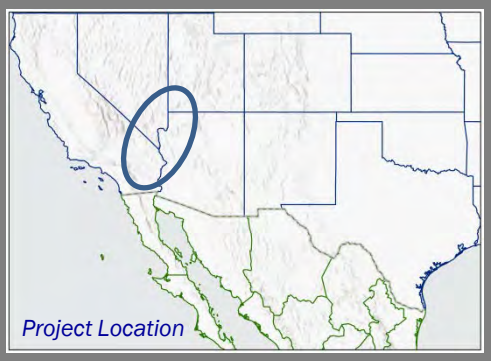
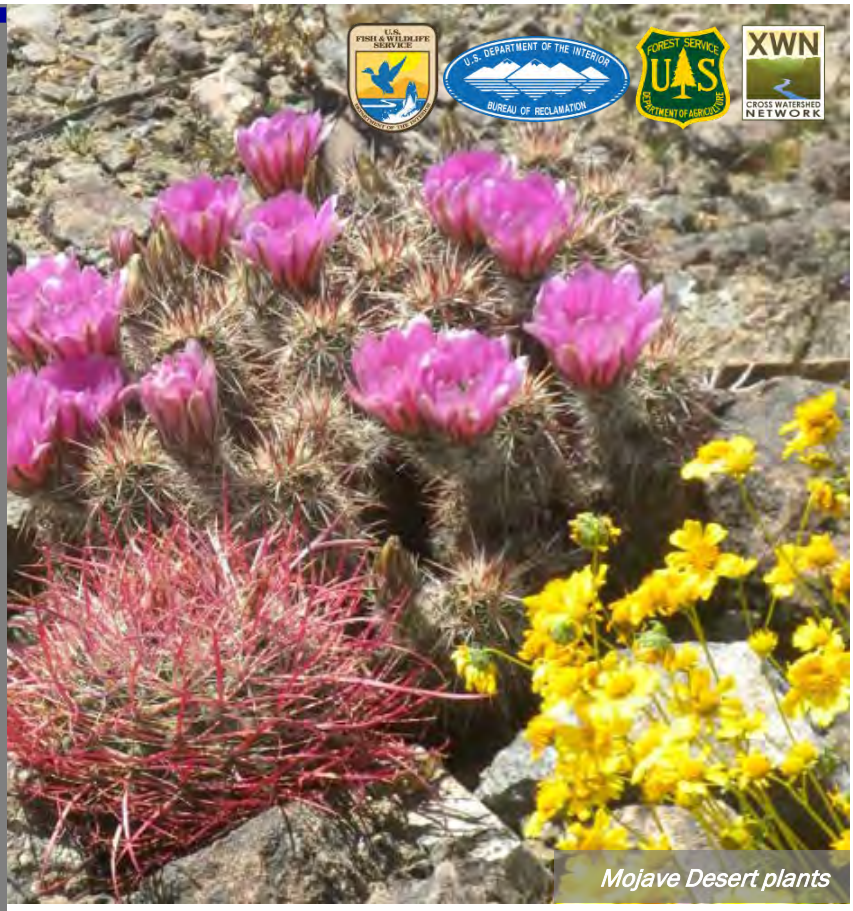
RESTORATION

Mojave Desert Native Plant Program

The Mojave Desert Ecoregion covers a diversity of habitats in southern California, southern Nevada, southwest Utah, and northwest Arizona. To address the challenges of habitat restoration within the region, the Bureau of Land Management (BLM) created the Mojave Desert Native Plant Program (MDNPP) in 2016. The MDNPP coordinates seed collection, research and development of seed transfer zones (STZs), and researches restoration techniques for priority native plant species. The MDNPP also works with partners, and commercial seed producers and nurseries, to increase availability of ecologically and genetically appropriate native plant materials for the Mojave Desert Ecoregion.





Mojave Desert plants

KEY ISSUES ADDRESSED

Interacting impacts from fire, invasive species, recreation, energy development, and urban development have altered native plant communities in portions of the Mojave Desert, particularly in desert basins and riparian areas. Revegetation in the Mojave is challenging due to unpredictable precipitation, frequent drought, and heavy granivore and herbivore pressures on restoration plantings. Furthermore, a lack of commercial native seed producers limits restoration capacity. The MDNPP seeks to address these challenges by increasing availability of genetically-appropriate seed and partnering with research institutions to inform land managers on the use of native seed and restoration strategies. A primary emphasis of the program is habitat restoration for the federally threatened Mojave desert tortoise (*Gopherus agassizii*), while simultaneously benefitting pollinators and maintaining biodiversity across the landscape.

PROJECT GOALS

- Develop STZs for priority Mojave Desert restoration species
- Increase commercial availability of ecologically and genetically appropriate native seed
- Improve restoration techniques within the Mojave Desert ecoregion

Plants grown at Victor Valley College

TOOLS FOR MANAGERS

USGS released their Climate Distance Mapper Tool in 2018, a web-based tool to map appropriate seed source areas for specific restoration locations. A seed menu tool is anticipated in 2019.

PROJECT HIGHLIGHTS

Seed Transfer Zones (STZs): Genetic analyses, combined with field tests using ten common garden sites, are being used to develop empiric STZs for priority restoration species. STZs denote modeled geographic areas within which seed may be moved with reasonable expectation of success, based on climate, topography, genetics, and/or common garden test data. Provisional STZs are available for the Mojave Ecoregion, and empiric STZs are completed for desert globemallow and Nevada jointfir. Empiric STZ development is ongoing.

Restoration Techniques: USGS is testing different methods for Mojave restoration. These include seed encapsulation to protect seeds from granivory, island plantings, aerial seeding, broadcast seeding, decoy seeding to discourage granivore predation, and herbicide treatments combined with seeding.

Native Plant Materials: Project partners are employing multiple approaches to increase availability of genetically-appropriate native seed and container stock. One involves working with the NRCS Tucson Plant Materials Center to develop regionally-adapted germplasm releases of native species for commercial seed increase. Partners are also growing container plants while evaluating methods for growing native plants in nursery settings.

Collaborators

- BLM (primary funding and coordinating agency)
- U.S. Geological Survey
- Rancho Santa Ana Botanic Garden
- NRCS-Tucson Plant Materials Center
- Utah Division of Wildlife Resources
- Texas State University
- Victor Valley College

Case study support provided by US Fish and Wildlife Service, US Bureau of Reclamation, US Forest Service, and Cross Watershed Network. Updated November 2018.
Photos courtesy of Judy Perkins/Bureau of Land Management

LESSONS LEARNED

Ecoregion-wide partnerships and studies inform restoration decisions and tactics across administrative boundaries with similar needs and concerns, but limited resources.

Many key restoration species for the Mojave are expensive and challenging for commercial seed production. Commercial growers are reluctant to grow these species without a guaranteed market to purchase the seed. The MDNPP is able to coordinate across administrative boundaries to identify priority species and quantity needs, and communicate these needs to prospective growers.

Working on the ecoregional scale is valuable for large-scale restoration needs, such as wildfire restoration, where the focus is on common and widespread native species. Localized projects and studies remain important for site-specific restoration concerns, and may include locally important species not included in the broader MDNPP focus.

NEXT STEPS

- Develop more propagation and harvesting protocols for seed increase production, and promote commercial seed production
- Continue STZ studies to include at least two species for each plant functional group, such as shrubs, grasses, and forbs
- Develop and test techniques to improve restoration success

PROJECT RESOURCES

For more information on this project, contact Judy Perkins, BLM-California: jlperkins@blm.gov

For additional project resources and case studies, visit the Collaborative Conservation and Adaptation Strategy Toolbox: WWW.DESERTLCC.ORG/RESOURCE/CCAST

Turkey Farm Garden, Utah Division of Wildlife Resources