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MBRWF Executive Summary

Title: Landscape Analysis of Native Bee Community Composition and Plant-Pollinator Interactions in Yellowstone National Park

This study explores the environmental drivers of plant and bee community composition in Yellowstone National Park (YNP), and how plant-bee interactions vary across an elevational gradient. Over each summer season from 2010 to 2012, Ann Rodman (YNP senior scientist) coordinated the sampling of bee community data (identity and abundance of species) in YNP at seven locations along an elevational gradient from Gardiner (1,620 meters) to Mount Washburn (2,932 meters). Bees were collected by laying out 30 pan traps across a transect of 50 meters by 10 meters at each site for 24 hours, and we replicated these same methods in the 2020 field season. Data this year were collected throughout 17 weeks from June 2020 to October 2020. Additionally, we conducted one-hour observation periods at each site that involved walking through the transect, netting wild bees observed, and recording the flower species they were visiting to collect information on individual plant-bee interactions. All bees were transferred to the USDA Bee Biology and Systematics Laboratory in Logan, Utah where they are currently being identified down to the species when possible. Each day bee data were collected, vegetation surveys were conducted across the center of the transect in a 50 meter by 1 meter area. All individual flowers present in the area were counted. There are also climate stations located at each site that are maintained by the park, and collect environmental data (temperature, precipitation, humidity, etc.) we are able to access. The current stage of the project involves analyzing environmental and vegetation data to look for patterns across the elevational gradient of the seven sites.