

Pollinator Protection through Enhanced Landscapes and Outreach in the Department of Defense

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Introduction

- 3rd largest federal land managing agency in US
  - 25 million acres of land
  - over 425 major military installations
- Resources protected
  - Limited access
  - Safety buffer zones

Fort Riley, Kansas

Why Pollinators are Important for DOD

- Stewardship obligations
  - Protect federally-listed and at-risk species
  - Native plants are better adapted to their environment so they use less water and require fewer chemicals

Easter regal fritillary butterfly, Fort Indiantown Gap, PA

Why Pollinators are Important for DOD

- Access to testing and training
  - Without pollinators, native landscapes might become barren or overrun by invasive species
  - Declines of at-risk species might restrict access

Yellow starthistle

- Diverse native plant communities are more resilient to impacts from training activities
  - Resist erosion from tank maneuvers
  - Resilient to fire
  - Provide realistic and safe training environments for soldiers

DOD Programs

- Armed Forces Pest Management Board (AFPMB)
  - Natural Resources Committee
  - www.afpmb.org
- DOD Natural Resources Program
  - National Military Fish and Wildlife Association → DOD Pollinator Working Group
  - DOD Legacy Resource Management Program – has awarded over $2 million across more than 35 pollinator-related projects

Recent Drivers

- Presidential Memorandum -- Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators (June 20, 2014)
- DOD Memorandum -- Department of Defense Policy to Use Pollinator-Friendly Management Prescriptions (Sept 5, 2014)
  - DOD policy is to, when possible and to the extent practicable:
    - Use native landscaping
    - Minimize the use of pesticides in sensitive habitats
    - Coordinate with other agencies

AFPMB Initiatives

- Natural Resources Committee has proposed the development of a pollinator protection technical guide
- Proposed Outline

I. Need for Pollinator Protection within the DoD

II. Pollinators found on DoD Lands

III. Current policies that promote pollinator protection

IV. Best Management practices for Landscape Design that protects pollinators

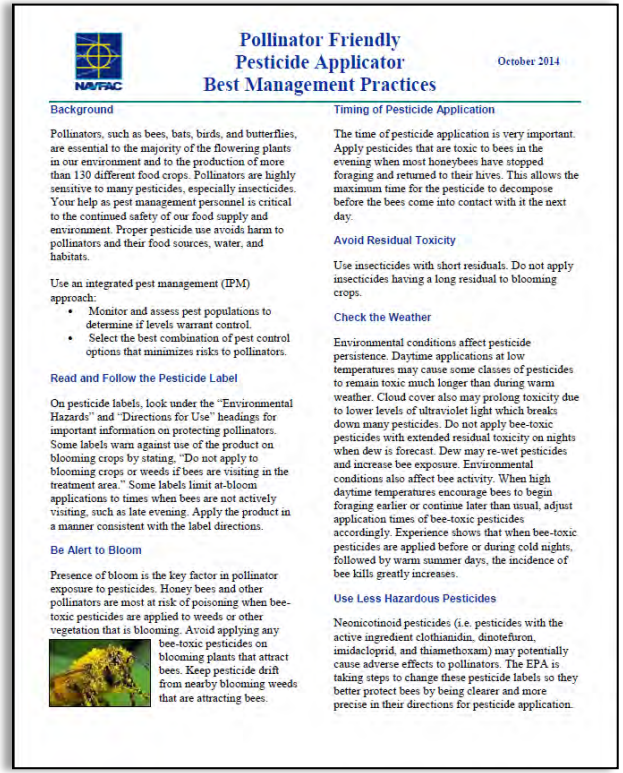
V. Best Management Practices for Agricultural Operations that protects pollinators

VI. Best Management Practices for Forestry Operations that protects pollinators

VII. Pesticide Chemistry Selections that protects pollinators

Navy Applied Biology Center Initiatives

- BMPs are included in installation Integrated Pest Management Plans
- Developed “Pollinator Friendly Pesticide Applicator Best Management Practices” handout
- Pollinator protection is discussed in DOD courses
- Information is posted in our quarterly newsletter
- Individual consultations



NAVFAC

Pollinator Friendly Pesticide Applicator Best Management Practices

October 2014

Background

Pollinators, such as bees, bats, birds, and butterflies, are essential to the majority of the flowering plants in our environment and to the production of more than 130 different food crops. Pollinators are highly sensitive to many pesticides, especially insecticides. Your help as pest management personnel is critical to the continued safety of our food supply and environment. Proper pesticide use avoids harm to pollinators and their food sources, water, and habitats.

Use an integrated pest management (IPM) approach:

- Monitor and assess pest populations to determine if levels warrant control.
- Select the best combination of pest control options that minimizes risks to pollinators.

Read and Follow the Pesticide Label

On pesticide labels, look under the “Environmental Hazards” and “Directions for Use” headings for important information on protecting pollinators. Some labels warn against use of the product on blooming crops by stating, “Do not apply to blooming crops or weeds if bees are visiting in the treatment area.” Some labels limit at-bloom applications to times when bees are not actively visiting, such as late evening. Apply the product in a manner consistent with the label directions.

Be Alert to Bloom

Presence of bloom is the key factor in pollinator exposure to pesticides. Honey bees and other pollinators are most at risk of poisoning when bee-toxic pesticides are applied to weeds or other vegetation that is blooming. Avoid applying any bee-toxic pesticides on blooming plants that attract bees. Keep pesticide drift from nearby blooming weeds that are attracting bees.

Timing of Pesticide Application

The time of pesticide application is very important. Apply pesticides that are toxic to bees in the evening when most honeybees have stopped foraging and returned to their hives. This allows the maximum time for the pesticide to decompose before the bees come into contact with it the next day.

Avoid Residual Toxicity

Use insecticides with short residuals. Do not apply insecticides having a long residual to blooming crops.

Check the Weather

Environmental conditions affect pesticide persistence. Daytime applications at low temperatures may cause some classes of pesticides to remain toxic much longer than during warm weather. Cloud cover also may prolong toxicity due to lower levels of ultraviolet light which breaks down many pesticides. Do not apply bee-toxic pesticides with extended residual toxicity on nights when dew is forecast. Dew may re-wet pesticides and increase bee exposure. Environmental conditions also affect bee activity. When high daytime temperatures encourage bees to begin foraging earlier or continue later than usual, adjust application times of bee-toxic pesticides accordingly. Experience shows that when bee-toxic pesticides are applied before or during cold nights, followed by warm summer days, the incidence of bee kills greatly increases.

Use Less Hazardous Pesticides

Neonicotinoid pesticides (i.e. pesticides with the active ingredient clothianidin, dinotefuron, imidacloprid, and thiamethoxam) may potentially cause adverse effects to pollinators. The EPA is taking steps to change these pesticide labels so they better protect bees by being clearer and more precise in their directions for pesticide application.

Pollinator Friendly Pesticide Applicator BMPs

- Read and follow the pesticide label
- Be alert to bloom
- Timing of pesticide application
- Avoid residual toxicity
- Check the weather

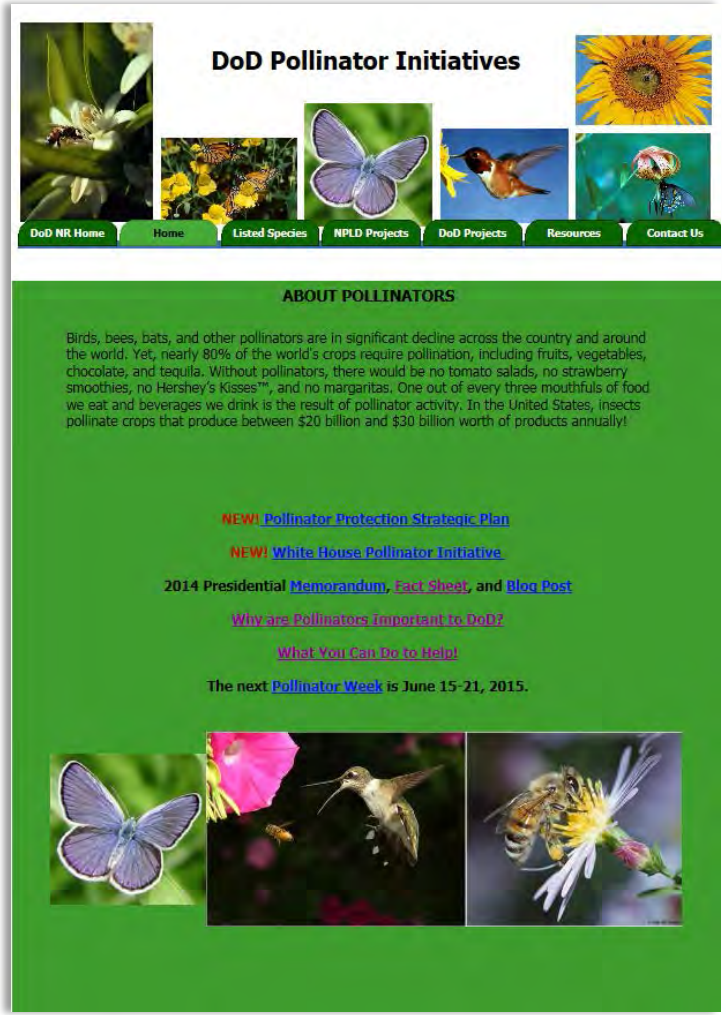
Pollinator Friendly Pesticide Applicator BMPs

- Use less hazardous pesticides
- Use the least hazardous pesticide formulation
- Minimize drift
- Communicate with beekeepers
- Learn about local regulations/programs

Naval Air Station Jacksonville, FL

DOD Natural Resources Initiatives

- Website provides information on plans, listed species, projects, and resources
- http://www.dodpollinators.org/
- Information on pollinators is beginning to be included in Integrated Natural Resources Management Plans



DOD Pollinator Working Group Initiatives

- Developed “Establishing Pollinator Habitat on DOD Installations” (draft)
  - Early successional habitats
  - Cantonment area
  - Create or maintain habitat corridors through developed areas
  - Some suggested native trees, shrubs, and perennials for pollinators and wildlife
- Setup monarch waystations

National Public Lands Day

- Coordinated by the National Environmental Education Foundation in Washington, DC
- Since 1999, the DOD Legacy Program has funded nearly 200 NPLD projects on DOD installations across the country
- In 2014, there were 25 projects, 19 of which focused on pollinators
- Thousands of volunteers, both civilian and military, have participated
- DOD installations can request for up to $6,500 for project for materials, equipment, and supplies to implement NPLD efforts
- http://publiclandsday.org

National Public Lands Day

- Fort Dix, NJ (2007) – 146 volunteers
  - Repaired erosion to the lake shoreline
  - Removed 520 invasive plants
  - Repaired a foot bridge over wetlands area
  - Removed 7,100 pounds of trash
  - Erected eight bird nesting boxes
  - Planted 220 pollinator-friendly native plants
  - Installed educational signs

Demonstrating Pollinator Conservation

- Pollinator & Native Plant Habitat Restoration Demonstration Project
- Golf and the Environment: Chesapeake Bay Watershed Demonstration Project
- Golf and the Environment: Southeast Region Demonstration Project

Pollinator & Native Plant Habitat Restoration Demo

- Dyess AFB, TX
- Demonstrated how habitat restoration through removal of invasive plant species and augmentation of the native floral population can result in high quality pollinator habitat, even on small patches of ground
- This project resulted in the discovery of two new pollinator species at Dyess

1

Technical Report

Native Pollinator & Native Plant Demonstration Project

Abstract

The effort to promote biodiversity and restore degraded lands is an important responsibility of the DoD. Increasing biodiversity through the removal of invasive species AND through the re-establishment of native plant and pollinator communities will support the mission by providing a realistic, more stable, and more easily maintained training situation. The management plan developed will serve as a model for other DoD lands with similarly degraded and disturbed systems.

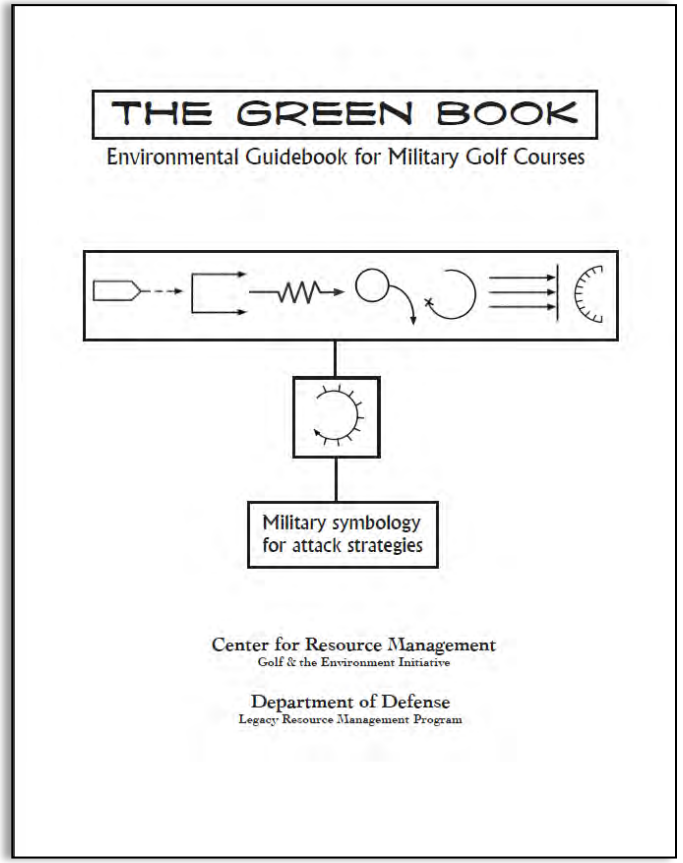
The decline of native pollinator populations is linked to fragmentation of native plant populations and competition with alien invasive species. Restoration efforts that seek to augment and maintain native plant populations must address and incorporate the pollinator ecosystem component.

Dyess Air Force Base provides 4 study areas in which to restore habitat through the removal of invasive species and augmentation of native plant and native bee species. Two of the plots are adjacent to publicly utilized areas and will be used as an instructive setting for the understanding of habitat restoration techniques and goals, the importance of native insect pollinators, and in providing information concerning the destructive role of invasive plant species on ecosystem health. The other two plots will serve as the base natural resource managers training ground.

F-84F Thunderstreak, DAFB

Golf and the Environment

- Southeast Region Demo
  - Fort Benning, GA
  - Developed scientifically sound methods for creating environmentally friendly golf courses on SE DOD lands



What can you do?

- If you are an applicator, you can incorporate pollinator protection best management practices into your applications
- If you are a project manager, you can create a natural area for pollinators or restore an existing area
- If you are an extension agent, you can provide outreach and develop local pollinator projects
- If you are in the government, you can develop guidelines for commodities to follow
- As an INDIVIDUAL, you can plant native plants and develop areas for pollinators at your home

Questions?