



## **Spatial ecology and conservation of long-distance migrations of mule deer from Grand Teton National Park**

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The findings presented in this report are preliminary and may change due to ongoing data collection and continued analyses.

## EXECUTIVE SUMMARY

Although the Greater Yellowstone Ecosystem (GYE) hosts several of the longest ungulate migrations remaining in the contiguous United States, expanding development and an increasing human footprint continue to truncate migratory routes. While some migrations begin at seasonal ranges on protected lands, migration corridors frequently cross or end within other jurisdictional boundaries, including large tracts of private or multiple-use lands, with varying levels of protection. Understanding migratory behaviors as well as identifying vital habitats and potential barriers to continued movement enhances conservation planning efforts aimed at protecting wildlife populations dependent on a migratory strategy to survive. We initiated a pilot project in 2013 to document the migration patterns of mule deer (*Odocoileus hemionus*) that summer in Grand Teton National Park (GTNP). By 2016, our preliminary findings began to describe a wide-ranging and diverse migratory network connecting GTNP with winter ranges across the southwestern extent of the GYE. Recognizing the need to increase the scale of the project to better understand these migrations and analyze a large and expanding dataset, we leveraged funding from the Meg and Bert Raynes Wildlife Fund in 2017 and 2018 to support continued collar deployment and quantitative data analysis. In winter 2017/2018, we collared 30 mule deer on two winter ranges in eastern Idaho from which preliminary research had indicated mule deer travel into the park. In fall 2018, we also deployed 10 additional collars on summer range throughout GTNP and the John D. Rockefeller, Jr. Memorial Parkway. The additional GPS data collected from these collars has increased our understanding of mule deer migrations in the Grand Teton region and revealed substantial interconnectedness among mule deer in the GYE. Of particular interest in 2018, we documented a mule deer traveling 190 miles from central GTNP to a winter range northwest of Rock Springs, Wyoming, which is the longest movement recorded during this project. We also recorded a mule deer traveling from its wintering area south of Cody, Wyoming across a mountain pass at 11,496 feet while crossing the Absaroka Range into GTNP. While a number of the collared mule deer have crossed elevations greater than 10,000 feet, this is the highest point recorded to date during this project. Since 2013 we have preliminarily described seven new, population-level migration corridors in the Grand Teton area and identified important stopover sites and areas of conservation interest. We plan to deploy additional collars in 2019 while completing analyses of all data collected to date. The project will then transition to disseminating our findings with ecosystem managers and stakeholders to inform discussions about long-term conservation strategies to help ensure the future of mule deer populations in GTNP and the GYE.