



# Sustainable Landscape Designs Utilizing Native Species to Increase Pollinator Habitats on Military Lands

Project # 09-461

## Background:

Pollination is an ecosystem service essential to reproduction of upwards of 80% of flowering plants, including many important food crops, as well as, endangered plants. Plant-pollinator relationships are one of the keystone indicators of healthy ecosystems and a sign of long-term plant health. With the loss of or damage to native habitats, there is growing concern that pollination relationships are imperiled with possible significant impacts to crop production and survival of endangered species, as highlighted in current literature. Due to the rapid decline in pollinators and loss of biodiversity, it is critical to provide islands and corridors of native species habitats, creating micro-niches to provide safe havens for these imperiled species. The Department of Defense (DoD) can be part of the solution by using native plant species in installation landscaping to provide our native pollinators with appropriate habitat.

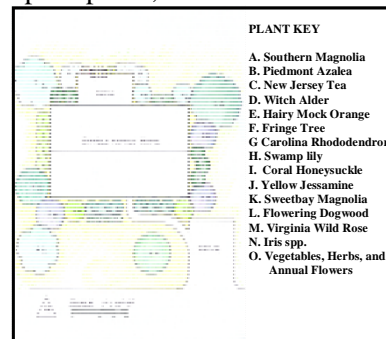
## Objective:

The main objective of this project is to serve as a guidebook of “Sustainable Landscape Designs Utilizing Native Species to Increase Pollinator Habitats.” The primary audience is the DoD land manager. These land managers can use it as a reference for recommending plant species for base landscaping and establishing planting areas as habitat for our native pollinator species, thereby promoting sustainable native landscapes.

## Summary of Approach:

Bailey’s Ecoregion Provinces (USFS) and military installation sites were used as the geospatial data layers to generate maps showing which eco-region each DoD installation falls in and ten ecoregions were selected with the highest number of military installation in each. The ecoregion provinces chosen are: 1) Southwest Plateau and Plains Dry Steppe and Shrub Province; 2) Southern Rocky Mountain Steppe, Open Woodland, Coniferous Forest and Alpine Meadow Province; 3) Eastern Broadleaf Forest (continental) Province; 4) Eastern Broadleaf Forest (oceanic) Province, 5) California Coastal Chaparral Forest & Shrub Province; 6) Southern Mixed Forest Province; 7) American Semi-desert and Desert Province, 8) Pacific Lowland Mixed Forest Province; 9) Outer Coastal Plain Mixed Forest Province and 10) Laurentian Mixed Forest Province. Based on these ecoregions, each installation

is provided with compendium of landscape designs, consisting of residential layouts and island landscape designs, and a regional seed mix composed of native species that support a variety of pollinators, based on the ecoregion they are in. The residential designs use a generic building footprint, which gives land managers or contractors a design they can modify for existing buildings with varying footprints. The island plantings and seed mixes can be used along roadways, in larger open spaces, or restoration sites on installations.



Residential Design for the Southern Mixed Forest Province

The second part of the guidebook includes information the land manager can implement to encourage pollinators by providing habitat recommendations for food, water, and shelter.

## Benefit:

This Legacy publication provides the DoD land manager with design guidance for native plantings that provide food sources and habitat for different groups of pollinators. The guidebook provides guidance for cantonment and natural areas on military lands.

## Accomplishments:

To date, the poster was presented at the National Military Fish and Wildlife Association Conference, Milwaukee, March 2010. The guidebook will be available on the Legacy website ([www.legacy.com](http://www.legacy.com)), DENIX ([www.denix.osd.mil](http://www.denix.osd.mil)), and we will continue to seek out posting this guidebook and poster on other websites appropriate to the material. Thanks to the support from USA-COE Engineer Research & Development Center for their efforts in the GIS analysis and designs.

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