

Monarch Butterflies

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Let's Talk about Monarchs!



Monarch Butterflies

- *Danaus plexippus*
 - Danaidae family
- Adult Characteristics
 - Dark orange wings with black/dark brown veins, dark borders with white spots
- Caterpillar Characteristics
 - Alternating black, yellow, and white stripes
 - 2 black antennae-like structures on each side of body

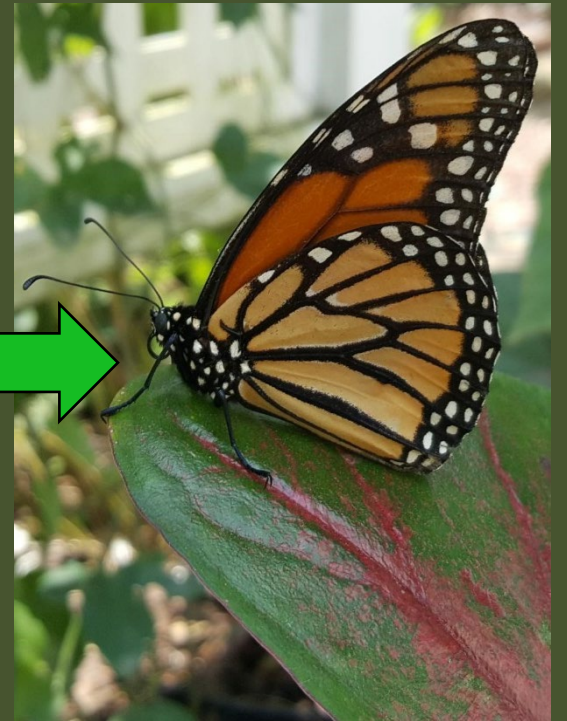
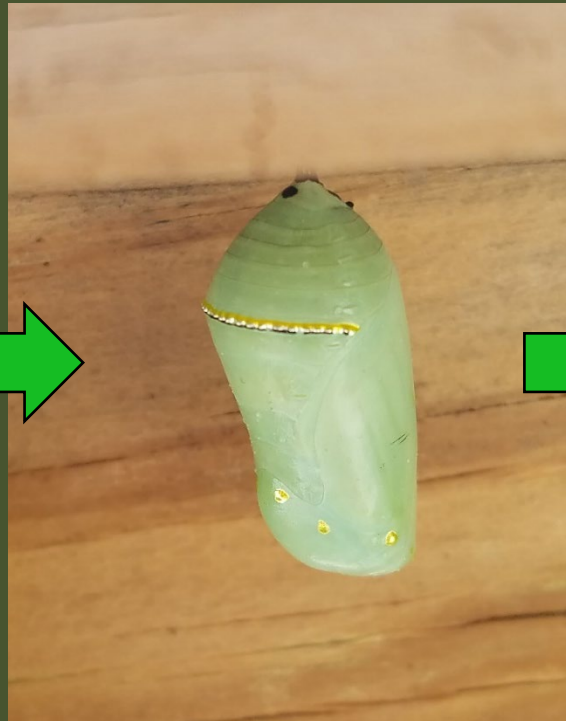
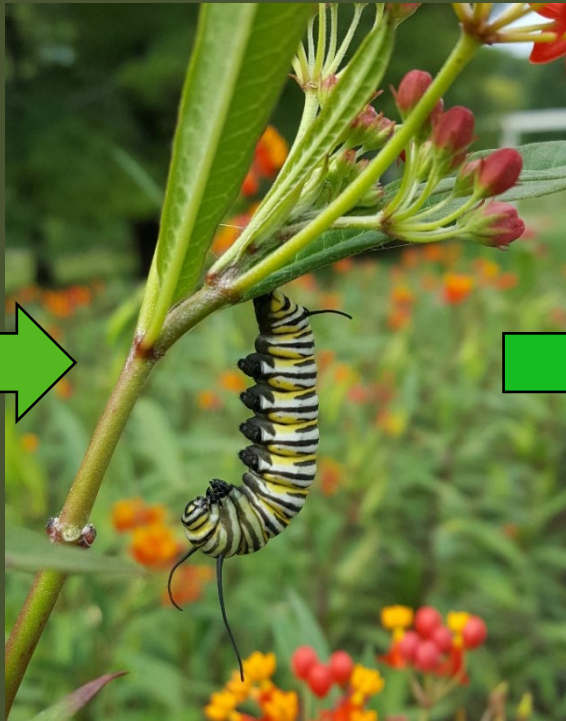
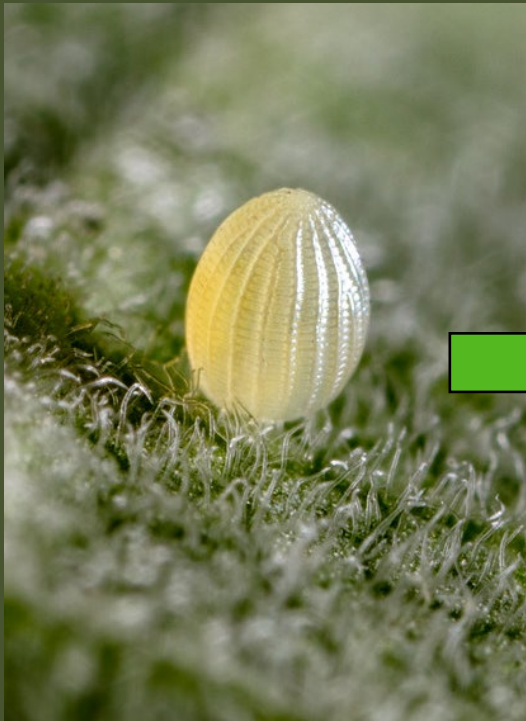


Viceroy vs. Monarch Butterfly

- Viceroy butterflies cannot eat milkweeds but are protected from wildlife due to similar appearance to the monarch
 - Batesian mimicry
 - Example of co-evolution between two species

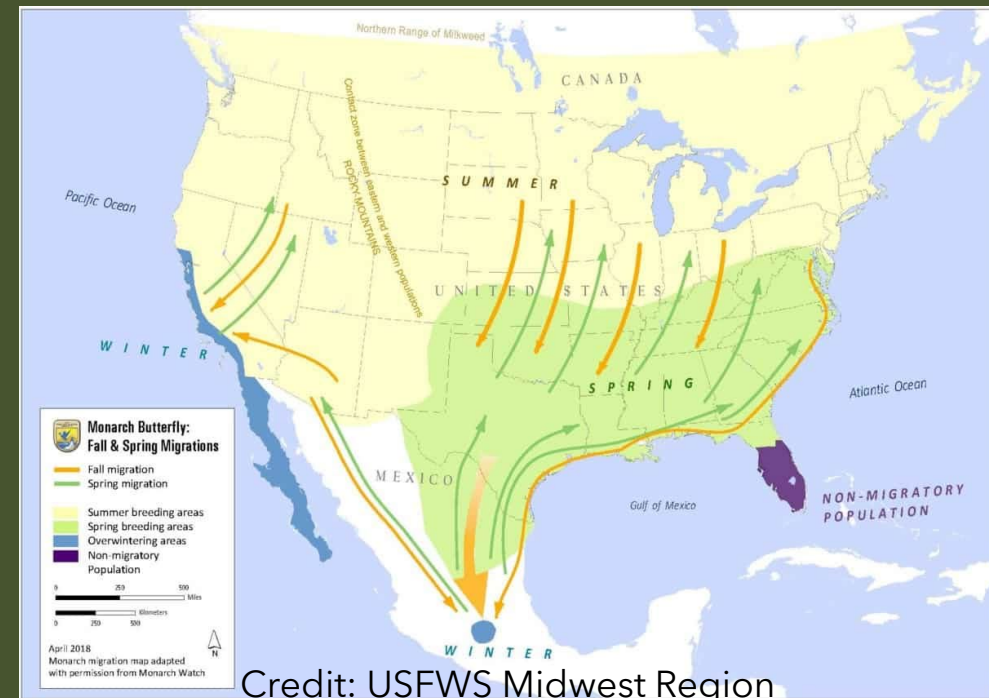


Monarch Butterfly Metamorphosis

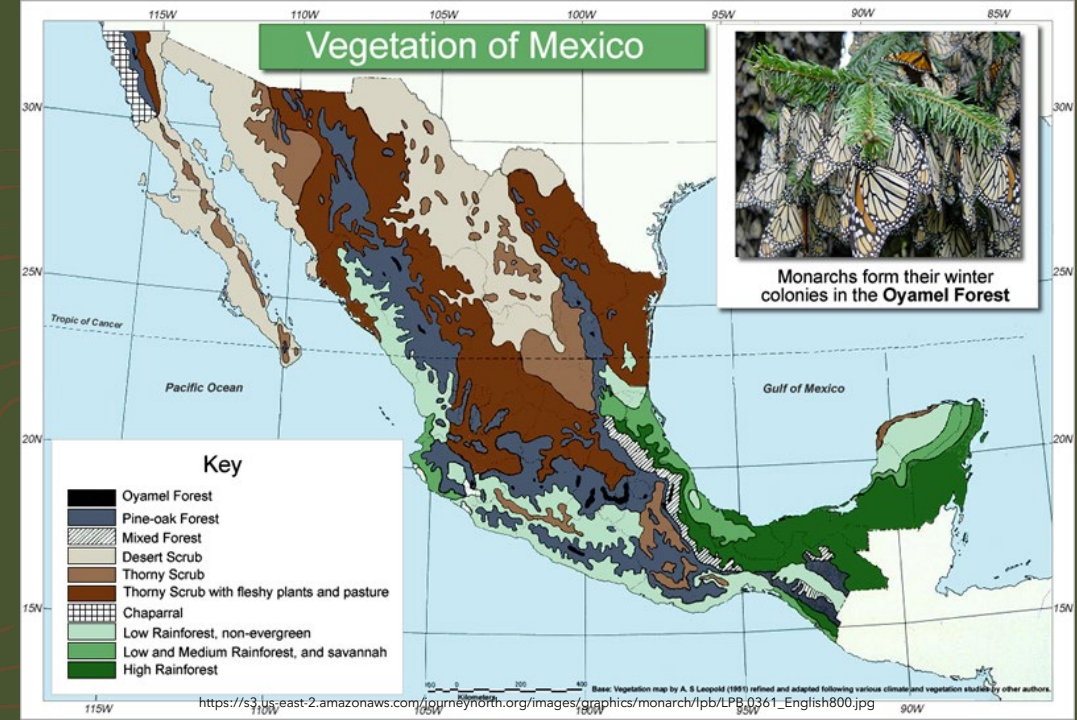


Monarch Lifecycle and Migration

- Three to five generations of monarchs per year (repopulate U.S.A. and Canada)
 - Live two to six weeks except for the last generation
- The last generation hatches in late summer and undergoes a fall migration to overwintering areas in Mexico
- Around March, overwintering monarchs begin migration north. They mate, lay eggs, and offspring will continue northward migration.



Monarch Gathering in Oyamel Firs - *Abies religiosa*



Why are Milkweeds Important?

- Pollinator nectar plant
- Larval food source of the monarch caterpillar
 - As well as the milkweed tussock moth caterpillar
- Caterpillars ingest the toxic compounds without being affected.
 - Protective mechanism against wildlife



Types of Milkweed

Asclepias/milkweeds

- *Asclepias tuberosa* - Butterfly Weed
- *Asclepias syriaca* - Common Milkweed
- *Asclepias incarnata* - Swamp Milkweed
- <https://news.ca.uky.edu/article/researchers-show-native-milkweed-cultivars-planted-public-can-support-monarch-butterflies>



Types of Milkweed



- *Asclepias verticillata* - Whorled Milkweed
- *Asclepias viridiflora* - Green Milkweed
- *Asclepias quadrifolia* - Fourleaf Milkweed
- *Asclepias purpurascens* - Purple Milkweed
- *Asclepias hirtella* - Tall Green/Prairie Milkweed
- *Asclepias viridis* - Green/Spider Milkweed
- *Asclepias variegata* - White/Redring Milkweed
- *Asclepias amplexicaulis* - Clasping Milkweed

Types of Milkweed

- *Asclepias exaltata* - Poke Milkweed
- *Asclepias perennis* - Aquatic Milkweed
- *Asclepias sullivantii* - Smooth/Sullivant's/Prairie Milkweed
- *Asclepias meadii* - Mead's Milkweed



https://www.fs.fed.us/wildflowers/plant-of-the-week/asclepias_meadii.shtml

Monarch Decline

- Milkweed plants are becoming scarcer due to habitat loss
 - Intensive agriculture and urban development
- Monarch population has dwindled 90% since the 1990s
 - Climate change, destruction of overwintering sites, pesticides, etc.
- Plant milkweeds to help promote monarch nesting and caterpillars



Why help the Monarchs?

- One of the most widely recognized butterflies
- Indicator insect for environmental health
- Preservation of the species



What You Can Do to Help Monarchs

- Build a monarch-friendly habitat
 - Butterfly gardens and monarch waystations
- Restore milkweeds to as many locations as possible
- Plant adult nectar plants
 - Bloom at different times of the year
 - Plant natives, not invasives!



Monarch Waystations

<http://monarchwatch.org/waystations/>

- “Monarch Waystations are places that provide resources necessary for monarchs to produce successive generations and sustain their migration. Without milkweeds throughout their spring and summer breeding areas in North America, monarchs would not be able to produce the successive generations that culminate in the migration each fall. Similarly, without nectar from flowers these fall migratory monarch butterflies would be unable to make their long journey to overwintering grounds in Mexico. The need for host plants for larvae and energy sources for adults applies to all monarch and butterfly populations around the world.”



Guidelines for a Monarch Waystation

- Size. A suitable Monarch Waystation habitat can be easily integrated into an existing garden. There is no minimum area requirement in order to certify your habitat; however, a truly effective Monarch Waystation will be at least 100 square feet. The total area may be split among several discrete sites at your location and there is no upper limit for the size of a Monarch Waystation habitat.
- Exposure. Butterflies and butterfly plants need lots of sun; therefore, Monarch Waystations need to be located in an area that receives at least six hours of sun a day. Drainage and Soil Type. Milkweeds and nectar plants will do best in relatively light (low-clay) soils. Good drainage is needed to avoid root rot and provide good aeration of the roots.
- Shelter. To assure that the maximum number of monarchs survive in your habitat, the plants should be relatively close together. However, they should not be crowded - be sure to follow the planting guides specific to each plant. All monarch life stages need shelter from predators and the elements. Planting milkweeds and nectar plants close together contributes to this shelter for monarchs and other wildlife.

Guidelines for a Monarch Waystation

- Milkweed Plants. To maximize the use of your habitat by monarchs, we recommend that you have at least 10 milkweed plants, made up of two or more species; however, a large number of plants (more than 10) of one species is sufficient. Milkweeds of different species mature and flower at different times during the season. By increasing the number of milkweed species in your habitat you will increase the likelihood that monarchs will utilize your property for a longer period during the breeding season.
- Nectar Plants. Monarchs, other butterflies, and numerous pollinators need nectar. By providing nectar sources that bloom sequentially or continuously during the season (as many butterfly plants do) your Monarch Waystation can provide resources for monarchs throughout the breeding season and the migration in the fall. A Monarch Waystation should contain several annual, biennial, or perennial plants that provide nectar for butterflies.
- Management. You should have a plan to sustain a Monarch Waystation. Specific actions you take will depend on the features of your habitat; however, some general examples include mulching, thinning, fertilizing, amending the soil, removing dead stalks, watering, eliminating insecticide use, removing invasive plant species, and incorporating additional features.

Register Your Habitat as a Monarch Waystation

- To show your support of monarch conservation, you can have your monarch habitat certified as an official Monarch Waystation by Monarch Watch. Your habitat will be included in the Monarch Waystation Registry, an online listing of Monarch Waystations worldwide, and you will be awarded a certificate bearing your name and your habitat's unique Monarch Waystation ID number.
- Link to application: <https://shop.monarchwatch.org/product/Waystation-Certification-Application/190004>



Butterfly lifecycle activity for kids

