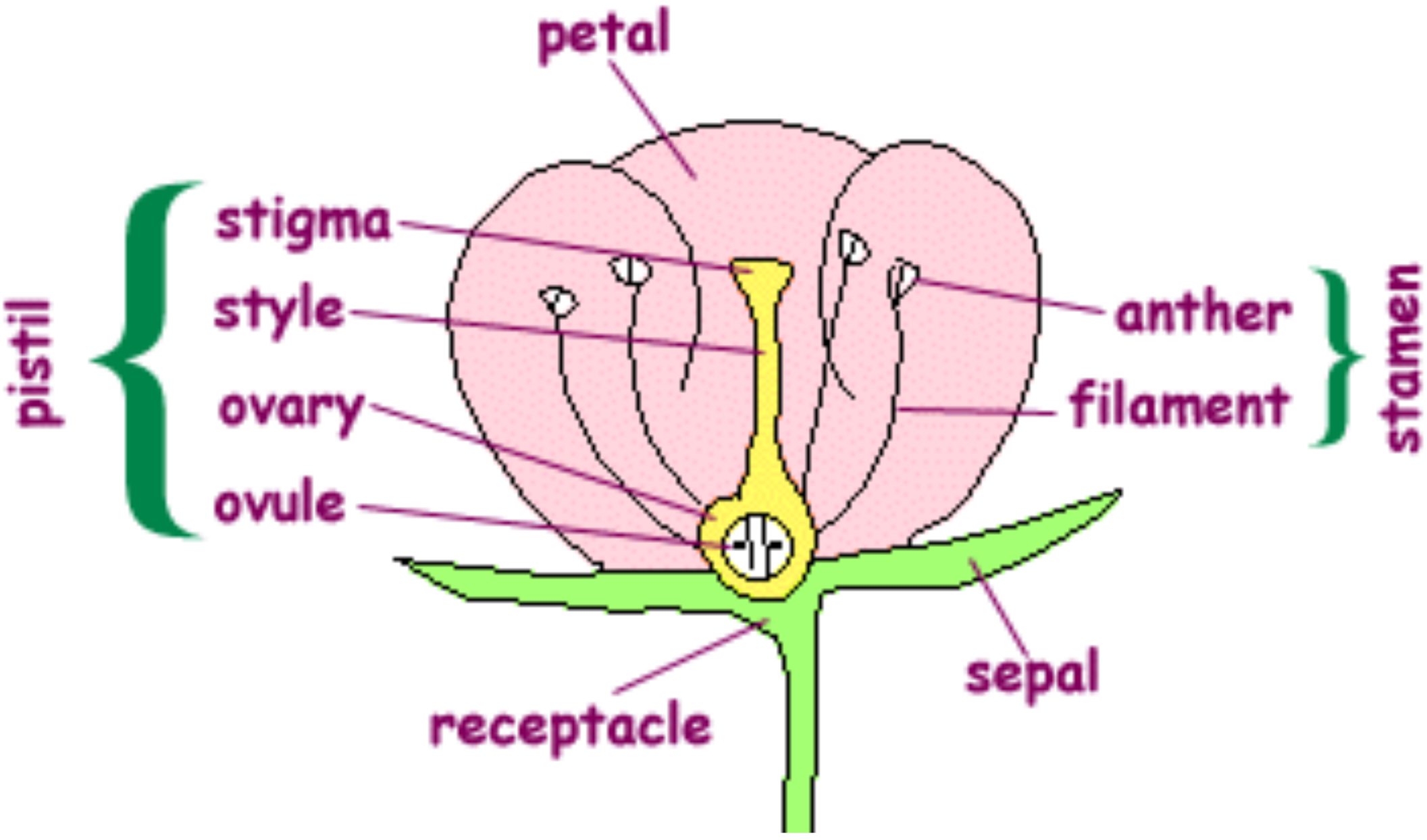
Promoting Pollinators

Dunwoody Community Garden Workshop
June 8, 2019

Cyndi McGill
DeKalb County Master Gardener Extension Volunteer

What We'll Cover

- What is pollination?
- Meet the Pollinators
- Attract the Pollinators
- Protect the Pollinators
- and…… A Very Special Opportunity!



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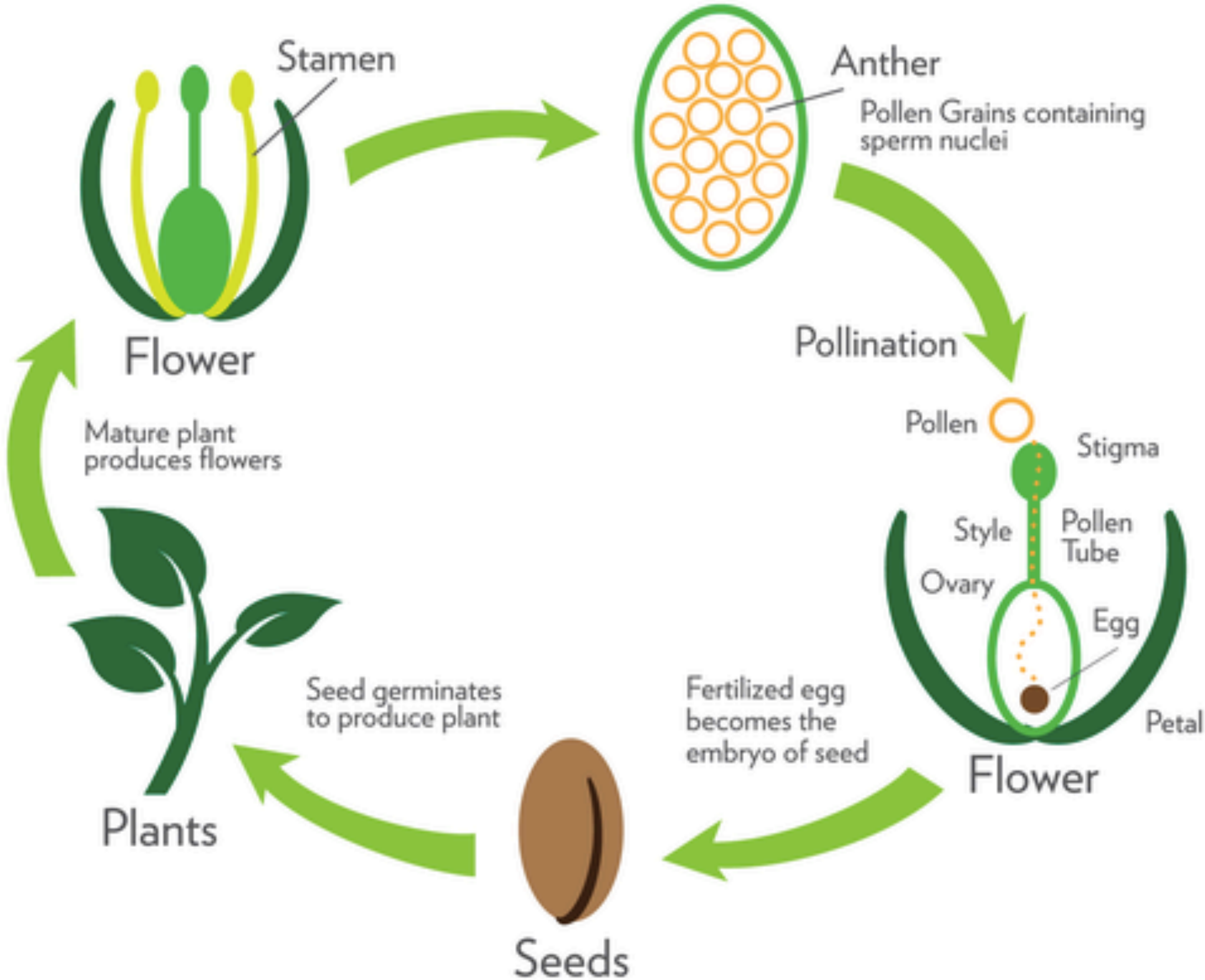
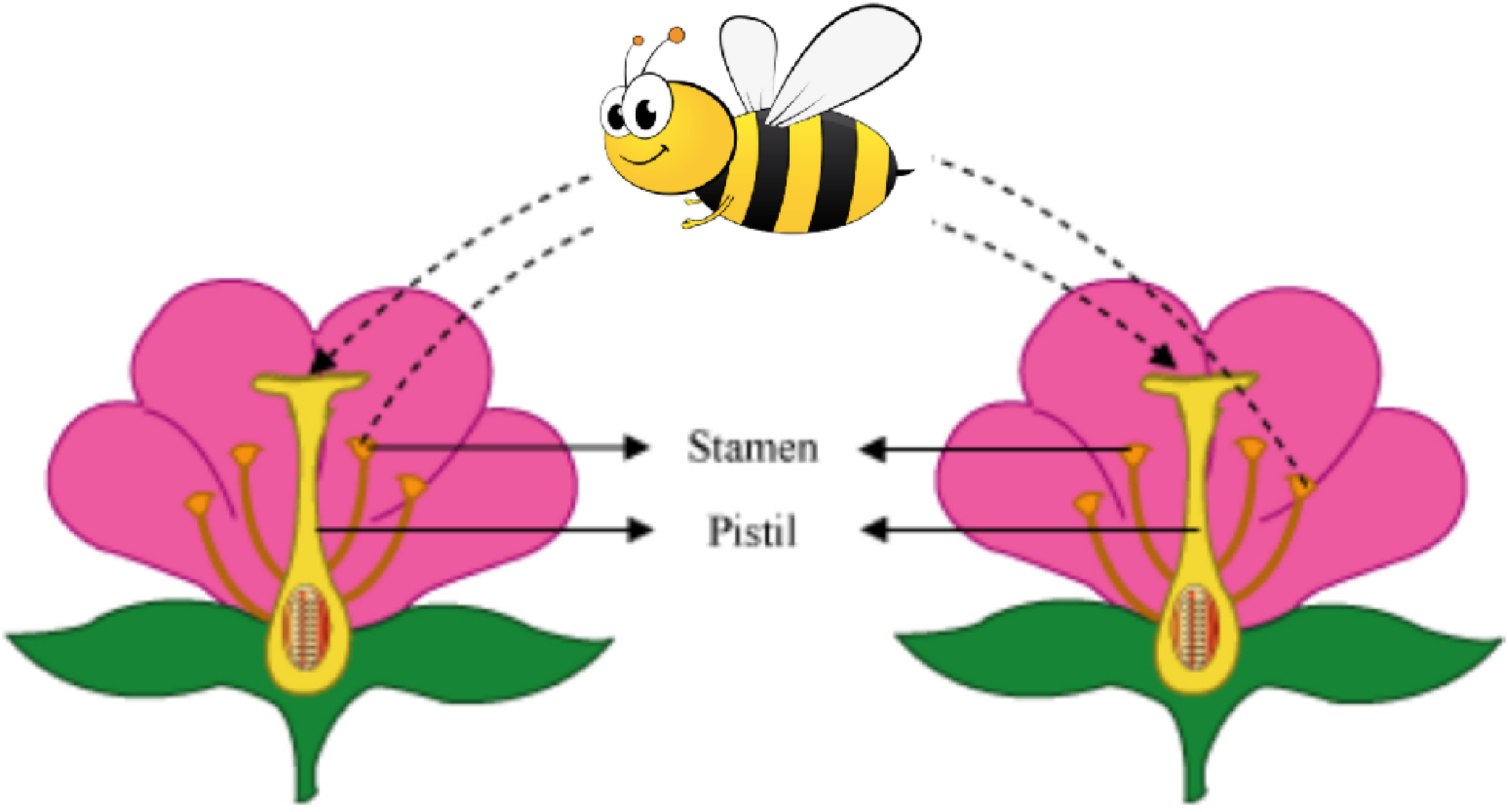

Stamen
Flower
Anther
Pollen Grains containing sperm nuclei
Pollination
Pollen
Stigma
Style
Pollen Tube
Ovary
Egg
Petal
Flower
Fertilized egg becomes the embryo of seed
Seeds
Seed germinates to produce plant
Plants
Mature plant produces flowers

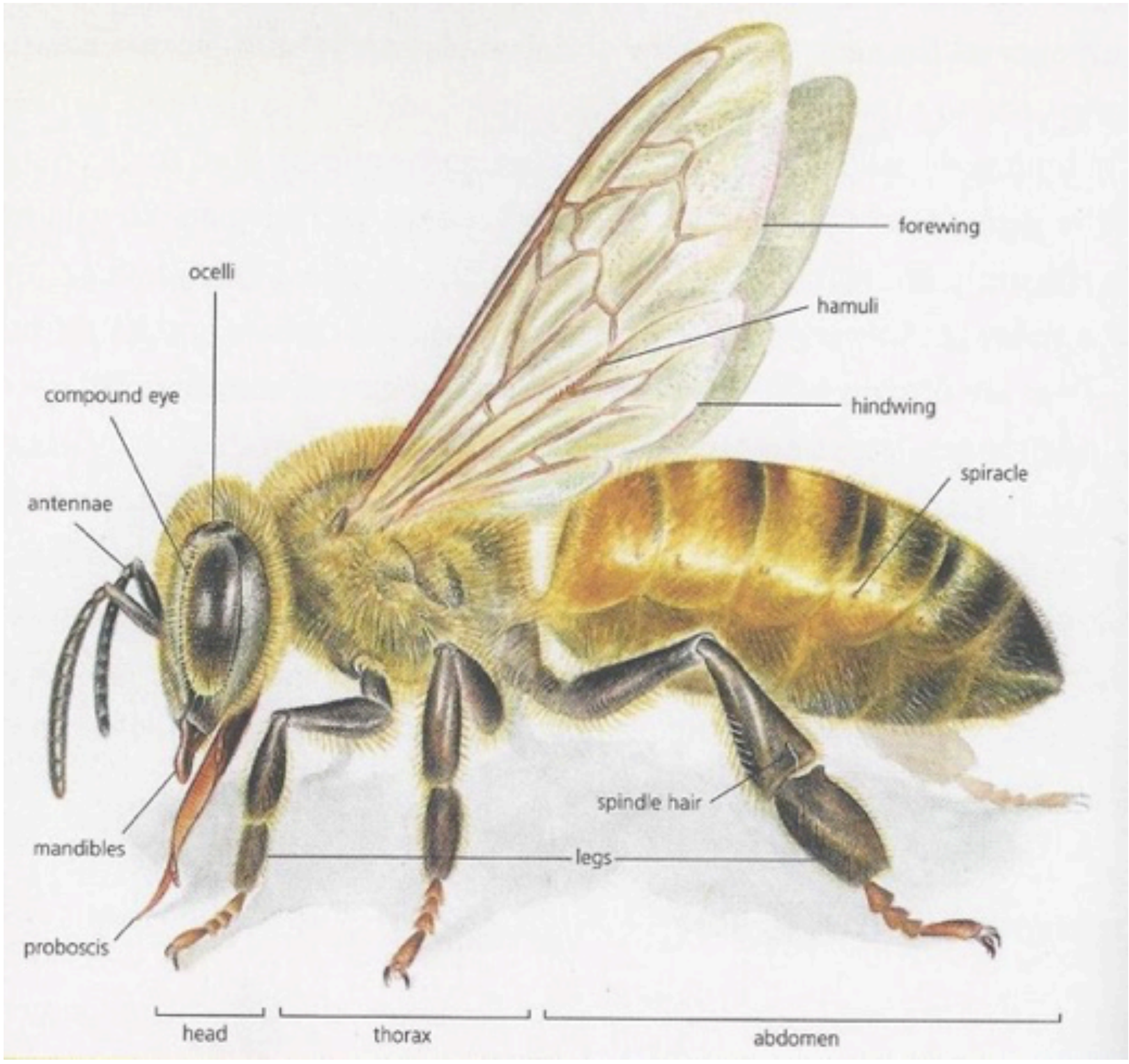
Cross Pollination



Who Pollinates What?

FLOWER	bats	bees	beetles	birds	butterflies	flies	wind
color	dull white, green, purple	bright white, yellow, blue	dull white, green	orange, red, white	orange, red, purple	pale and dull to dark brown or purple, often veined	dull green or brown
odour	strong, fruity	fresh, mild, pleasant	fruity, spicy	none	spicy, none	putrid	none
shape	regular, bowl-shaped, closed during day	shallow, landing platform, tubular	large, bowl-like	large, funnel-like, no landing platform but strong perch support	narrow tube, wide landing pad	shallow, funnel-like or trap-like	regular, small, stigmas exerted, petals absent or reduced
bloom time	night	day	day	day	day	day and night	anytime
nectar	abundant, somewhat hidden	usually present	sometimes present, not hidden	ample, deeply hidden	ample, deeply hidden	usually absent	none

Photo: Sheila Wilder, DeKalb County Master Gardener Extension Volunteer
June 4, 2019 - Dunwoody Community Garden and Orchard



UGA Extension, The Great Georgia Pollinator Census Insect Counting and Identification Guide

Carpenter Bees

Xylocopa - approximately 1 1/4”

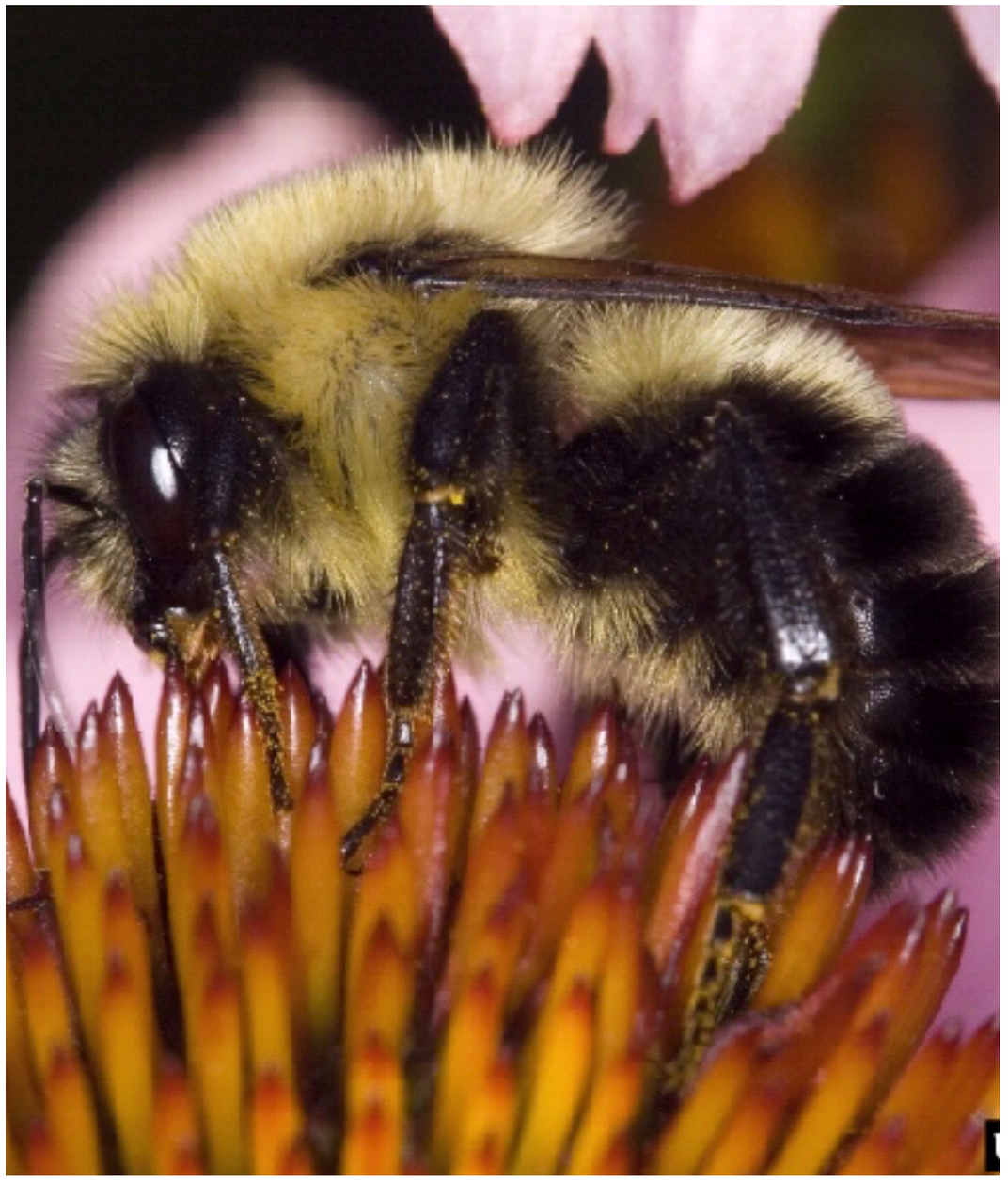
- Largest bee we typically see in Georgia and one of the most important pollinators
- Solitary bees create nests in solid wood
- head, thick body, shiny black abdomen
- Males have yellow/white coloring on face.
- Pollen carried on stiff hairs called scopa

Ansel Oommen, Bugwood.org

Bumble Bees

Bombus impatiens - Approximately 1”

- Truly social bees that live in colonies of about 200
- Fat bee with small head. Covered in dense yellow and black hair.
- Nest in the ground or in pre-existing cavities
- Pollen carried in a corbicula, or pollen basket
- Capable of buzz pollination!



David Cappaert, Bugwood.org

Larry Master, masterimages.org

Carpenter or Bumble?

- Carpenters are Mack Trucks
- Bumbles are pickup trucks
- Shiny vs. fuzzy abdomens

Bodie Pennisi, UGA Extension

Honey Bees

Apis Mellifera 5/8”

- **Native to Europe**
- Truly social with thousands in each colony
- Produce large amounts of honey (dehydrated nectar)
- Nest in hollow trees or rock cavities - or in manmade hives

UGA Extension

Bumble bee and honey bee on mountain mint
Photo: Bodie Pennisi, University of Georgia

Small Bees

- **Mining bees (Andrena)**
  - Ground nesting, about 1/2”


Whitney Cranshaw, CSU, bugwood.org

- **Sweat bees (Halictidae)**
  - Nest in rotten wood, 1/8” to 1/2”
  - Bright metallic bodies


Scott Bauer, USDA ARS, bugwood.org

- **Mason bees (Osmia)**
  - Nest in cavities and old stems using mud, about 1/2”


Joseph Berger, bugwood.org

Debra Wilson, Georgia Pollinator Census Facebook Page 6/8/19

Wasps

Becky Griffin, UGA Extension

Ansel Oommen, Bugwood.org

Flies

- Syrphid flies include hover flies and flower flies
- Tiny (.25 - .75”)
- FUN to watch!
- Larvae eat aphids

David Cappaert, Bugwood.org

Bee or Fly?

Bees

- Four wings: larger forewing and smaller hindwing
- Each eye does not cover the entire side of the face
- Longer, more pronounced antennae

Flies

- Two wings
- Each eye typically covers the entire side of the face
- Small antennae

Beetles


Soldier beetle
photo: Bodie Pennisi


Wedge-shaped beetle
photo: Bodie Pennisi


Flower longhorn beetle
photo: Bodie Pennisi

- Some of the earliest pollinators
- VERY sloppy - distribute pollen while chewing the plant
- Commonly seen on open, strongly scented flowers like magnolia
- Types include tumbling flower beetles, lady beetles, and weevils

Hummingbirds

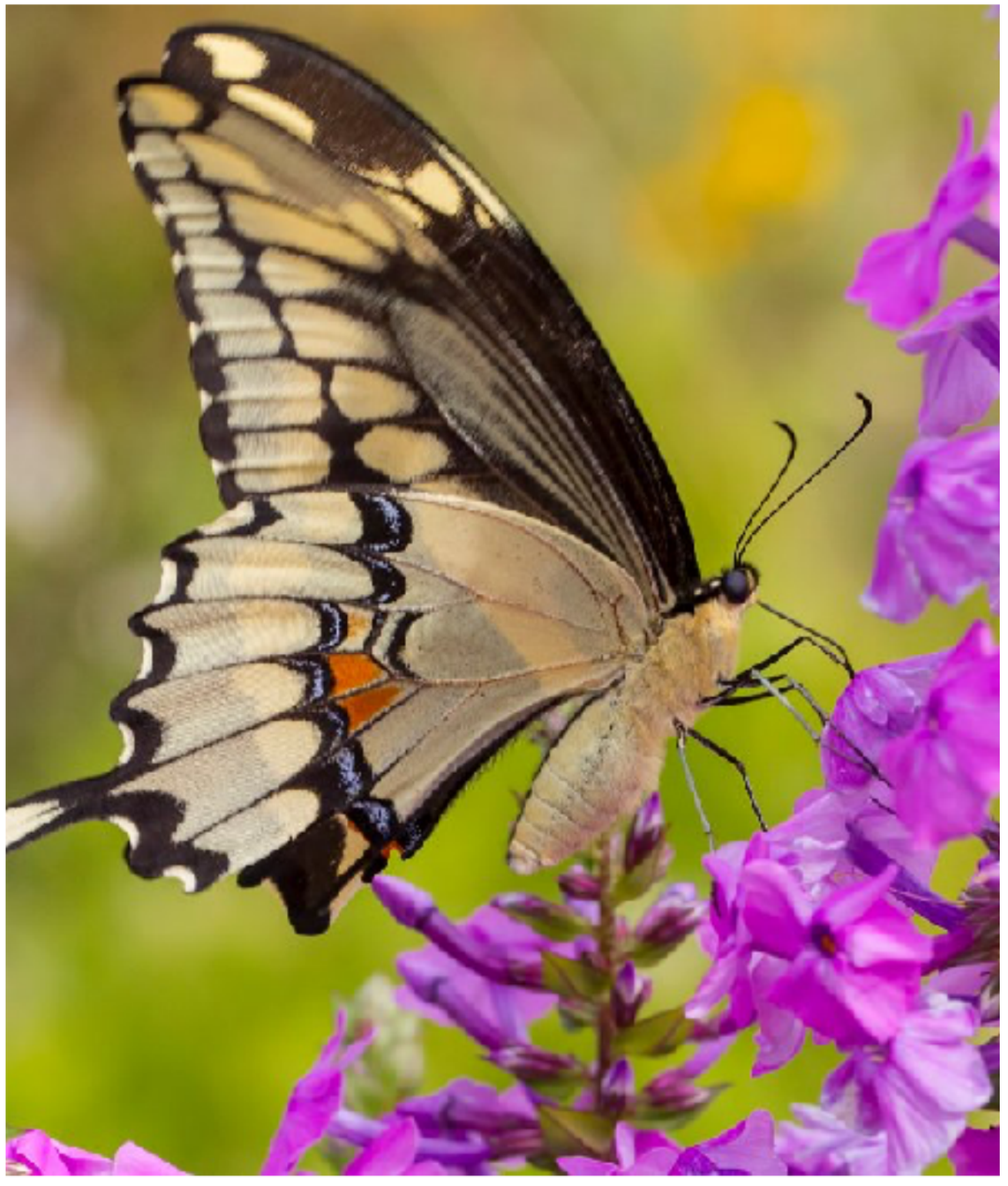
- Sip nectar and move pollen
- Attracted to red and orange flowers
- “Homemade” nectar for hummingbird feeders: 1 part sugar dissolved in 4 parts water. NO food coloring needed.

Larry Master, www.masterimages.org

Butterflies

- Butterflies require a specific plant to host their eggs and larvae.

- Caterpillars eat greens, butterflies sip liquids like nectar and about anything else that will dissolve in water

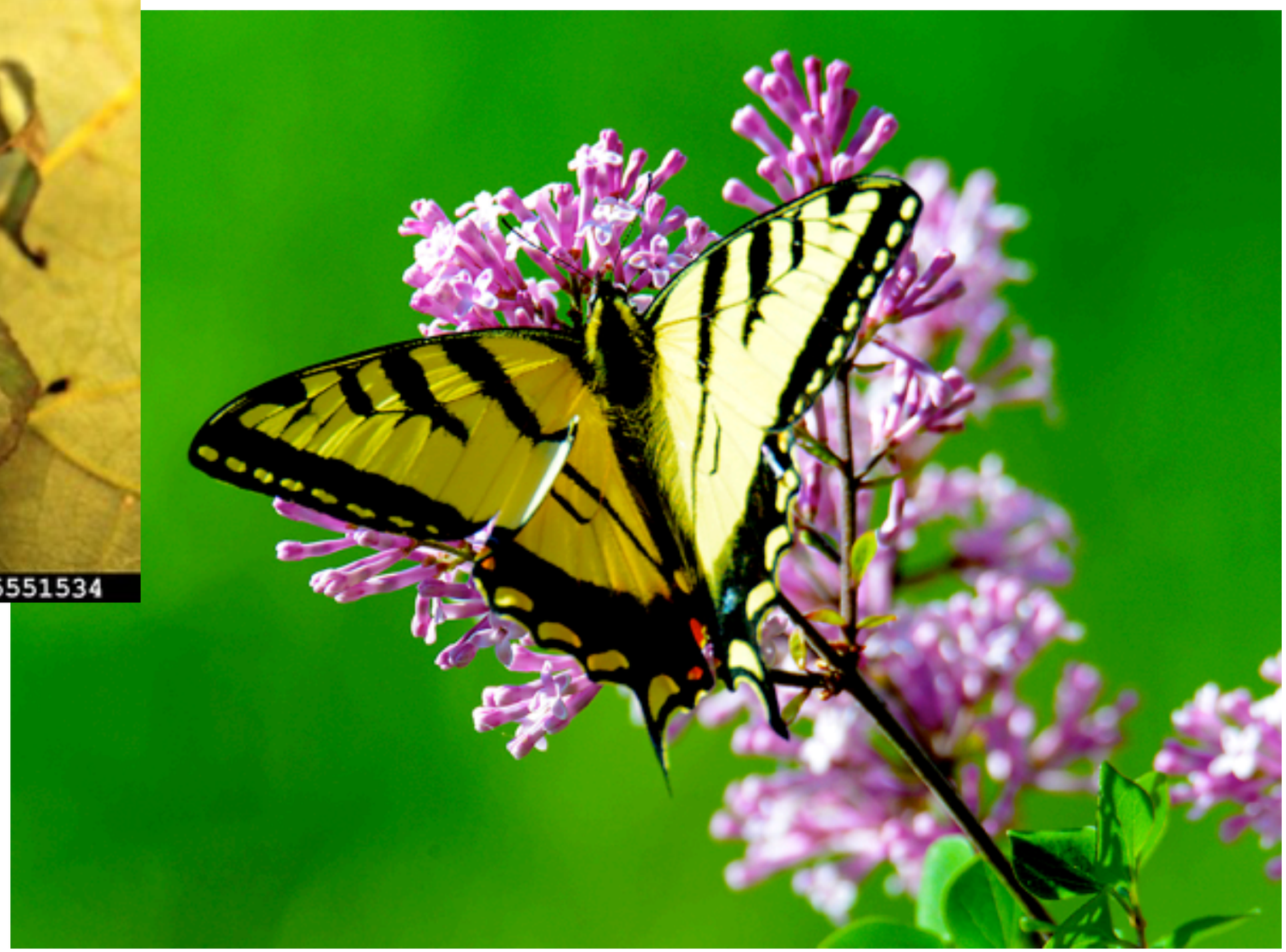


Becky Griffin, UGA Urban Ag Center

Eastern Tiger Swallowtail

Ansel Oomman, bugwood.org

Hosts: Hardwood tree leaves (Eastern Tiger)



Larry Master, www.masterimages.org

Nectar: Bee Balm, Butterfly Bush, Lantana, Zinnias

Black Swallowtail

Ansel Oomman, bugwood.org

Hosts: Parsley, Dill, Bronze Fennel Queen Anne's Lace

Gerald J. Lenhard, Louisiana State University, Bugwood.org

Nectar: Bee Balm, Butterfly Bush, Lantana, Zinnias

Gulf Frittilary

Karan A. Rawlins, UGA, bugwood.org

William Ciesla, bugwood.org

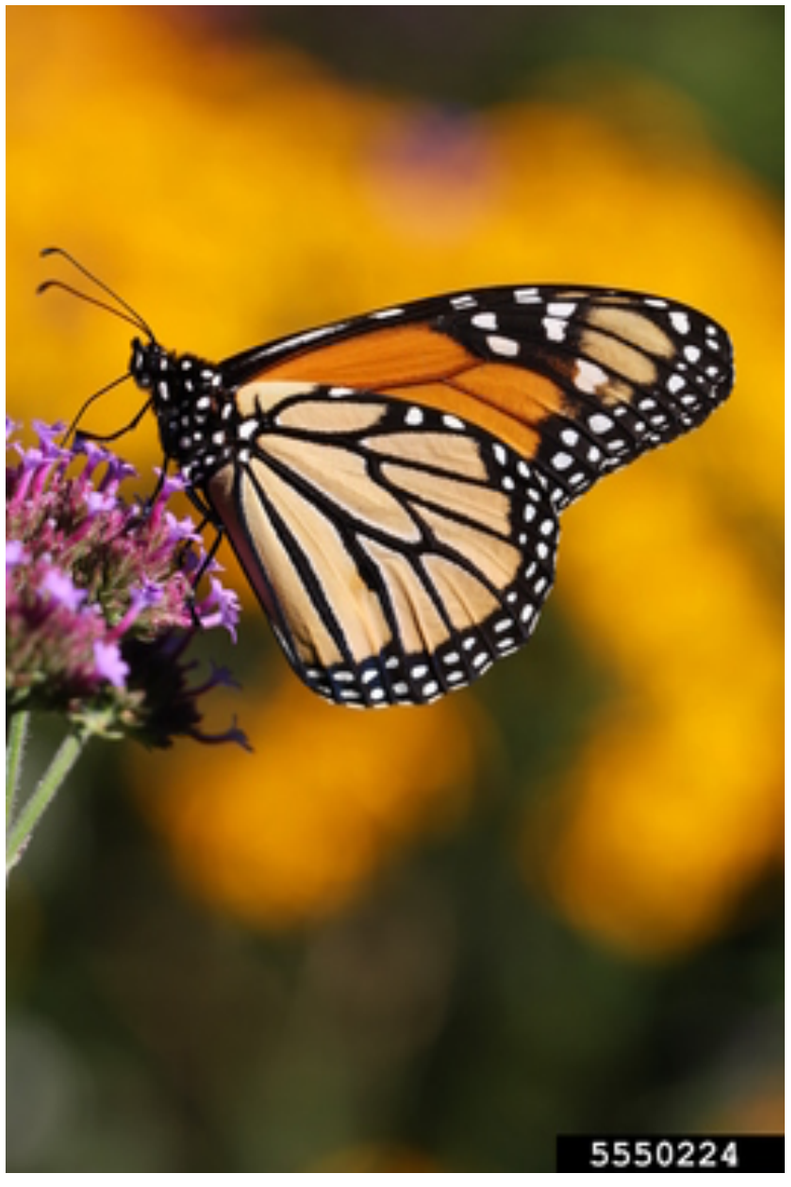
Hosts: Passiflora (Passion Flower, Passion Vine, Maypop)

Nectar: Black-eye Susan, Butterfly Bush, Marigold, Aster

Monarch

Ansel Oommen bugwood.org

Mohammed El Damir, bugwood.org



Steven Katovich, bugwood.org

Hosts: Milkweeds

Nectar: Milkweeds, Zinnias, Butterfly Bush, Aster, Coneflower

Skippers

J.F. Butler, University of Florida

Hosts: Plants in the Pea family, Kudzu, Chinese Wisteria

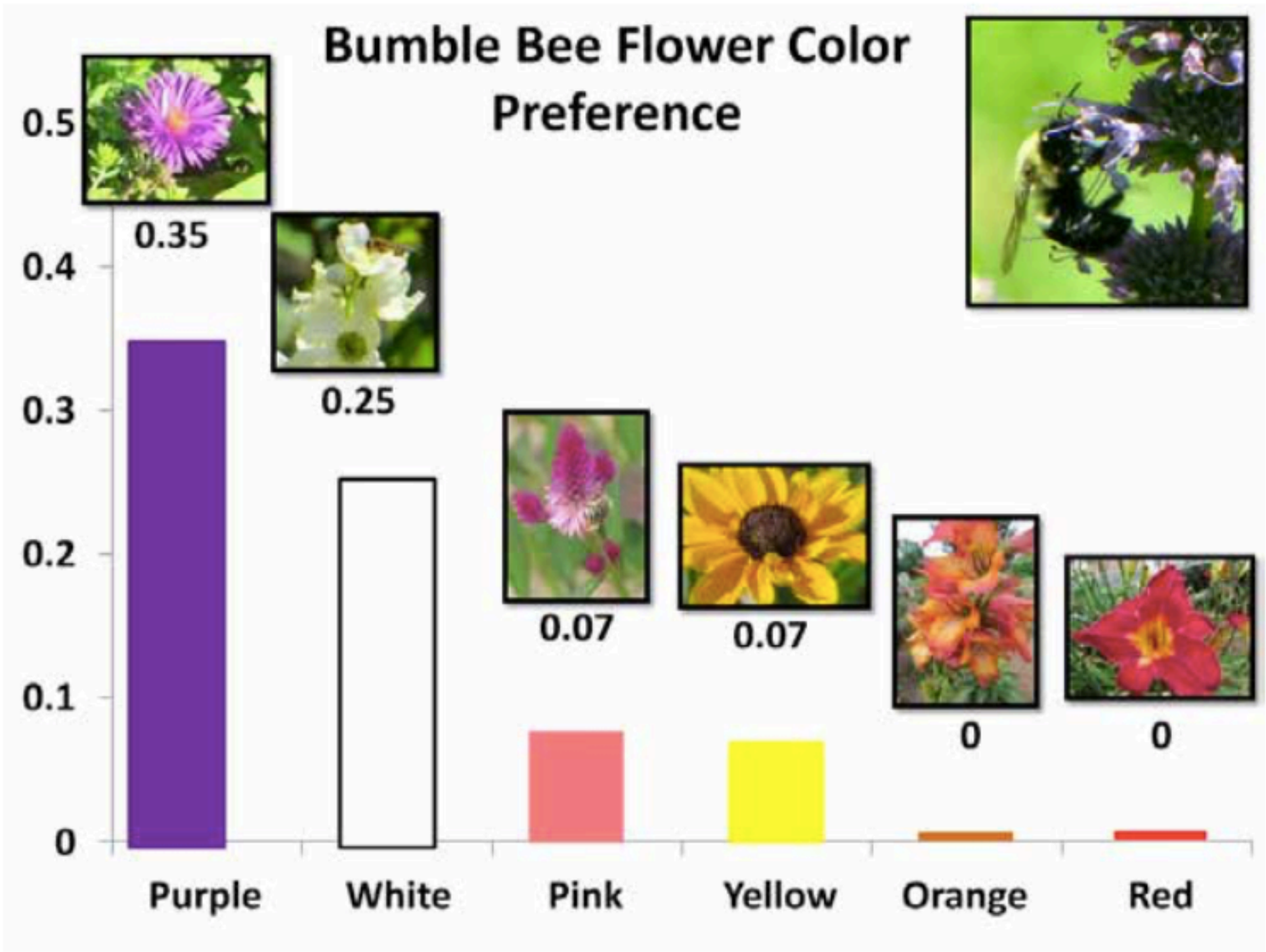
J.F. Butler, University of Florida

Nectar: Almost all flowering plants

If you plant it, they will come!

Buddleia
Butterfly Bush

Photo: Pixabay



University of Georgia Extension

Pollinator Magnets: Herbs and Their Flowers

Basil

Mint

Oregano

Chives

Thyme

Dill

Rosemary

Catnip

Trees and Shrubs Bees Love

Blueberry*
Blackberry*
Raspberry*
Elderberry*

Apple
Pear
Peach
Plum*
Persimmon*
Redbud*

Pollinator Magnets: Edibles

Squashes
Melons
Tomato*
Peppers
Onion
Strawberry
String Bean
Peas

Spring Blooming Pollinator Magnets

Ed McDowell

Baptisia*
False Indigo

Chris Kruessling, NC State Ext

Aquilegia*
Columbine

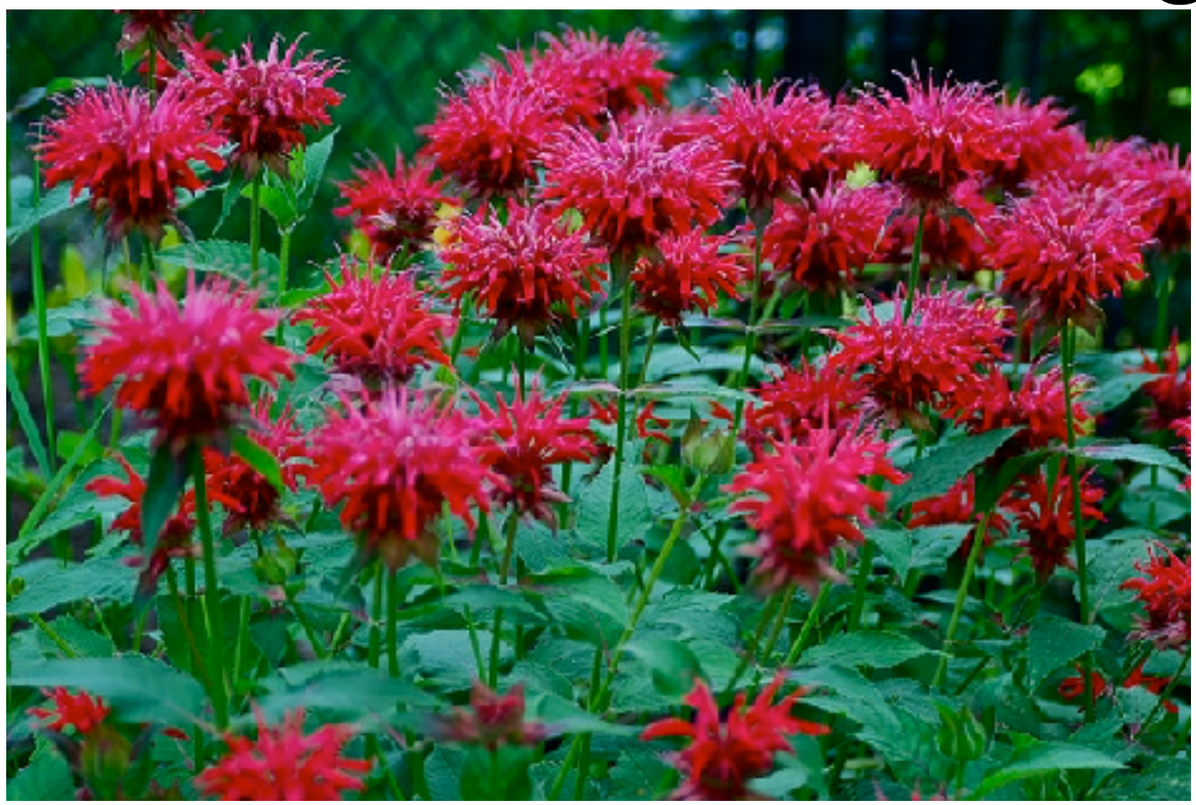
M. Fletcher, North Carolina State Extension

Oenothera*
Sundrops

Juniper Level Botanic Garden, NC

Penstemon*
Beardstongue

Summer Blooming Pollinator Magnets



Monarda*
Bee Balm

Coreopsis*
Tickseed

Salvia
Black and Blue

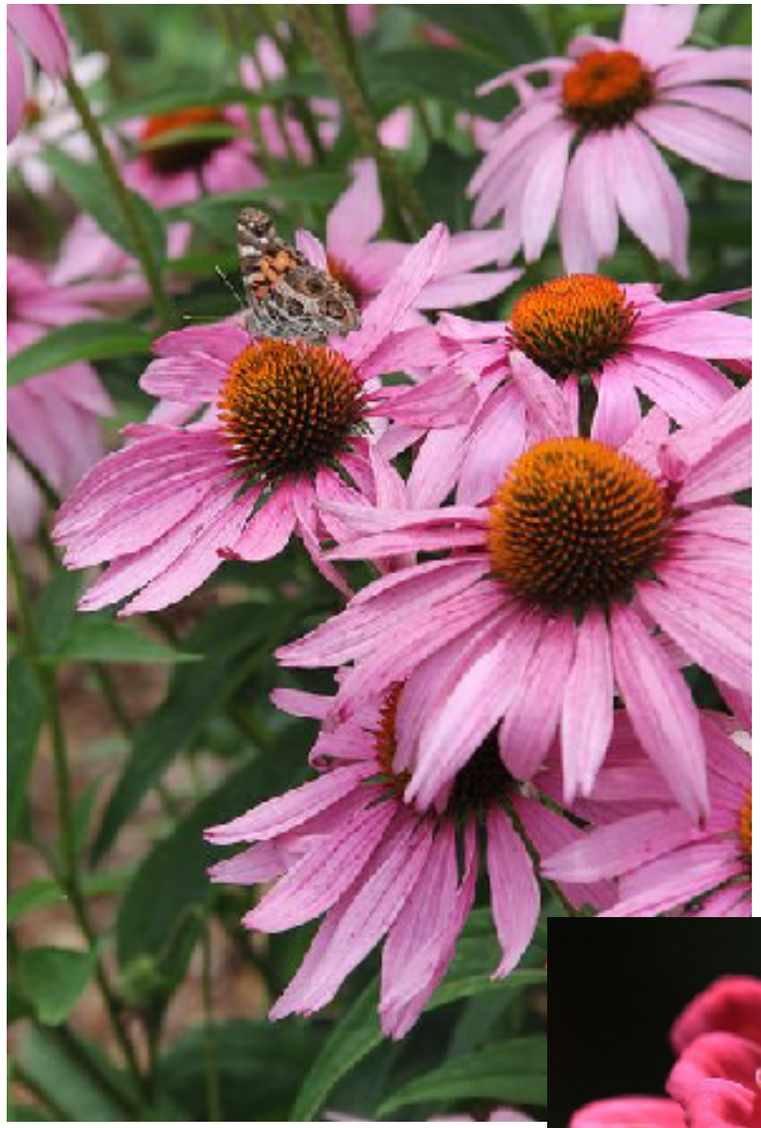
Lantana

All Photos:
NC State
Extension

Summer Blooming Pollinator Magnets

Rudbeckia*
Black-Eyed Susan

Achillea*
Yarrow



All Photos:
NC State Extension

Echinacea*
Coneflower

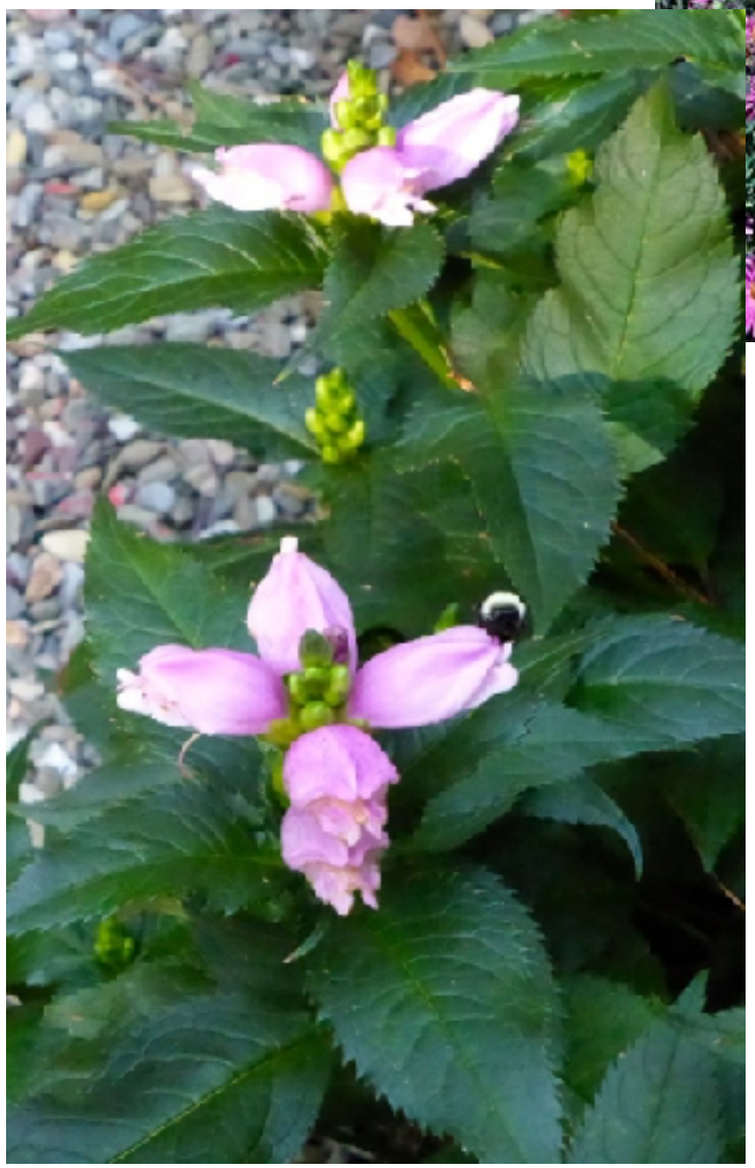
Zinnia

NC State Extension

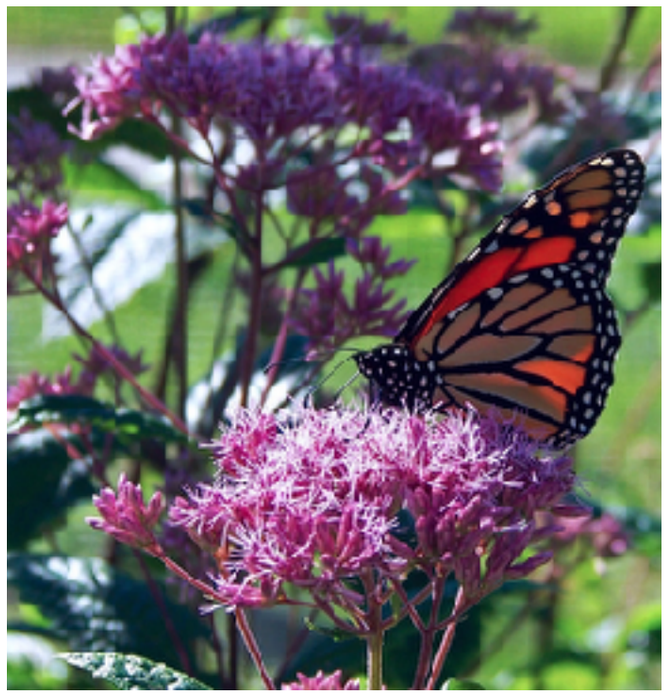
Fall Blooming Pollinator Magnets

All Photos:
NC State Extension

Aster*



Chelone lyonii*
Turtlehead



Eupatorium*
Joe Pye Weed

Solidago*
Goldenrod

Important Butterfly Host Plants

Milkweed*
Monarch Butterfly

Passiflora (Maypop)*
Gulf Fritillary

Parsley, Bronze Fennel
Swallowtails

All Photos:
NC State Extension

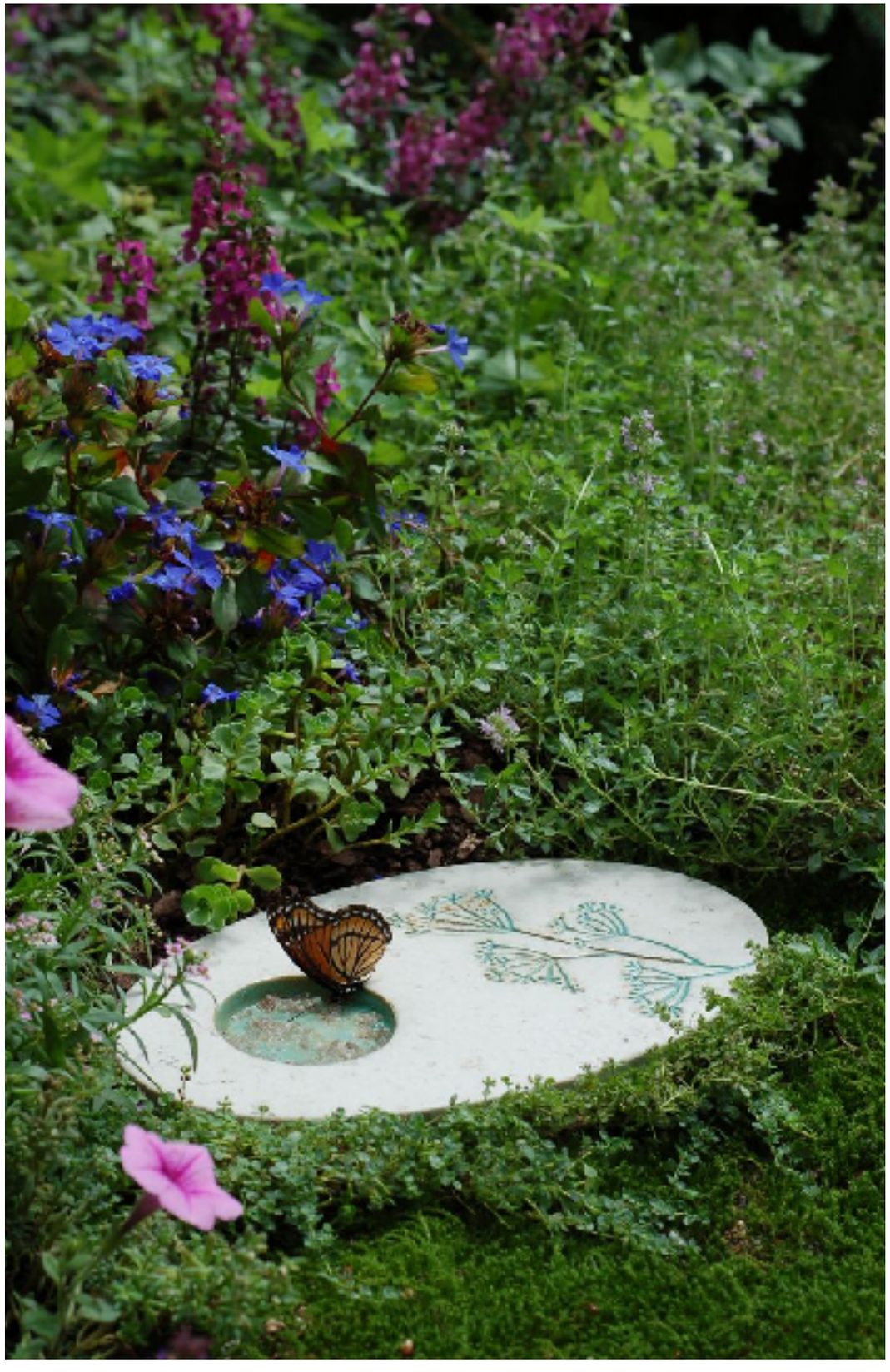
Starting Small…

- Plant zinnias and lantana in a container
- Plant containers of basil, thyme, and rosemary
- For feline lovers, plant a **container** of catnip
- For mojito lovers, plant a **container** of mint

Co-existing with Pollinators

- If you plant it, they will come!
- They’re more interested in pollen and nectar than you!
- Provide habitats: shelter, food, water, minerals
- Leave some “blank space” for ground-nesters
- Manage the bad guys VERY carefully

Landing Zone for Butterflies: Rest, Water, Minerals



Mason bee paper tubes
Photo: Josh Fuder, University of Georgia

Materials for bee nesting boxes include tree trunk slices and untreated lumber, with license plates acting as roofs
Photo: Elizabeth Benton, University of Georgia

Safely Co-existing

- Start with plants that have not been treated with pesticides
- Follow established organic gardening practices (e.g. exclude, repel)
- Consider biologic controls like milky spore
- Use organic pesticides (such as neem oil) carefully and never when pollinators are present
- Control pests like mosquitos by controlling their populations: eliminate standing water, BT crumbles and dunks, use repellants as needed

The Great Georgia Pollinator Census

On August 23rd and 24th, 2019, Georgians of all ages from all over the state will join efforts to document our pollinators. Won't you join us?

The Great Georgia Pollinator Census is an historical initiative where Georgians will record the numbers and types of pollinators that populate our state during late summer. You do not have to be an entomologist to be part of this important project! The census was designed for individuals, families, garden clubs, school groups, friends – ALL Georgians to participate. Download the Insect Counting Guide (below) for counting details. Also, on-line training will be available from this website so stay tuned. Check out the "Events" page for pollinator events near you!

GREAT GEORGIA
Pollinator Census