

FINDINGS

Since my final research permit was issued on May 12, 2023, I have visited the park a handful of times. On my first visit, I scouted various locations for *Ferocactus cylindraceus* as well as to get a feel for the park. Those locations included areas near Split Rock, Live Oak, Hidden Valley, and Quail Springs and surrounding trails. I collected data on the current locations of individual *F. cylindraceus* to consider for my study.

As my project is still in its beginning stages, the current task is identification of *F. cylindraceus* individuals. To accomplish this task, I am using data from iNaturalist while in the field. This has been largely unsuccessful however, as it seems most individuals that have been marked on iNaturalist are deceased. I have processed trial soil samples from an alternative location in my lab to analyze isotopic data from in preparation for my JTNP soil samples.

During my second visit, I returned to scout additional locations of *F. cylindraceus* in areas near the Maze Loop trail, Quail Springs, and Keys West trail. This visit allowed me to mark nine individuals for observation on my GPS. This summer's heat waves began soon after my second visit, so the last trip I took was extremely short and unproductive as I did not find any additional living individuals to record for observation.

At present, I am behind on my research timeline. This is due to the extreme heat waves, difficulty in making use of the free researcher housing, personal hinderances, as well as academic hinderances including preparation for my qualifying exams throughout the summer and fall of 2023. Since September of 2023, I have revisited sites to search for additional *Ferocactus* individuals with no luck. After meeting with the Grant Coordinator in March, I now have a better idea of locality and plan to visit the Johnny Lang Connector Trail, where I have been told a significant population resides. From there, I will digitally mark 40 individuals, collect soil and ant samples, as well as place iButtons to begin the collection of microclimate data.

Throughout each of my visits it was fantastic to see Joshua Trees in person as well as observe the wildlife in the park. At the *Ferocactus* I marked, I saw signs of herbivory from both mammals and insects, taking note of the species which sought shelter under *Yucca* and other species.

CURRENT AWARD BALANCE

Regarding my award balance, as of March 1, 2024, I have spent \$2,468.53 of my original \$3,509 award purchasing iButtons and have \$1,040.47 remaining in my award. I have also purchased a Garmin eTrex for \$197.09, however I have not submitted my reimbursement request for this item, so this amount has not yet been deducted. After its deduction, the remaining balance for my award will be \$843.38. These funds are assigned for mileage and meal reimbursements, but I would like to request for the reallocation of those funds (\$843.38) for lodging expenses as making use of the free housing has proven difficult.