

# Practices for Enhancing Pollinator Habitats

Tools for a Broad Range of Landowners

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&

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# Pollinator Protection

- Through land management
- Through wise choices
- So many choices...



# What do pollinators need?

- Shelter
- Nest sites
- Food
- Water
- (like birds and all wildlife!)

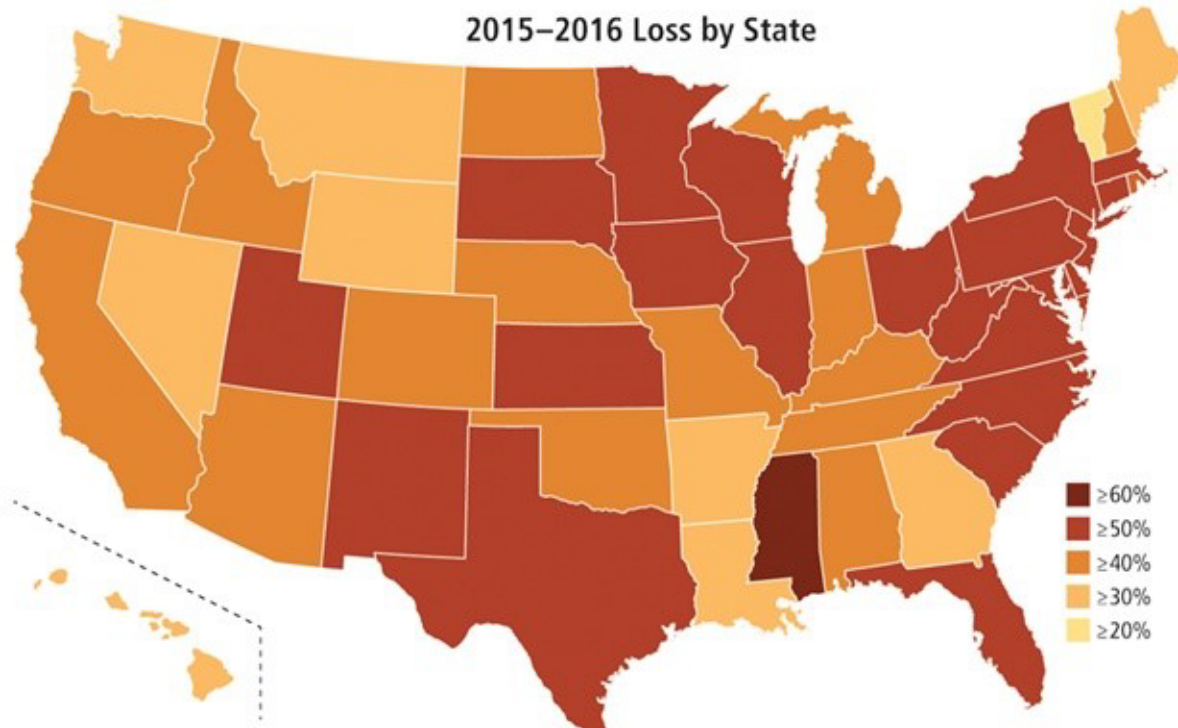


Marion Eppley Wildlife Refuge,  
South Kingstown & Exeter, RI

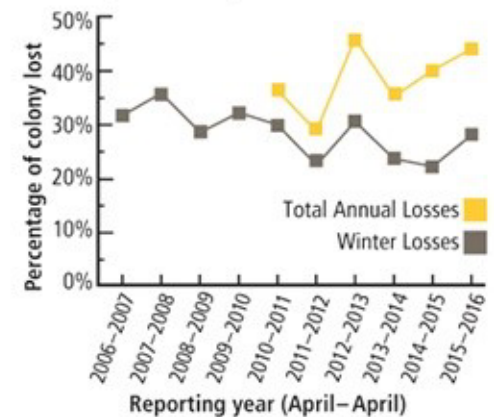
# The Honey Bee Story

## U.S. HONEY BEE COLONY LOSS

2015–2016 Loss by State



Average Loss by Year



# The good news!



# More than Bees & Butterflies

- Wasps
- Moths
- Flies
- Beetles
- Birds
- Bats



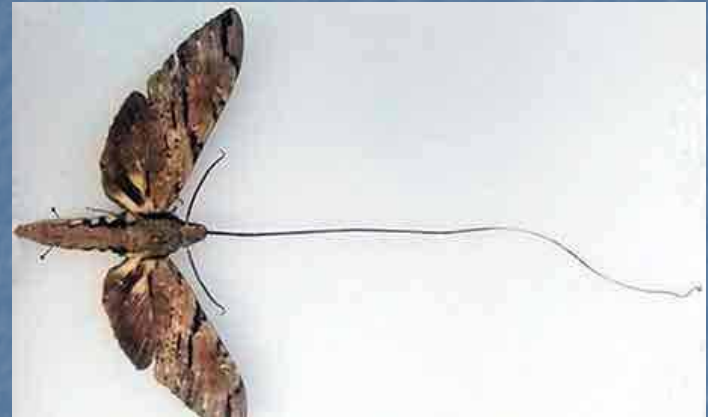
# Specialist Pollinators

Dragon's Mouth Orchid



*Arethusa bulbosa*, a RI native

© 2001 Eleanor Saulys



Darwin's Orchid

# Specialist Buzz Pollination!



(a.k.a. sonication)



# What about bird pollinators?



# Generalist Pollinators

Think “open” flowers



Blanket Flowers  
Fisherville Brook WR, Exeter, RI



Asters with bumblebee  
home garden, Wakefield, RI

# Sunflowers



Bees *and* birds  
love them!

# A balanced approach (one size does not fit all)

On Audubon refuges:

- Working to control invasive plants
- Sensitive mowing regimes
- No insecticides



# "Messy Borders"

- Work with nature
- Garden with nature
- Offer shelter and nesting for many species
- Good for land managers and architects



# Grassland Management



Newman Wildlife Refuge, Smithfield and Glocester, RI



Newman Wildlife Refuge,  
Smithfield and Glocester, RI

Targets of grassland restoration?



*And...*



# Restoration choices



Newman Wildlife Refuge,  
Smithfield and Glocester, RI





When?  
Frequency?

Fisherville Brook WR, Exeter, RI

Milkweeds are a great target for protection and management

Great Spangled Fritillary on *Asclepias syriaca*, common milkweed  
(Powder Mill Ledges WR, Smithfield, RI)



*Asclepias tuberosa*, butterfly milkweed

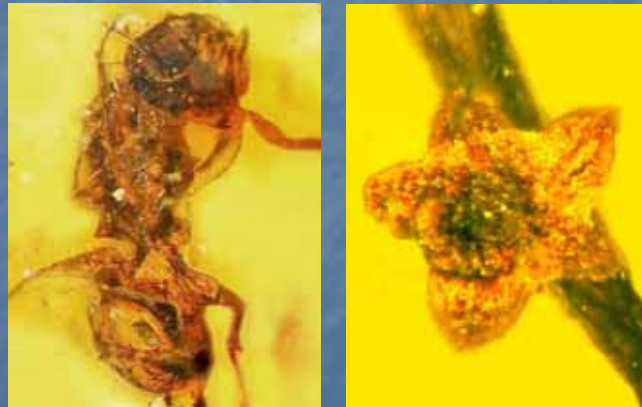
(Caratunk Wildlife Refuge, Seekonk, MA)

Touisset Marsh Wildlife Refuge, Warren, RI



# So, what can you do...

- Pollinator practices benefit many species
  - Small changes can yield big benefits
    - Native plant choices are available
  - Resources exist for facts and funding



(Bee and flower in amber, Burma, 100 myBP)