



Pollinators of TER-S Plants on DoD Installations in Western States

Project #
08-391

Background:

The pollinating insect fauna (beetles, flies, ants, wasps, bees, butterflies and moths) of the United States is large and diverse. Native ground and twig-nesting bees are the dominant pollinators of native and Threatened, Endangered, Rare, and At Risk (TER-S) species on wildlands and protected military lands in the USA. Virtually unrecognized by land managers, and the public, are the 4,000 species making up our native bee pollinator fauna. Not only are these bees relatively unknown, but which bee, and other pollinator genera and species, visit and pollinate several hundred TER-S species of flowering plants are also little understood. Only by knowing which pollinators routinely visit TER-S species, can land managers and restoration ecologists prepare science-based and cost-effective multi-year management plans for these at-risk plants.



Left: *Brodiaea kinkiensis* (San Clemente Island Brodiaea)

Objective:

The overall purpose of this project was to locate pollinator information on the 226 TER-S species found on DoD facilities in 5 western states (Arizona, California, Nevada, New Mexico and Texas) and create a spreadsheet database associating pollinators with their respective host plants. These data were made available to Environmental Stewardship Divisions, their independent contractors and other interested environmental agencies and individuals via the DENIX website (www.denix.osd.mil) and other searchable online databases. In addition to the plant/pollinator database, a bibliography of journal citations, our sources, was compiled and included with the final report and deliverables. This project is to provide DoD environmental stewardship division chiefs, their staffs, civilian environmental contractors and NGO's access to this information.

Summary of Approach:

This research has focused on an integrated electronic database (scientific journals), library and gray literature search of botanical and entomological literature to associate known TER-S plants with floral visitors and

pollinators of these plants. We expanded our pollinator visitation search parameters to include the target 226 TER-S angiosperm species found anywhere within those state boundaries. We conducted comprehensive literature searches using library, online databases, and in some cases interviews with prominent field researchers. We conducted no new or field observational studies of these plants and their pollinators. Often we were unable to resolve pollinators below the level of Genus. Several extensive gray literature studies (e.g. the work of A. Moldenke in California) were consulted adding significant new records to our pollinator database.

Benefit:

The results of this research provides an authoritative database of known pollinators and floral visitors of TER-S rare plants in five western states. This information will allow Natural Resource Managers to effectively create habitat management and species recovery plans based upon their pollinating agents. It is hope that by synthesizing existing pollinator data, additional field observations will be made of TER-S plants and their pollinators on DoD installations within these western states and across the country. This searchable online database will also be utilized by independent contractors, NGO's and other interested environmental organizations and individuals.

Accomplishments:

This Legacy-funded effort received its funding in FY 2008. Results to date are significant, but vary depending upon habitat type and state to state. These efforts could be expanded to next include the SE United States and eventually TER-S plants across the entire USA. We located floral visitor and/or pollinator records for 219 of 226 species of listed TER-S species in the states of Arizona, California, Nevada, New Mexico and Texas. This database, and accompanying bibliography, is the first attempt to synthesize existing pollinator/plant records for threatened, endangered and rare plants occurring on DoD-managed lands in the western states.

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