Agency/Organization: US Geological Survey

Project Name: Seed Ecology of Threecorner Milkvetch

Project Number: 2023-USGS-2385A

Reporting Period: July 1, 2024 – September 30, 2024

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QUESTION 1: What did you accomplish during this reporting period? How did these accomplishments help you reach the goal of your project? If relevant, what indicators or benchmarks were used to determine your progress?
For our Herbivory/Competition/Pollination Limitation Study, the *Astragalus geyeri var. triquetrus* (ASGET) fruits collected from the senesced plants (M09) in late June 2024 were cleaned and seeds counted by individual plant within the treatments, and seed viability testing was started (M10). By mid-August, we completed seed testing from the field treatments (M11) and found high seed viability for all populations. Seed viability data are currently being entered and QA/QC'd in preparation for analysis of treatment effects.

For our Seed Longevity Study, we prepared and buried nylon mesh bags of ASGET seeds in habitat at the Mud Lake and Mormon Mesa population sites in mid-July (M13). These bags will be retrieved at three-month intervals during the first year, and annually after that up to 4 years of burial.

At one additional site – Sandy Cove – similar seed bags were prepared and buried in soil at our USGS greenhouse facility in Boulder City under summer after-ripening temperatures because access was unsafe for re-visiting the site to deploy seed bags: i.e., >5 mile hike across challenging terrain during an Extreme Heat Warning (National Weather Service) when summer temperatures were the hottest on record. Coincident with Mud Lake and Mormon Mesa populations, seed bags were similarly buried below the soil surface and protected within our facility ware yard. Sandy Cove is approximately 13 miles, as the crow flies, from our greenhouse facility and experiences similar conditions. When we collect the 3-mo buried bags for processing at Mud Lake and Mormon Mesa, we will also retrieve bags from our facility and re-deploy the remaining bags at the Sandy Cove site when we have safe access in mid-October.

Dr. Lesley DeFalco presented project progress at the annual Multiple Species Habitat Conservation Plan Progress Report Symposium in August 2024, completing Milestone 11.

These Milestones are instrumental towards Field Experiments 1 (Herbivory, Invasive Plant Competition, and Pollination Limitation) and 2 (Seed Longevity) and developing our final deliverables for this project.

QUESTION 2: What, if any, problems were encountered? Briefly describe those problems and the manner in which they were dealt.
No problems encountered.

QUESTION 3: What, if any, proposed activities were not completed? Briefly describe those activities, the reasons they were not completed and your plans for carrying them out.
None.

QUESTION 4: What is the calculated percent of work completed?
We are approximately 10% toward project completion.

QUESTION 5: Do you foresee any upcoming problems with future project activities? If so, how do you propose to overcome those problems?
None anticipated.

QUESTION 6: Is there anything else you want to tell the DCP about this project?
We have nothing additional to note concerning this project.

QUESTION 7: What was produced during the reporting period?
During the reporting period, we produced this Quarterly Progress Report (D06).