CREATING POLLINATOR HABITAT FOR SONORAN LANDSCAPES

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- Pima County Certified Master Gardener
- SmartScape Certified
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Our Philosophy

- Healthy soils encourage healthy plants
- Healthy plants require fewer pesticides and fertilizers (inputs)
- Garden with our climate not against it
- Reduce water usage
- Limit external inputs
- Encourage a natural ecosystem

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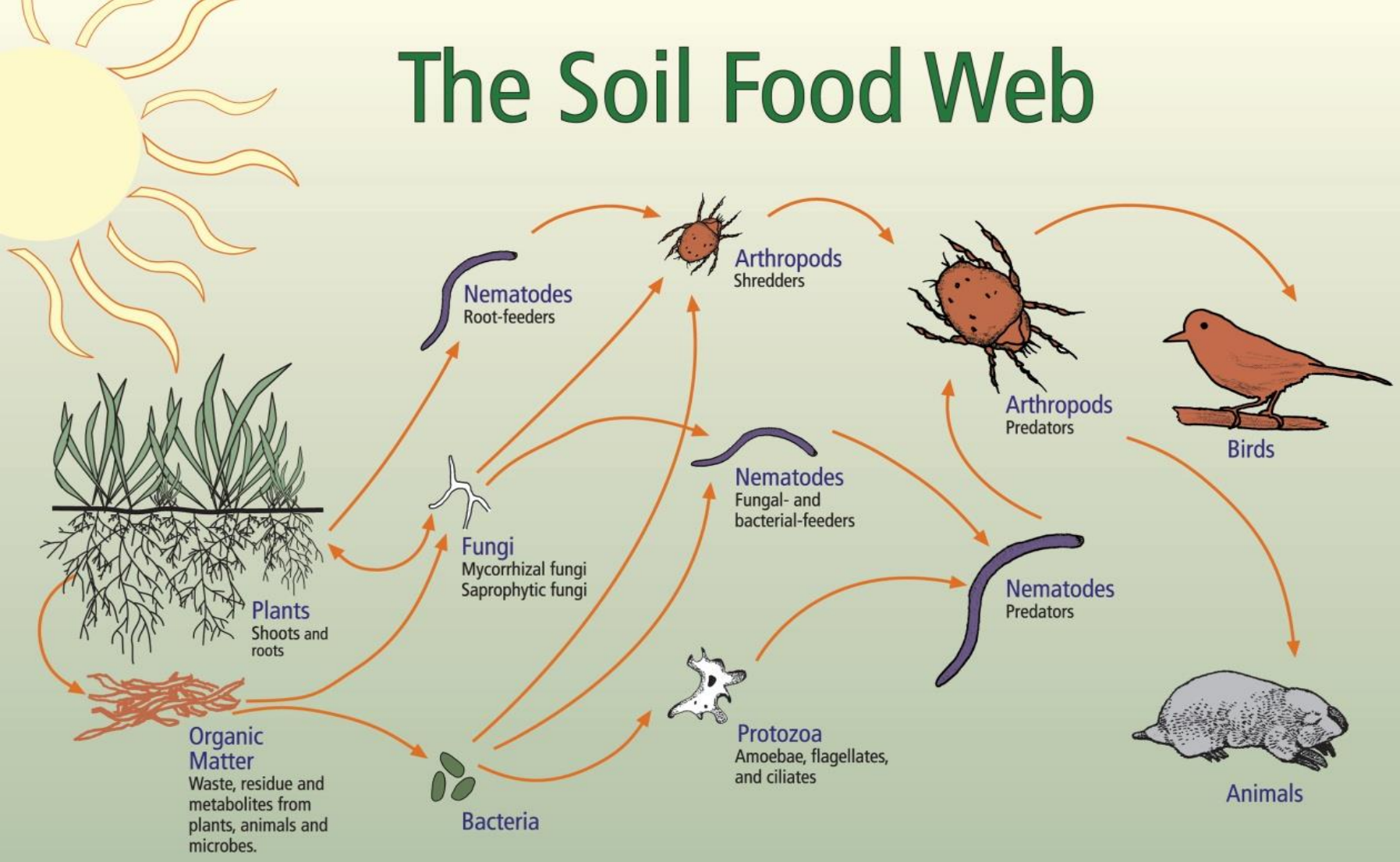
The Soil Food Web



First trophic level:
Photosynthesizers

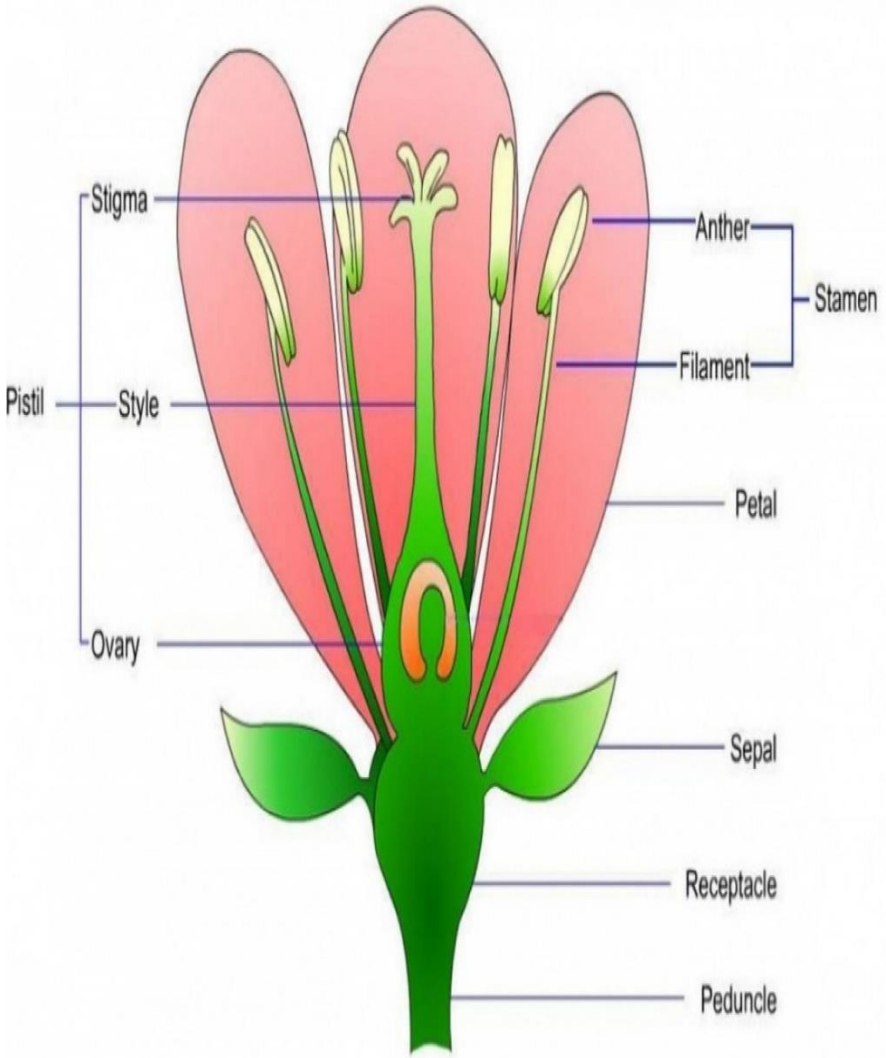
Second trophic level:
Decomposers
Mutualists
Pathogens, Parasites
Root-feeders

Third trophic level:
Shredders
Predators
Grazers

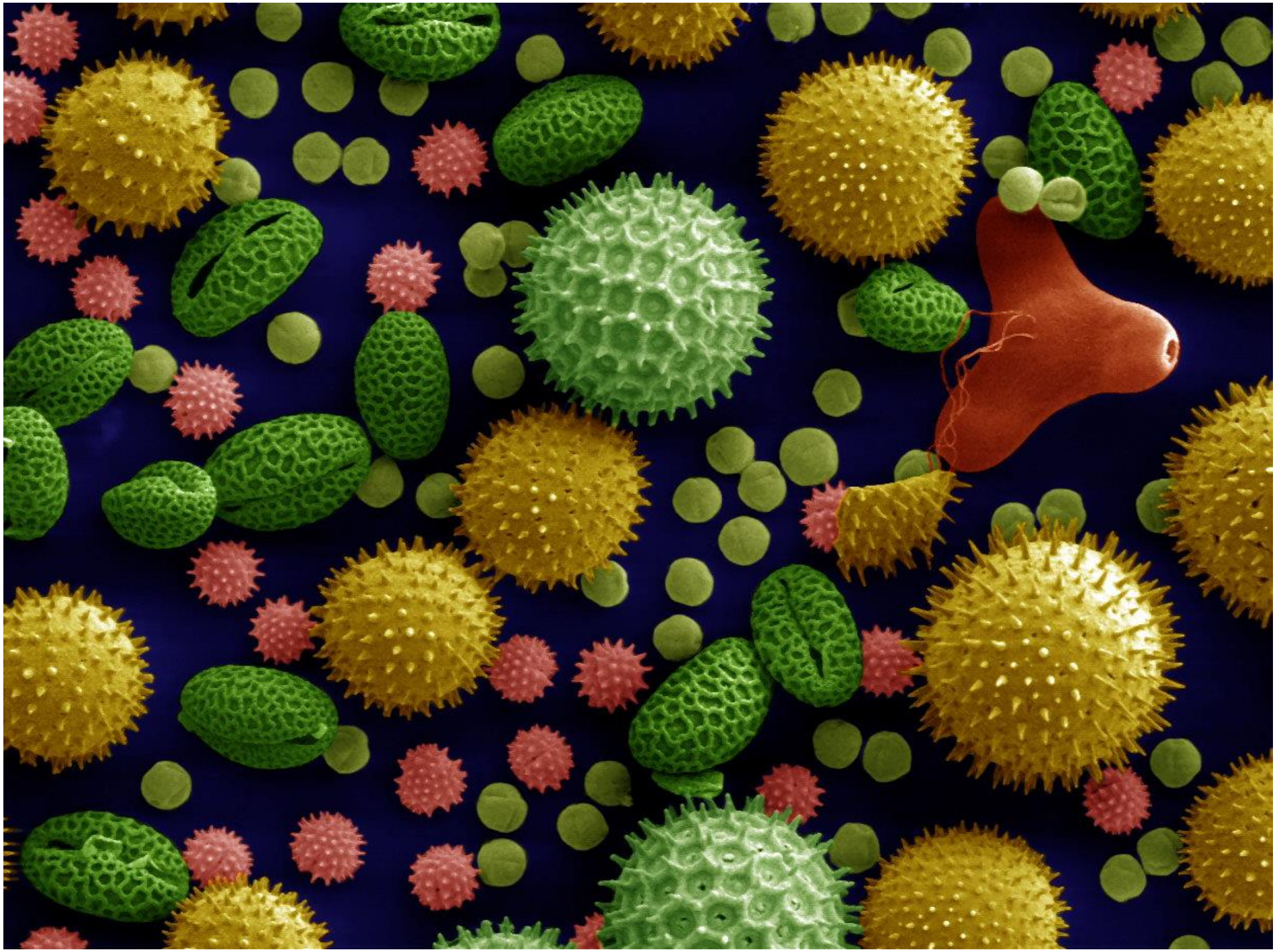
Fourth trophic level:
Higher level predators

Fifth and higher trophic levels:
Higher level predators

What is a Pollination?

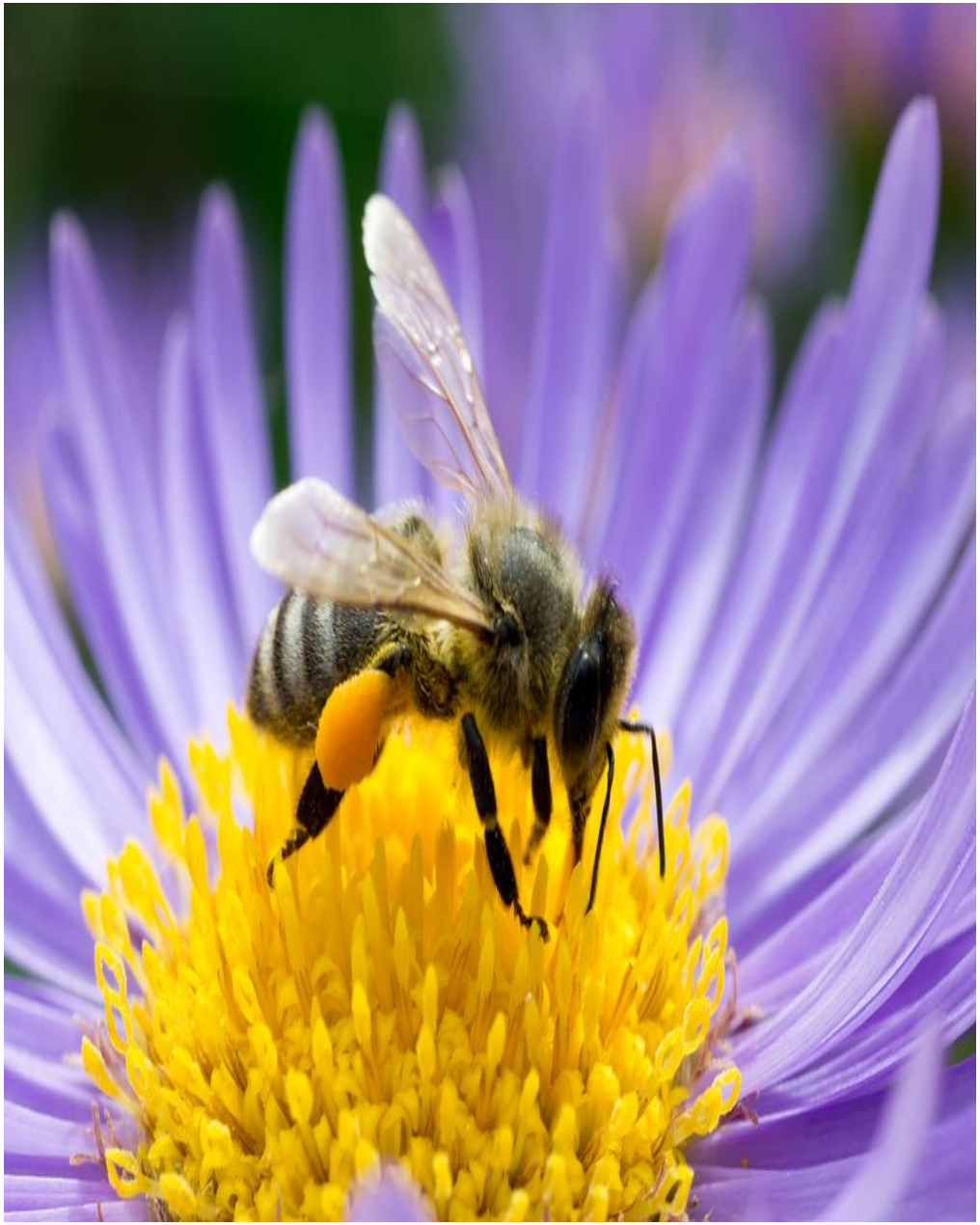


POLLINATION: Pollination occurs when pollen is moved within flowers or carried from flower to flower by pollinating animals such as birds, bees, bats, butterflies, moths, beetles, or other animals, or by the wind.



Why Does it Matter?

- Worldwide, roughly 1,000 plants grown for food, beverages, fibers, spices, and medicines need to be pollinated by animals in order to produce the goods on which we depend.



Why Does it Matter?

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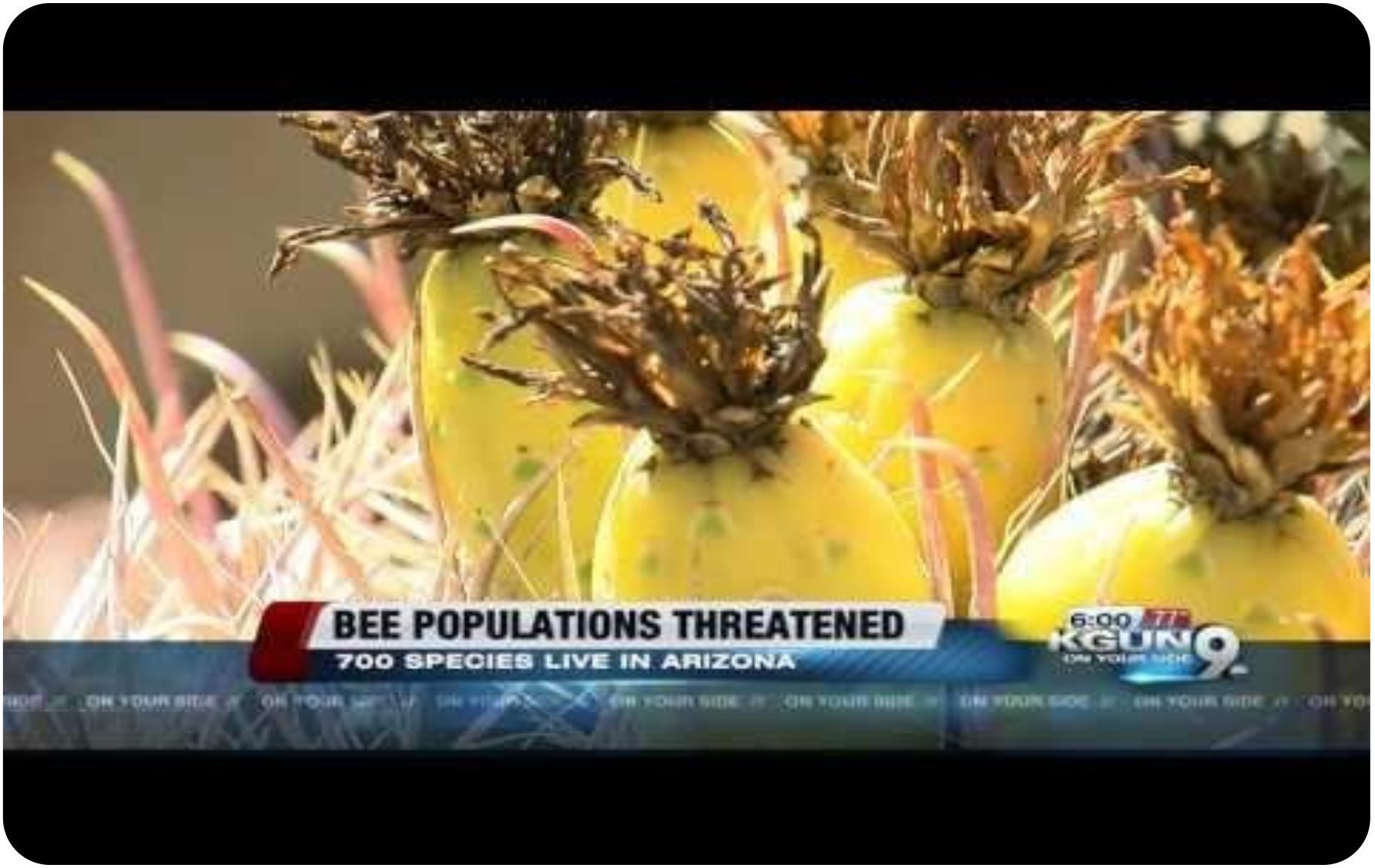
Why Does it Matter?

- In the United States, pollination by honey bees, native bees, and other insects produces **$40 billion** worth of products annually.

Are Pollinators in Trouble?



Meet the Pollinators

- Bees
- Butterflies
- Bats
- Moths
- Beetles
- Flies
- Birds
- And More!

Bees

- Nature’s most efficient pollinator
- Arizona is home to over 1,300 species of native bees
- 12 Major types each with unique habitat requirements

Honey Bee (Apis mellifera)

- Large social colonies, 30,000 or more
- Live in manmade hives, tree hollows or rock outcrops
- All wild honey bees in Arizona are considered “Africanized”

Bumble Bee (Bombus and Psithyrus spp.)

- Bumble Bees live in social colonies; nesting underground, under boards or rodent burrows
- They buzz pollinate flowers like tomatoes
- Usually active during the morning hours and forage at colder temperatures than honey bees, even flying in light rain

Carpenter Bee (Xylocopa spp.)

- Large Carpenter Bee:
  - Soft dead wood, poplar, cottonwood or willow trunks and limbs, structural timbers including redwood, depending on the species
  - These bees can be active all day, even in the hottest weather
- Small Carpenter Bee:
  - Pithy stems including roses and blackberry canes. These bees are more active in the
  - morning but can be found at other times.

Digger Bees (Apinae spp.)

- Solitary or communal
- Nest in sandy soils compacted soils, bank sides.
- Usually active in the morning hours, but can be seen at other times.

Squash and Gourd Bees (Peponapis and Xenoglossa spp.)

- They specialize on pollen and nectar of wild gourds and cultivated pumpkins
- Solitary; ground-nesting often in pumpkin fields
- May nest in gardens (where pumpkins, squash and gourds are grown) or pathways.
- Early risers, can be found in pumpkin patches before dawn.

Leafcutter Bees (Megachile spp.)

- Pre-existing circular tunnels of various diameters in dead but sound wood created by emerging beetles, some nest in the ground.
- Leave dead limbs and trees to support not just pollinators but other wildlife. Leafcutter bees can be seen foraging throughout the day even in hot weather
- Female Megachile cut circular pieces from leaf margins to form larval cells.

Mason Bees (Osmia spp.)

- Pre-existing tunnels, various diameters in dead wood made by emerging beetles, or human-made nesting substrates, drilled wood boards, paper soda straws inserted into cans attached to buildings
- Collects mud or resin as nesting materials.
- Mason bees are generally more active in the morning hours.

Sweat Bees (Agapostemon, Augochlorella, and Halictus spp.)

- Solitary, communal and semi-social soil nesters
- Bare ground, compacted soil, sunny areas not covered by vegetation.
- Like most bees, sweat bees forage for pollen earlier in the morning and then for nectar later.
- Some are attracted to salt in your sweat.

Plasterer Bees (Colletidae spp.)

- Bare ground, banks or cliffs
- Colletid bees can be active in the morning or later in the day.

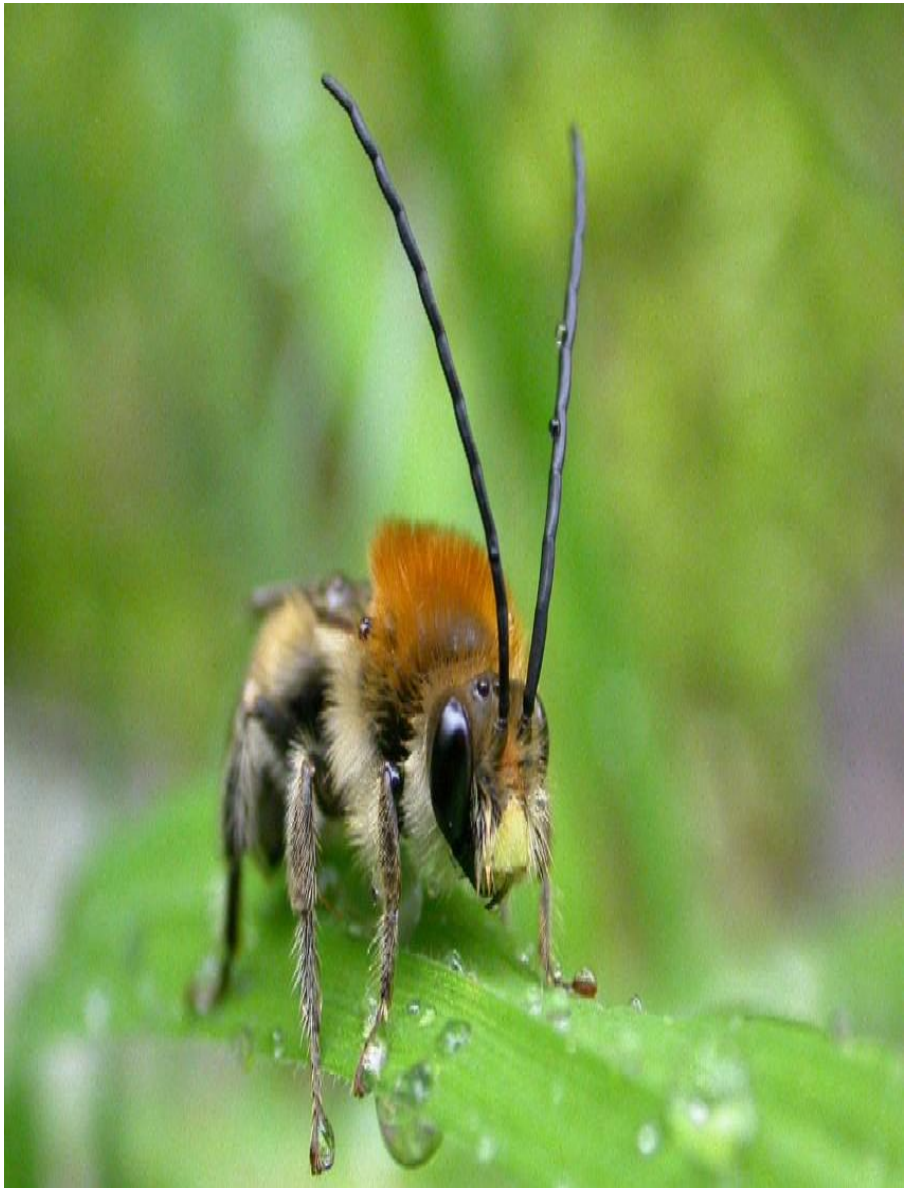
Yellow Faced or Masked Bees (Hylaeus spp.)

- Solitary.
- Nests in dead stems, twigs, and beetle burrows
- More active during morning hours
- They carry pollen internally in the crop, sometimes called the honey stomach

Mining Bees (Andrena and Perdita spp.)

- Solitary or communal (some Macrotera spp.)
- Sunny, bare ground, sand soil, under leaf litter or in soil in banksides and cliffs.
- These generally spring-active bees are most commonly seen on flowers during the morning when pollen and nectar resources are abundant.
- Females have depressions (fovea) along their eyes that glisten due to short velvety hairs.

Long-Horned Bees (Melissodes, Svastra, and Synhalonia spp.)



- Solitary to communal ground nesting bees
- Some genera and species are especially attracted to asters, sunflowers and mallows.
- Males have very long antennae, as long as body; 7 – 20 mm.

Meet the Pollinators

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- Butterflies
- Bats
- Moths
- Beetles
- Flies
- Birds
- And More!

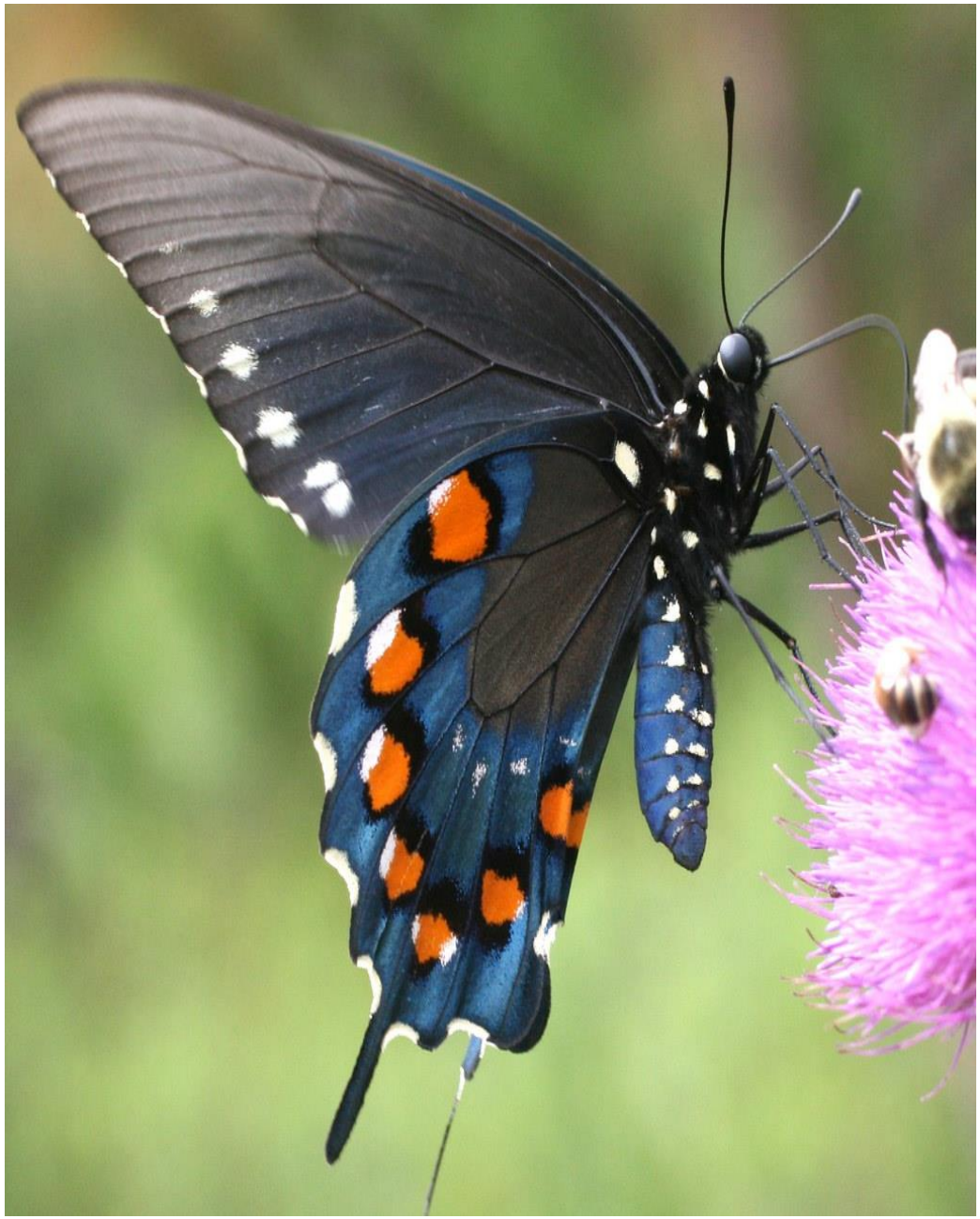
Milkweed Butterflies - Danaidae

- Monarch and Queen
- Larvae feed exclusively on milkweed (Asclepia)
- Monarchs uncommon, seen mostly in fall.

Longwing Butterflies - Heliconiidae

- Gulf Fritillary
- Larvae Feed Exclusively on passion flower vine. (Passiflora)

Swallowtail Butterflies - Papilionidae



- Many species
- Distinct Hindwings
- Larave have special organ “osmeterium” to scare away predators

Blues and Hairstreaks - Lycaenidae

- Slender tails on hindwings
- Hindwings rub together with Scissor-like motion
- Western Pygmy-Blue is world’s smallest butterfly.

Whites & Sulphers - Pieridae

- Most Species are white or Yellowish
- Species include: Southern Dogface, Cloudless Sulpher, Mexican Yellow, Sleepy Orange and Sara Orangetip

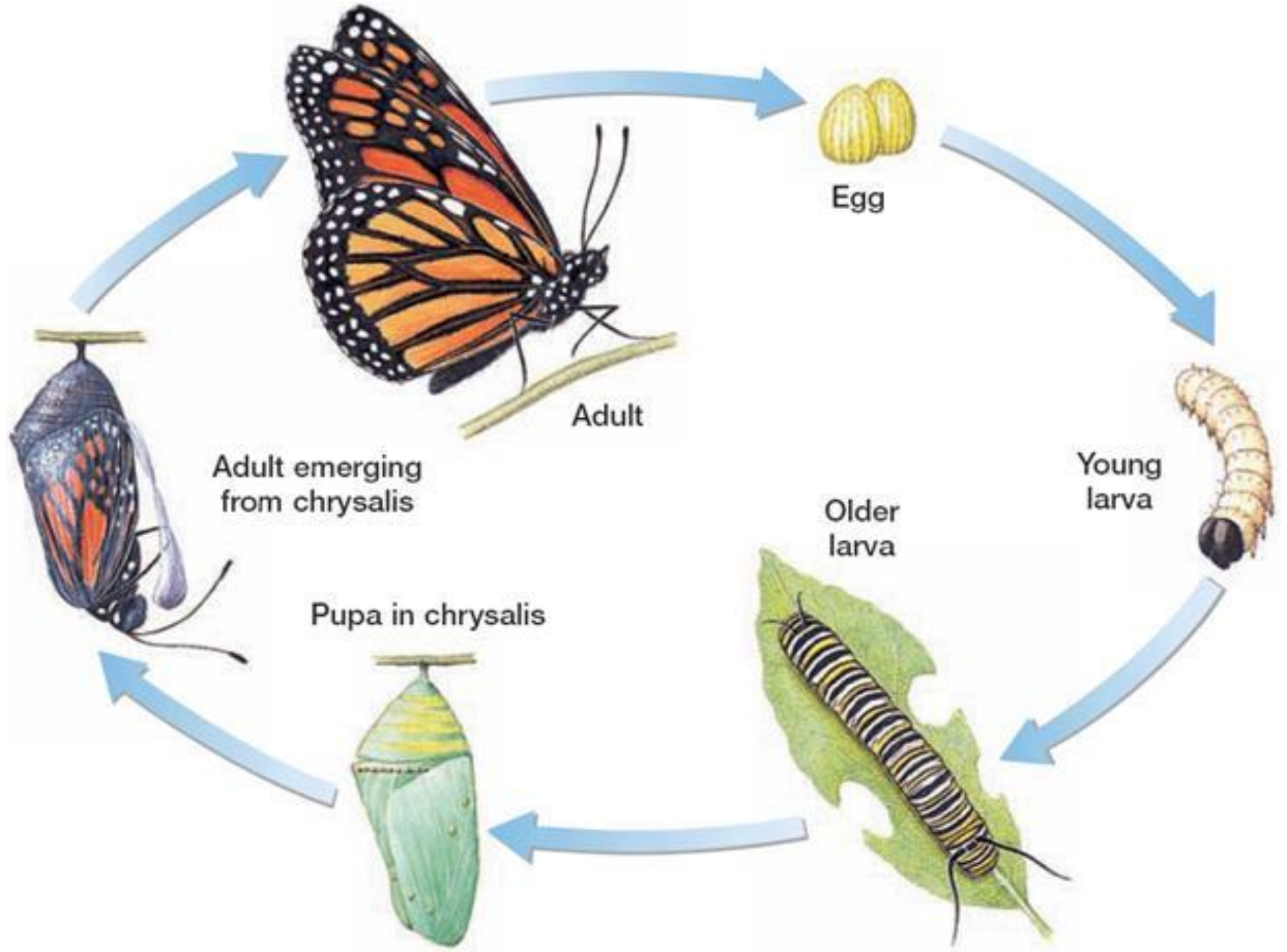
Creating Pollinator Habitat

What Can you Do?

- **Plant** for Pollinators
- **Watch** for Pollinators
- **Reduce** your Impact on Pollinators

Plant for Pollinators

Cultivate native plants, especially those that provide nectar and larval food for pollinators


Egg
Young larva
Older larva
Pupa in chrysalis
Adult emerging from chrysalis
Adult

Prairie Acacia - Acaciella angustissima var. suffrutescens

Fragrant Beebrush – Aloysia gratissima

Queens Wreath – Antigonon leptopus

Southwest Pipevine – Aristolochia watsonii

Native Milkweed Species – Asclepias spp.

Fairy Duster – Calliandra eriophylla

Palmleaf Thoroughwort– Conoclinium dissectum

Babybonnets – Coursetia glandulosa

Santa Catalina Prairie Clover - Dalea Pulchra

Desert Lavender – Hyptis emoryi

Velvetpod Mimosa - Mimosa Dysocarpa

Passion Flower Vine – Passiflora Spp.

Dessert Senna - Senna Covesii

Watch for Pollinators

- Install houses for bats and native bees
- Supply salt or mineral licks for butterflies and water for all wildlife
- Join Pollinator Partnership or other conservation organization

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Watch for Pollinators

Reduce your Impact

- Eliminate pesticide use
- Substitute native landscapes for lawns and other high water use plants

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Reduce your Impact

XII. ECOLOGICAL INFORMATION: Do not apply directly to water, or to areas where surface water is present, or to inter-tidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters. **This product is toxic to bees exposed to direct treatment. Do not apply this product while bees are actively visiting the treatment area.**

RESOURCES

- Arizona-Sonora Desert Museum
- Tucson Audubon Society
- Community Food Bank
- Pollinator Partnership
- Xerces Society
- National Wildlife Federation

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THANK YOU!

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