

Greater Sage-grouse Responses to Pinyon - Juniper Removal

West Box Elder Sage-Grouse Final Field Report – July/August 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). We have deployed 18 global positioning system (GPS) rump-mounted transmitters on female sage-grouse. We will deploy two more transmitters this fall. 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 four hours on a 24-hour cycle throughout the study period.

The GPS transmitters have been deployed on females near completed conifer treatments. 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 correlate sage-grouse utilization of treatment areas to overall population fitness at the landscape level. In other words, are the treatments affecting overall population growth rates and trends.

We also have maintained a sample of +/- 15 very high frequency (VHF) necklace-style radio-collars on other female sage-grouse to determine if vital rates may differ by type of radio transmitter. Both units weigh about as much as two silver dollars – 22 grams, but differ in placement location.

Study Area

The study area is part of the Raft River subunit that 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. 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.

Nesting and Brooding

For the 2017 field season, 20 females (both GPS and VHF birds) initiated nests. Of those 20 nest initiations, nine were predated and one abandoned her nest. The last nesting female hatched in the Black Hills, and she was a re-nest! This was our only re-nest this year (last year there were two), but still very cool to document with re-nests being extremely rare in West Box Elder. As like was done with nest monitoring, to mitigate the potential for ravens using our activities to key in on brooding females, we were careful not to spend extended periods observing brooding females. This caution was warranted because we have observed ravens following us on several different occasions this season while relocating females. Whether they were actual profiling us or just being curious- we are playing it safe. In addition, when compared to last season, the raven frequency around nest locations and brooding areas was noticeably higher.

Currently, we have no brooding female. Ten females successfully hatched, but unfortunately one VHF female's collar malfunctioned and impeded us from monitoring her and one VHF female's collar died at the end of July. Of the eight remaining females we monitored, three were predated before the 50 day flush and five were successful at their 50 day flush. At the end of July and first week of August, brooding females continued moving towards wet meadow and riparian areas across the study area. Fortunately, this season there were ample wet areas for females to utilize while rearing chicks and we noticed brooding females moving shorter distances when compared to last season. The last brooding female was successful and flushed on August 7. Overall, chick numbers were higher for successful females than last season.

Mortality

For this field season, seven GPS and four VHF females have been killed. The four VHF and five GPS mortalities were radio-marked in April 2017. Of the mortalities, two females showed signs of avian predation and four mammalian predation. Two females (both GPS) were killed on Highway 30, one in Park Valley and the other near Kelton. Mortality causes remain unknown for the other four females. I suspect a badger could have killed one of the last three females; we have noticed an increase in badger activity this field season.

Vegetation Surveys

All vegetation surveys have concluded for the 2017 field season. Across the study area, the flush of vegetation growth was high as well as water availability; this seemed to help consolidate brooding females' movements within their individual regions, which prevented excessive exposure to predators.

Grouse Movements

Radio-marked grouse continued to spread-out over the landscape once that the lekking season concluded and females with broods targeted the wetter areas toward the end of the field season. The last brooding female was flushed with four chicks on August 7 in Park Valley on the north side of Highway 30 in close proximity to the hay fields.

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 was not taken lightly. We are aware that we are guests and I reminded my technicians frequently of this privilege. Furthermore, I 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 observed on your property for the 2017 field season, 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.