



## Why Do We Even Need Insects?

What do you think of when you hear the word BUGS? Do you feel warm and cuddly all over? Or more likely, do you think of creepy, crawly, nasty, dirty little creatures? Well if you picked the second description, you are definitely not alone! Most people hate insects. They think the only good bug is a dead bug! But, is that really true?

### Nature's Food Web

Every part of Nature has a purpose for being there, and a role to play. Insects are Nature's building blocks which allow creatures to access plants' nutrition without eating the plants themselves. Lizards, bats, birds and other creatures rely on insects as food. Insects form the base of Nature's Food Web.

*These baby birds will eat between 6 - 9,000 caterpillars before they are ready to leave the nest.*



*All photos by Diane Moxley unless otherwise noted.*

### Perfect Recyclers & Soil Aerators!



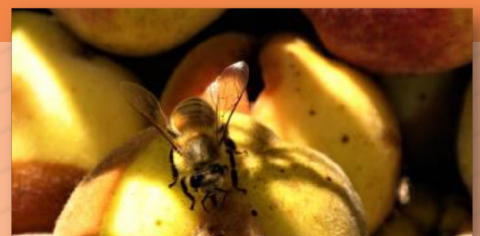
Insects act as great recyclers in Nature. They chew up fallen leaves and rotting wood releasing the nutrients back into the soil. Without insects, worms, bacteria and fungi, these things would just keep piling up! Insects also recycle these nutrients deeper back into the soil by digging and tunneling which aerates the soil, allowing roots to access these nutrients!

*This composted material used to be leaves, wood & dead creatures. Insects help to recycle nutrients in Nature & aerate the soil to keep it healthy.*

### Pollinate Our Fruits and Vegetables

Insects pollinate 35% of the world's food crops.

**NO INSECTS = NO FOOD!**



This bee is enjoying a peach. She may have pollinated this same blossom herself!



# Arthropod vs. Insect?

All insects are Arthropods, but not all Arthropods are insects!



**INSECT**  
(Grasshopper)



Photos by Cindy Andrews, VMN

**CRUSTACEAN**  
(Blue Crab)

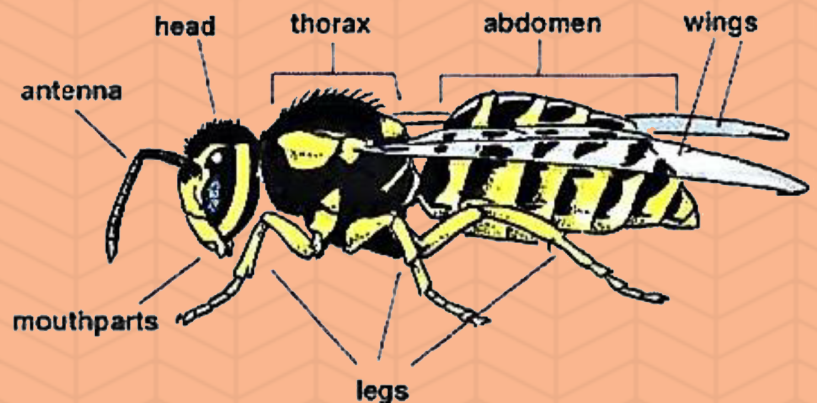


**ARACHNID**  
(Garden Spider)

**Arthropods** comprise a large group of creatures which have special features: jointed legs, segmented bodies, tough **exoskeleton** (hard outer skin). There are many kinds of **Arthropods**. They include **Insects** (butterfly, grasshopper, beetle, dragonfly, etc.), **Crustaceans** (shrimp, crab, lobster), **Arachnids** (spider/ scorpion), and **Millipedes/ Centipedes!** All must shed their outer skin to grow.

## All Insects Have:

- **3 body sections** (Head, Thorax, Abdomen)
- **3 pairs of legs** attached to the Thorax (middle body section)
- **Pair of antennae**
- **At least one pair of wings** (at some point during their life)



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## Control The "Bad" Bugs That Attack Plants and Maintain Balance In The Environment

Praying Mantids and Lady Beetles (Lady Bugs) are insects that eat the bad insects which attack our fruit and vegetable plants.

*Praying Mantids eat the "bad" insects that attack our plants.*



## Uses in Medicine and Industry

Honeybees help some arthritis sufferers ease their pain and eating local honey can help allergy sufferers.



## DO PEOPLE EVER EAT INSECTS?

Most people in this country do not eat insects. In some parts of the world other cultures do eat insects. Insects have a lot of protein in them. Since these people grew up eating insects, they do not find it strange or unpleasant. Fried crickets anyone?



## How Do Insects Mate?

Insects usually join together at the tips of their abdomens to transfer the sperm from the male to the female to fertilize her eggs. Once her eggs are fertilized, she will lay her eggs. Every species of insect is different, so they each have their own special place where they lay their eggs.



Mating Cicadas, 2021 Brood X  
(They appear every 17 years, which won't be until 2038!)  
Photo by Jane Brockwell

# Where Do Insects Lay Their Eggs?

Some Insects lay their eggs on land (**terrestrial**). Others lay their eggs in water (**aquatic**). After these aquatic eggs develop into adults, they live the rest of their lives on land. All Insects go through a growth process called "**metamorphosis**" (developmental stages) to change from egg to adult.

- **Water**  
(Dragonflies, Mosquitos, Mayflies)
- **Leaf Litter**  
(Lace Bugs, Wasps, some Butterflies)
- **Underground**  
(Native Bees, Grasshoppers)
- **Rotting Wood** (Beetles)
- **Plants** (Butterflies, Moths)



Dragonflies lay their eggs in water.



This mother Monarch Butterfly is laying her eggs on Milkweed.

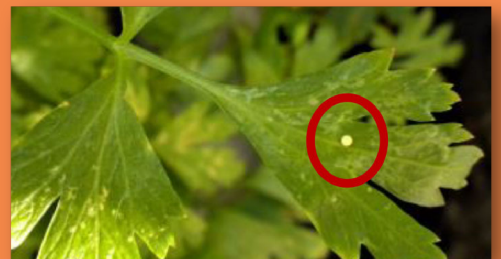


This Beetle grub is developing underground inside rotting wood.

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This Black Swallowtail Butterfly pupa is developing inside a dead leaf. It started life as an egg on the parsley leaf to the right.







# "Garden as if Life depends on it!"

Quote by Dr. Doug Tallamy, Entomologist

**Wild Cherry Tree**

**Blueberry Bush**

**Native Birch Tree**

**Willow Tree**

**Goldenrod**

**Native Maple Tree**

**Oaks**  
(Support 557 Species)

**Asters**

**Helianthus**  
(Native Sunflower)

## Preserving and Supporting Insects For Our Future!

- Have less lawn and more trees/ shrubs
- Grow more native plants
- Don't use pesticides, insecticides, or chemicals
- Compost your leaves and grass clippings
- Replace outdoor white light bulbs with yellow ones
- Keep your falling leaves in place
- Leave a small area of bare direct for ground-nesting bees/ grasshoppers
- Leave rotting fruit on the ground
- Build a log pile in your yard



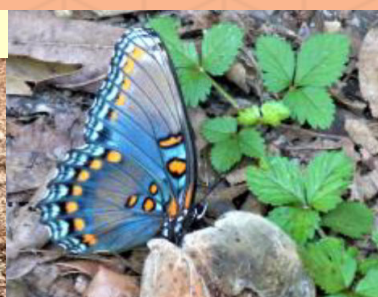
Sign designed and created by Diane Moxley, Virginia Master Naturalist, Riverine Chapter and Tracy Marino.



**Keep Autumn  
leaves where  
they fall, or rake  
into your flower  
or garden beds.**



**BEEBLE HOTEL**



Red-Spotted Purple Butterfly  
enjoying a rotting peach.

