



FLORIDA
**MASTER
GARDENER**

Bees, Butterflies and Dragonflies

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What We'll Talk About

The Basics of Beneficial Insects

A Closer Look:

- Bees
- Butterflies
- Dragonflies



Six Tips to Tempt Beneficial Insects To Your Yard



Good Bugs, Bad Bugs



Most of the world's insects are either helpful or harmless to humans

- *Less than 1% actually damage plants*
- *Good bugs help keep bad bugs in check*

Helpful insects are called Beneficials

are

How are Bees, Butterflies and Dragonflies Beneficial?



Pollinate flowers, fruits and veggies (bees, butterflies)



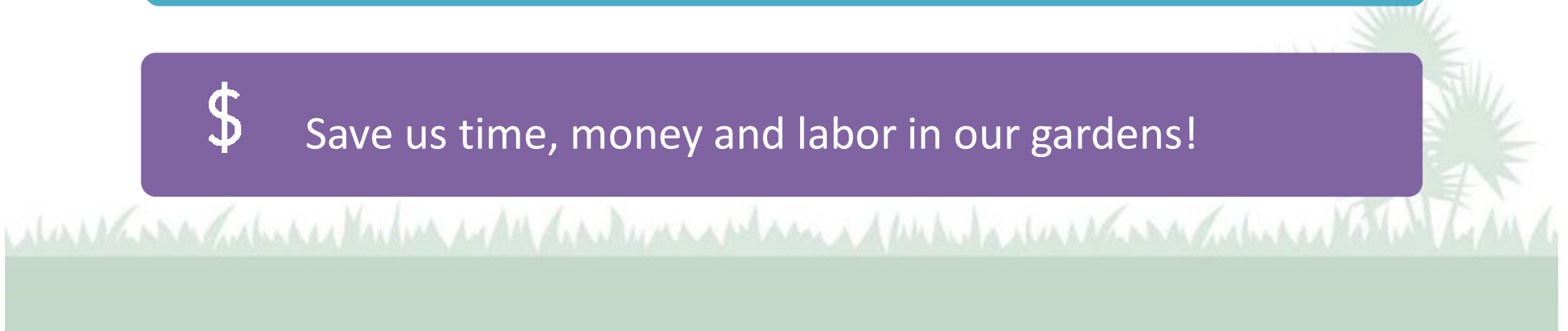
Serve as natural, organic pest control (dragonflies)



Provide food for birds, spiders and other animals (bees, butterflies & dragonflies)



Save us time, money and labor in our gardens!



What FFL Principles Apply to Beneficials?



Attract Wildlife



Manage Yard Pests Responsibly





A Closer Look: Bees and Butterflies



Photos by Nanette O'Hara



Both are Pollinators



Illustration by Paul Mirocha

Pollinators are animals that fertilize plants, resulting in the formation of seeds and fruits.



Why Pollinators Matter

One-third of fruits and veggies we eat depend on pollinators



Two-thirds of all flowering plants require pollination



Pollinators essential for almonds, apples, blueberries, chocolate, coffee, melons, peaches, potatoes, pumpkins, vanilla, and tequila



Pollination by honey bees, native bees, and other insects produces \$20 billion worth of products annually in USA.





*"Every third bite of
food you take, thank
a bee or other
pollinator"*

Adapted from E. O. Wilson,
Forgotten Pollinators, 1996



Not all pollinators are equal

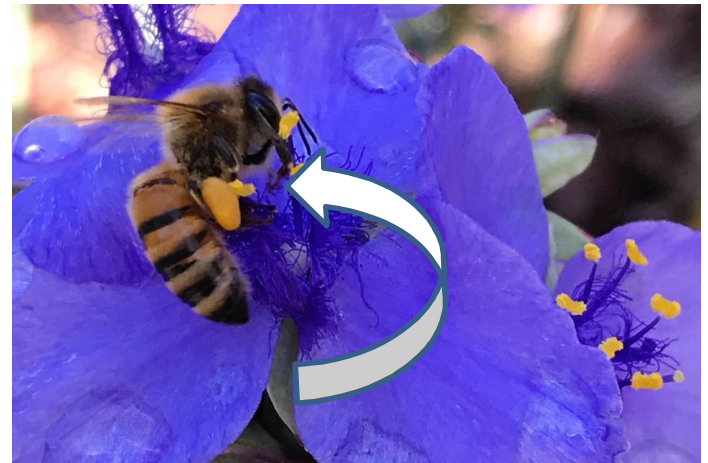
Bees are intentional pollinators

Most others, including butterflies and moths, are incidental pollinators



What makes a successful pollinator?

- Pollen “sticks” to them easily
- Many have specialized structures allowing for high success of pollination to occur (pollen baskets in bees)
- Highly mobile
- Prolific: Visit multiple flowers of same species



Pollen Basket

★ *Can carry a pollen load of 35% of their body weight!*

Pollinators are in peril

Habitat loss

Pesticide use and misuse

Agricultural practices
(mowing, clearing edges,
Roundup-resistant crops)

Exotic species that
compete for resources

Disease (Colony Collapse in Bees)



Not so fast, Honey!

Native Bees

- Native to North America
- 3,500 species overall, **316 in Florida**
- 2/3 are ground nesters
- About 1/3 are wood nesters
- (Rotting logs, stumps, snags, even in stems and twigs)
- Most are solitary
- Exception: Bumblebees (nest in colonies in grass clumps or in soil)

Honey Bees

- Not native to North America (Europe)
- 1 species
- Tree nesters
- Large colonies (hives)



In Praise of Native Bees

Multiple
pollinators
provide
diversity and
stability

Forage at
different
times
(day/night)

\$3 billion in
crop
pollination
services
annually

Pollinate many
plants more
effectively than
honey bees

Hedge against
honey bee health
issues (colony
collapse disorder)



Native Carpenter Bee
on Garberia

Butterflies and Moths: Flying Jewels

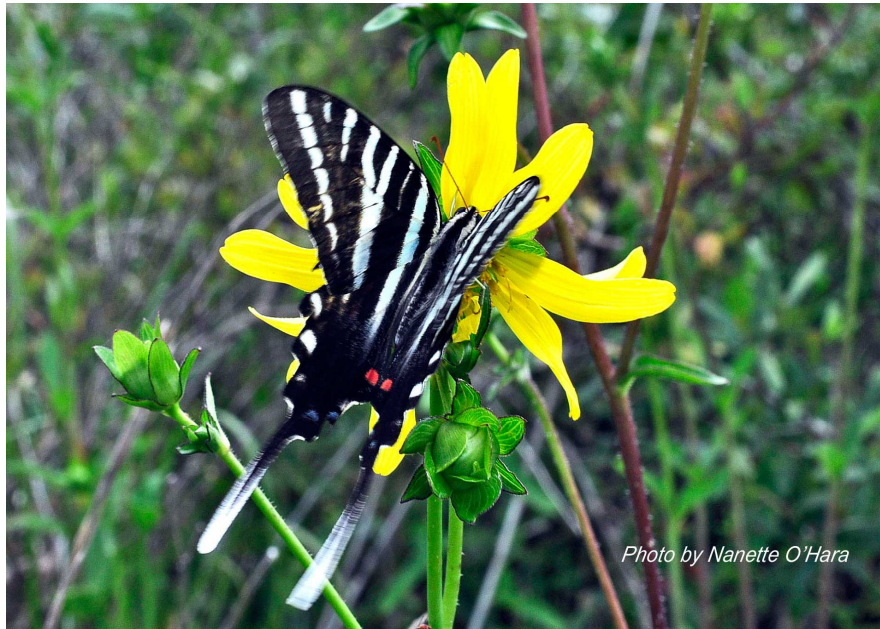


Photo by Nanette O'Hara

Zebra swallowtail on rosinweed

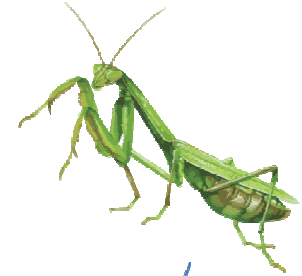


Photo by Nanette O'Hara

Clear-winged sphinx moth on thistle



Both provide food for wildlife



or



I feed my babies
5,000
caterpillars!



Carolina Chickadee





Gulf fritillary



Black swallowtail



Monarch



Zebra Longwing

Common Backyard Butterflies



Butterflies and Moths: Their Kids Are Picky Eaters

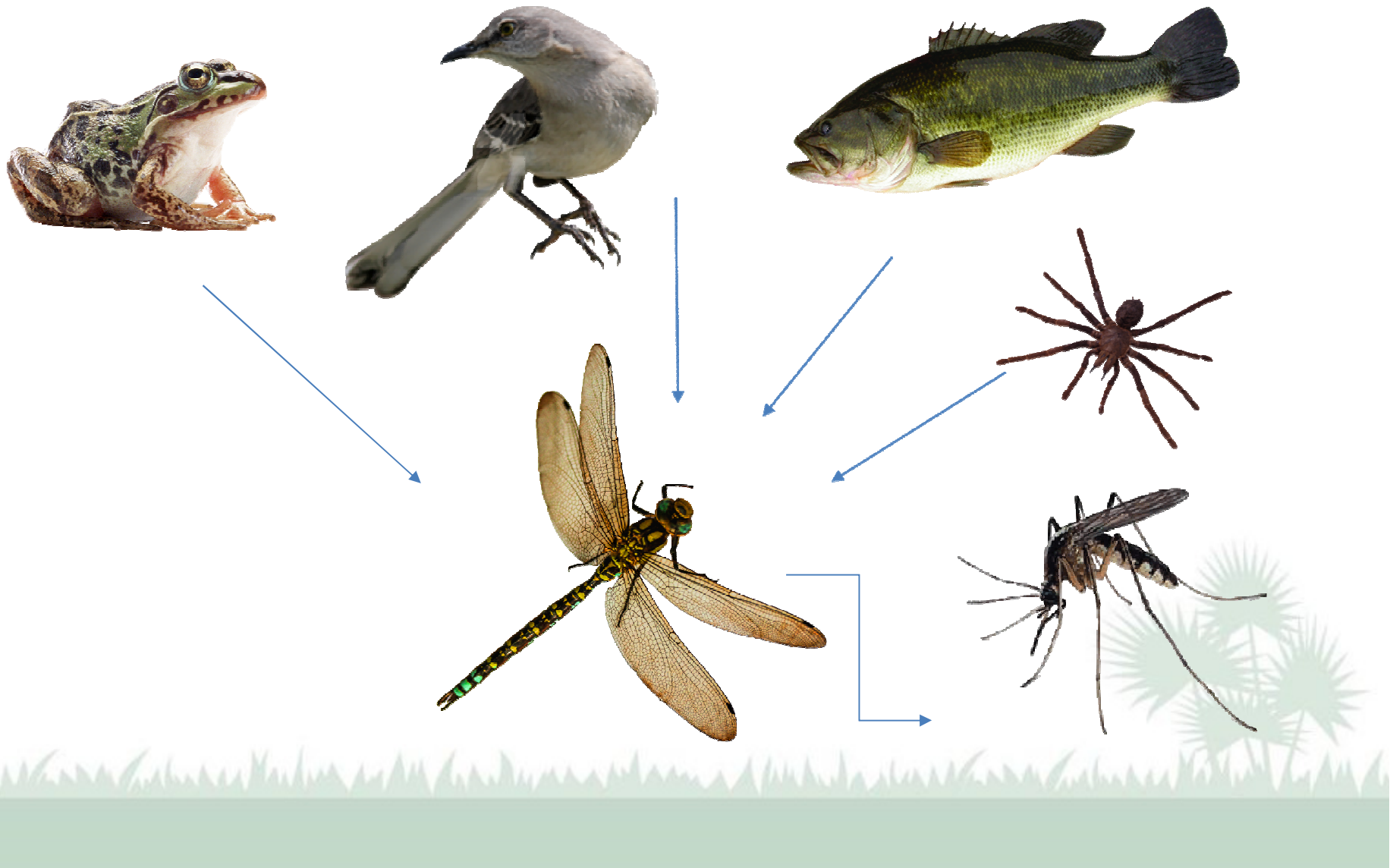


Adults sip nectar from many plants, but lay their eggs only on specific plants. Their caterpillars eat **ONLY** these plants.

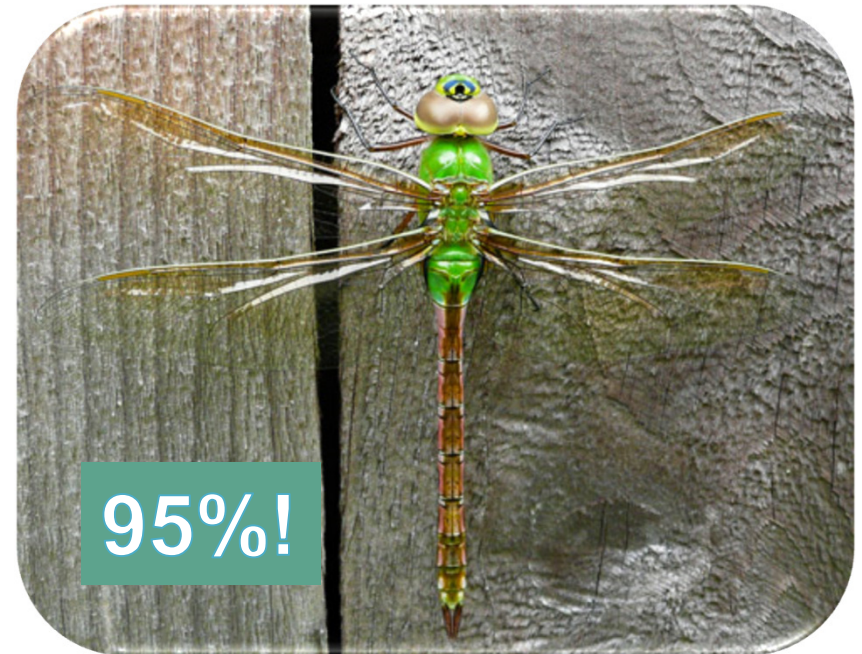
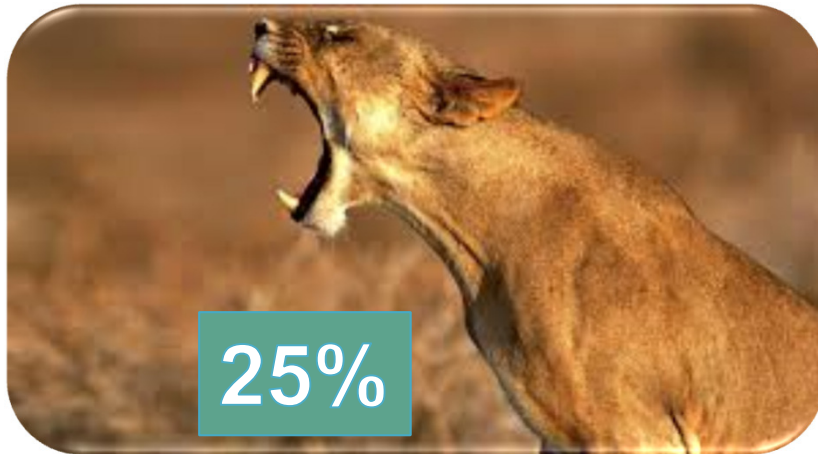


Dragonflies: A Closer Look

Dragonflies: Both Predators and Prey



Which is the most Successful Carnivore?



Dragonfly Fun Facts

- Can see everywhere but directly behind
- Can fly 19-38 mph
- Only catch prey while flying
- Lay eggs in water; hatch and grow underwater






Dragonfly Diet

- Adults eat mosquitoes, midges, butterflies, moths, bees and smaller dragonflies.
- Larvae, or naiads, eat mosquito larvae and tadpoles.

A single dragonfly can eat 30 to several hundred mosquitoes a day!



Mosquitoes,
Yummy!



Tips for Tempting
Bees, Butterflies
and Dragonflies

Tip #1: *Give Poison A Pass*

Get to know “good” bugs from “bad” bugs (at all stages of life)

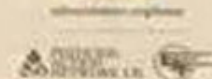
Hand pluck bad bugs like lubber grasshoppers

Use non-toxic horticultural soaps and sprays

Learn to live with some pest damage



If we die,
we're taking
you with us.





Diversify your garden to encourage “good bugs” that eat bad bugs and their larvae.



Photos by Nanette O'Hara

Tip #2:

Plant It, and They Will Come



Select plants that flower in different seasons for year-round nutrition

Plant in clumps

Provide a variety of colors and shapes for different pollinators.

Give Natives A Place! Florida native pollinators have evolved to rely on native plants, and vice versa



Bees:

blue, white, yellow with shallow or tubular flowers

Moths:

pale red, pink, white, purple with strong, sweet scent at night



Attracting Dragonflies

- Small pond in full sun protected from wind
- No fish in pond
- Avoid pesticides
- Perching stakes



Attracting Dragonflies

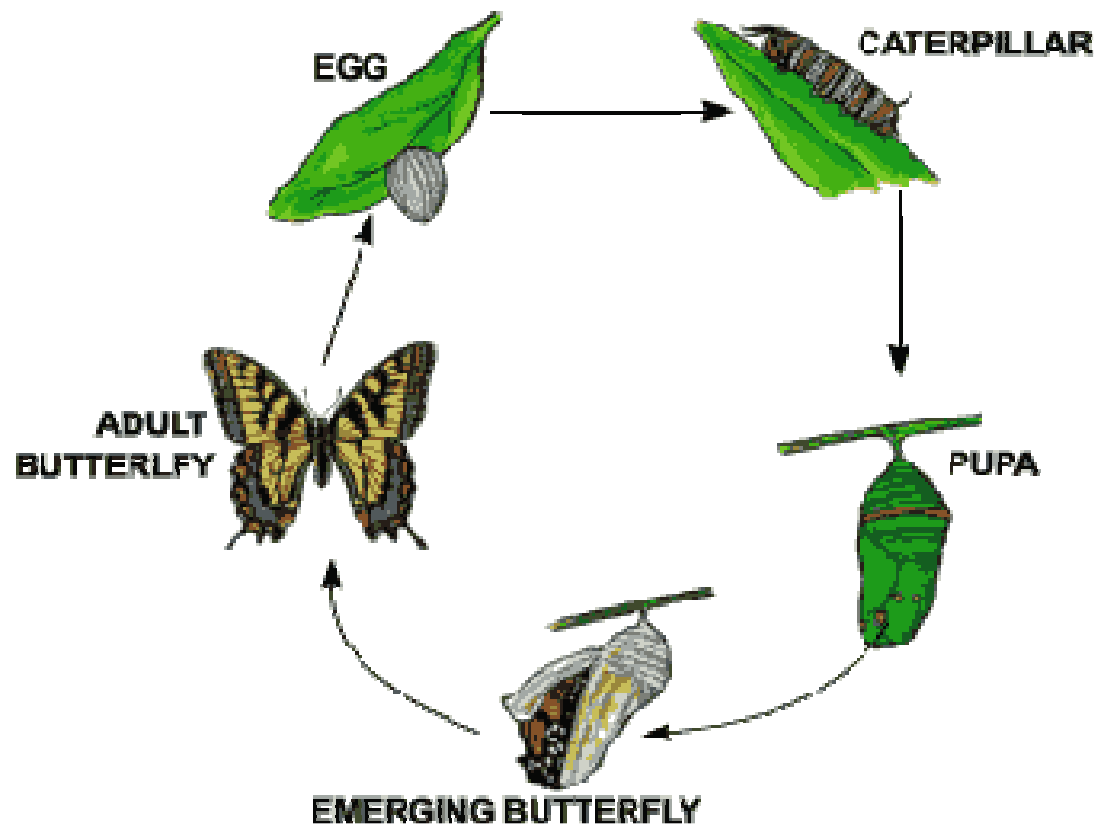
Floating vegetation for perching, egg depositing

Substrate and refuge for naiads

Emergent vegetation for adult



Tip #3:
Plant food for larvae as well as adults

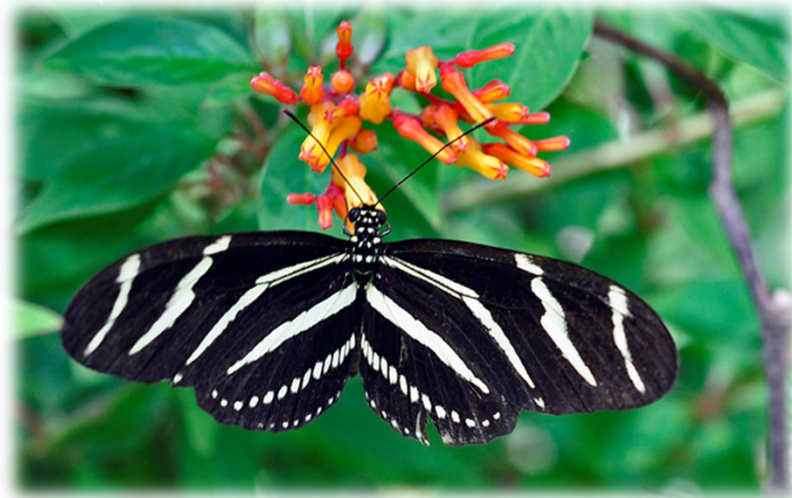


Larval foods are especially important for butterflies and moths



Black swallowtail butterfly
Larval plants:
Parsley, Fennel, Dill, Carrots





Zebra Longwing:
Larval Plant: *Passionflower*

Photos by Nanette O'Hara



Tip #4: *Modify Your Landscape Practices*

Don't till your garden or yard

Maintain a small, undisturbed patch of well-drained bare or sparsely vegetated ground

Preserve dead limbs, logs, or snags when possible

***** These practices provide important habitat for butterflies, moths, ground-nesting bees and beetles***



Tip #5:

Provide a water source

Bees and wasps like shallow bowls or birdbaths; Dragonflies like ponds

Butterflies like to “puddle” in mud or wet sand

- Put a shallow pan filled with coarse sand in your garden.
- Keep moist by placing under a soaker hose or irrigation spray head.



Tip #6: *“Mini” Can Be Mighty*

No matter how much space you have, you can support beneficial insects!



Happy Gardening!



Thank You!



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Florida-Friendly Landscaping Program**

