

Status Report:

Habitat Quality for Grizzly Bears (*Ursus arctos*) in Grand Teton and Yellowstone National Parks and the Efficacy of Yellowstone's Bear Management Areas

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DESCRIBE HOW THE GRANT MONEY WAS USED

Funding provided by the MBRWF supported field operations throughout the summer of 2020 and contributed towards paying the stipend of the lead investigator. Although COVID-19 prevented us from undertaking a full field season, the investigator and National Park Service personnel surveyed GPS locations of grizzly bears at least one day per week from June through October.

DESCRIBE HOW THE PROJECT OBJECTIVES IN THE GRANT WERE ACHIEVED

- Objective I – *Assess habitat quality for grizzly bears*: As part of this graduate work, we use GPS locations from grizzly bear collars paired with remote sensing data to determine whether Bear Management Areas (BMAs) in Yellowstone National Park (YNP) encompass areas with characteristics of where grizzly bears spend time. This objective draws on data collected over the last twenty years to model grizzly bear resource selection. This objective is ongoing; the data have been gathered and processed and we will begin running the models in January 2021.
- Objective II – *Identify resources important to grizzly bears in different vegetation communities*: Throughout the summer of 2020, we visited GPS locations of currently collared grizzly bears. Due to COVID-19 and other funding issues, we were not able to conduct a full field season during 2020 and restricted our study area to YNP. Given that a full-time field crew was not hired, YNP Bear Management personnel and volunteers assisted with field searches and shared invaluable experience from past studies.

From June through October, we surveyed over 1,100 GPS locations from nine bears (3 females, 6 males). At each GPS location, we systematically searched for bear sign including daybeds, scat, tracks, signs of foraging and cached carcasses. At each site with sign of foraging, we conducted transect surveys of plant species present and measured feeding activity like root digs and cache excavation. In total we surveyed about 41 days of bear activity. We also collected 81 bear scats, which will be analyzed in the laboratory this winter to determine specific foods eaten. All of this information will be used to inform models from objectives I and III as to what bears are doing in different areas.

This season was very effective even with a reduced field schedule. We plan to have a full field season in 2021, surveying GPS locations in YNP and Grand Teton National Park (GTNP). The 2021 season is expected to be the final season of field operations.

- Objective III – *Determine areas with high densities of bears*: To determine whether high densities of grizzlies occur in BMAs, we are using Bear Observation Flight data and remote sensing data to determine observation rates of bears in different areas of YNP and GTNP. This rate will be adjusted for the detection of bears in different environment types to better inform observation rate. This objective is ongoing; we have gathered the data and run preliminary analysis to determine aerial detection of bears. Currently, we are finalizing the model; estimates from this model will then be used to estimate density.

STATE THE CONCLUSIONS AND EFFECTIVENESS OF THE PROJECT

All work is ongoing and is expected to be completed in December 2021. We plan to have a full field season for 2021 running April through November. We anticipate presenting findings at the state and national meetings of The Wildlife Society. Findings from the project will inform future management of grizzly bears in YNP and GTNP by improving understanding as to whether seasonal closures reduce human-bear interactions. As the populations of grizzly bears and humans in the GYE grow, reducing human-bear interactions becomes increasingly important.