Pollinators of TER-S Plants on DoD Installations in Southeastern United States

Project # 09-391

Background:

There are over 250,000 flowering plants (angiosperms) worldwide, with approximately 75% requiring animal pollination for successful reproduction. The United States is home to a large group of diverse pollinators, which includes insects (bees, butterflies, moths, beetles, ants, and wasps), birds (hummingbirds), and mammals (some bats). Native ground and cavity-nesting bees are the dominant pollinators of native 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. 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 plants for these at-risk plants.

L: *Plantanthera integrilabia* (Monkeyface; Photo by David R. McAdoo) R: *Papilio glaucus* (Tiger swallowtail; Photo from www.dreamstime.com)

Objective:

The overall purpose of this project was to locate pollinator information on 87 TER-S species found on Department of Defense (DoD) installations in seven southeastern states (North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, and Louisiana) and creates 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 and sources was compiled and included with the final report.

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 pollinators of these plants. The project expanded our pollinator search parameters to include related genera of some of the target TER-S angiosperm species to include pollinators of related genera found anywhere within the U.S. Comprehensive literature searches were conducted using library, online databases, and in some cases interviews with prominent pollination biologists. No new or field observational studies of these plants and their pollinators were conducted.

Benefit:

The results of this research provide an authoritative database of known pollinators and floral visitors of TER-S rare plants in 7 southeastern states. This information will allow Natural Resources Mangers to effectively create habitat management and species recovery plans based upon potential pollinators. It is hoped that by synthesizing existing pollinator data, additional field observations will be made of TER-S plants and their pollinators on DoD installations within these southeastern states and across the country. This searchable online database can also be utilized by independent contractors, NGOs and other interested environmental organizations and individuals for management of TER-S plants.

Accomplishments:

We located floral visitor and/or pollinator records for 87 species of listed TER-S species in North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, and Louisiana. This database, and accompanying bibliography, synthesizes existing pollinator/plant records for threatened, endangered and rare plants occurring on DoD-managed lands in southeastern states.

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