

Agency/Organization: US Geological Survey

Project Name: Clark County Rare Plant Propagation Research Phase II

Project Number: 2021-USGS-2075A

Reporting Period: April 1, 2025 – June 30, 2025

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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?

We completed all greenhouse watering phases on soil seedbank samples collected from the Upper Virgin Valley population of *Eriogonum viscidulum* (ERV1), the Mud Lake (Dry Lake) and Mormon Mesa populations of *Astragalus geyeri* var. *triquetrus* (ASGET), and the Gold Butte and Bitter Springs Valley populations of *Arctomecon californica* (ARCA) to propagate these three species (M17). We transplanted emerging seedlings and are growing them in the USGS greenhouse for future seed collection to create conservation collections for the ERV1 and ASGET populations or nurse stock for ARCA.

We scouted two populations of ERV1 in late May 2025. At the Upper Muddy River population, we did not locate any live ERV1, but we were able to bag inflorescences of plants at the Toquop Wash population for conservation seed collection (mesh bag tied above basal rosette and secured to ground). We are waiting for all plants to senesce and in early July 2025, we will collect matured inflorescences (M23). Collected seeds will be after-ripening in the USGS shade house under prevailing summer temperatures in preparation for cleaning and germination trials prior to delivery to the County in August (D22).

We continued to monitor germination of ARCA seeds collected in 2023 by Kelsey Graham (USDA) for a second round of germination based on the most successful treatment combinations from our initial trials with seed collected in 2022. We continue to transplant germinants from the treatment chambers and grow plants in the USGS greenhouse to test soils for propagation.

These Milestones are instrumental in field and greenhouse work 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.

None.

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 28% 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?

Because no ERVI seedlings were successfully transplanted and grown out from surface soils we collected during fall 2024, we are unable to directly harvest seeds from plants emerging from seedbank grown in the greenhouse (D21). When the same situation occurred with surface soils collected from a different population during Fall 2023, we sieved soils but found no remaining viable seeds in these samples. To overcome the absence of seed for conservation collection, we propose to deliver an Excel workbook documenting all species that emerged and their counts from this habitat collection. This aspatial data includes details of the greenhouse emergence trial and the composition of the seed bank at this site (i.e., native, nonnative and ERVI species; seedling counts; timing of emergence associated with watering and chemical treatments), which can be compared against seed bank composition at other sites.

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 a Biennium Progress Summary Report (D19) and this Quarterly Progress Report (D18).