceous gamebirds. To date, seven broods have been predated with 3 females killed as well. We currently have 7 broods that are still being tracked. One brood was successful at the 50 day flush on June 30. The remaining broods span the arc of the SGMA, from Sickle Springs southwest of Dry Basin to north of Park Valley and up Dunn Canyon. This has been a good year for production!

For this field season, there have been 2 GPS and 3 VHF female mortalities. This is a 39% decrease from last year's mortalities at this point. One of the GPS females showed signs of mammalian predation and one is undetermined. Two of the VHF mortalities showed signs of avian predation (one of those females was a fresh kill and was being eaten by a Golden eagle when the technician located the mortality signal) and 1 was undetermined.

With having increased wet areas and runoff for the 2019 field season, females have not dispersed as far from their nests sites as observed last fielded season.. Currently, most marked birds are occupying higher elevation habitat or lower irrigated agriculture fields; a couple females are utilizing dryer transitional areas within the southeast portion of the SGMA. We have located all the female sage-grouse we had radio-marked.

We have radio-marked 9 broods with small VHF backspacks, for a total 27 individual chicks; three to 4 chicks per brood were marked. We are monitoring their movements and survival rates. Six broods were not marked do to inclement weather conditions. We were careful not to mark broods in wet conditions to prevent almost certain capture myopathy from exposure. All broods have been marked for the 2019 field season.

WBE Landowners

We are very appreciative for the cooperation, interest and trust that has been given us in the 2019 field seasons as in the past field seasons; 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.