

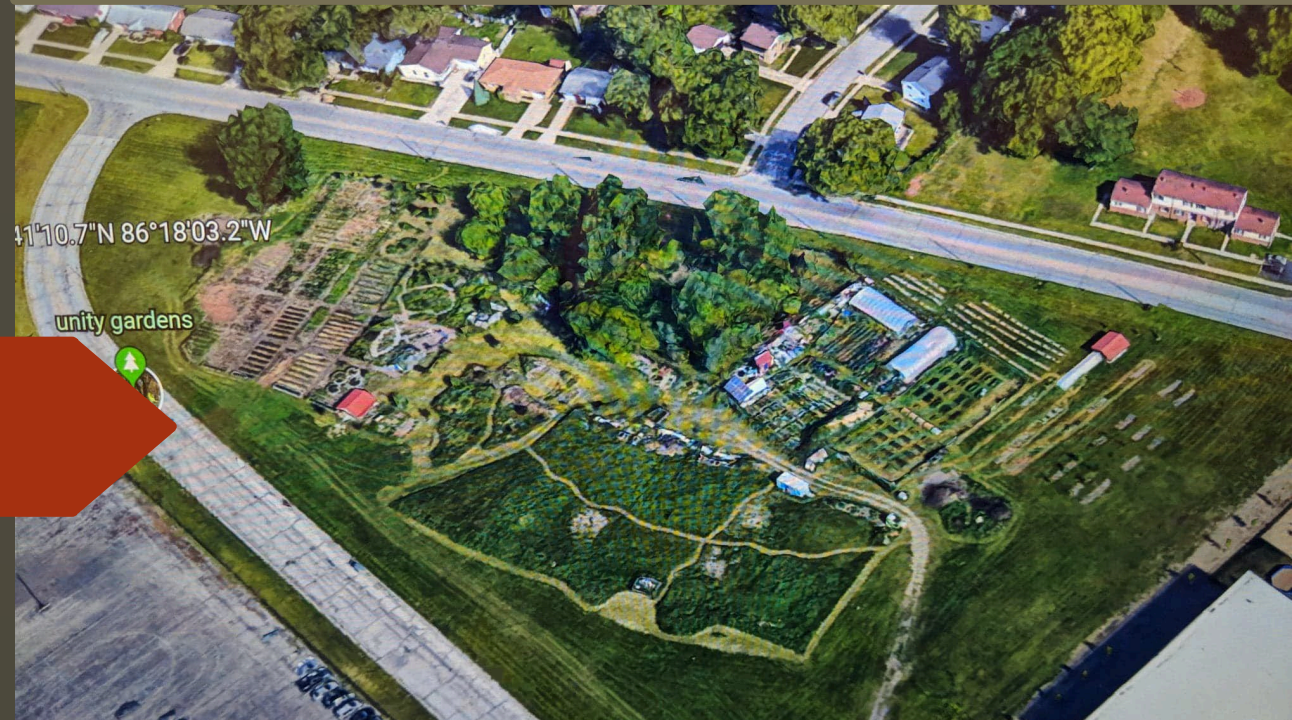
Unity Gardens



Attracting Pollinators

By Mitch Yaciw

KeyBank 



"If you have a backyard, this book is for you."
-Richard Louv, author of *Last Child in the Woods*

Bringing Nature Home

UPDATED AND EXPANDED

How You Can
Sustain Wildlife
with Native Plants

Douglas W. Tallamy

Foreword by Rick Darke

BEES



BUTTERFLIES



MOTHS



POLLINATORS OF NATIVE PLANTS

Attract, Observe and Identify
Pollinators and Beneficial Insects
with Native Plants

WASPS



FLIES



BETLES



Heather Holm

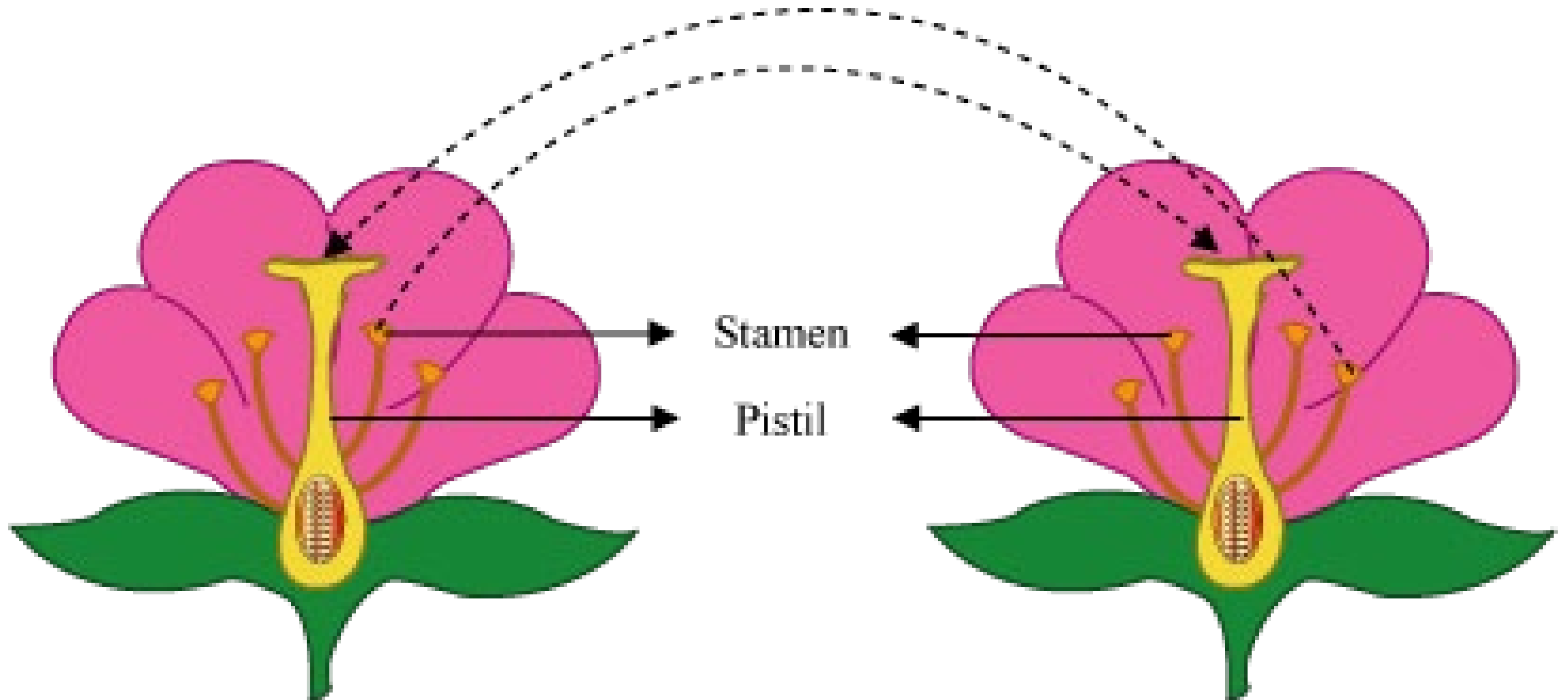
pol·li·na·tion

/ˌpɒləˈneɪʃ(ə)n/

the transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization: the flowers depend on bees for pollination source Oxford Dictionary



Cross pollination



Self-pollination

- Pollen from the anther is transferred to the stigma

Self-pollination

pollen grains

2. A pistil of the same flower collects pollen.



Pollinators



A composite image featuring a honeybee on a purple flower, a glass jar of honey, and a wooden honey dipper. The honeybee is on the left, facing right, with its legs and wings visible. The purple flower is in the foreground. The glass jar of honey is in the background, and the wooden honey dipper is in the foreground, dipping into the honey. The background is a warm, golden-yellow color.

Why we love the Honeybee

Most people don't realize that there were no honeybees in America until the white settlers brought hives from Europe



Honey Bees home as we know it.



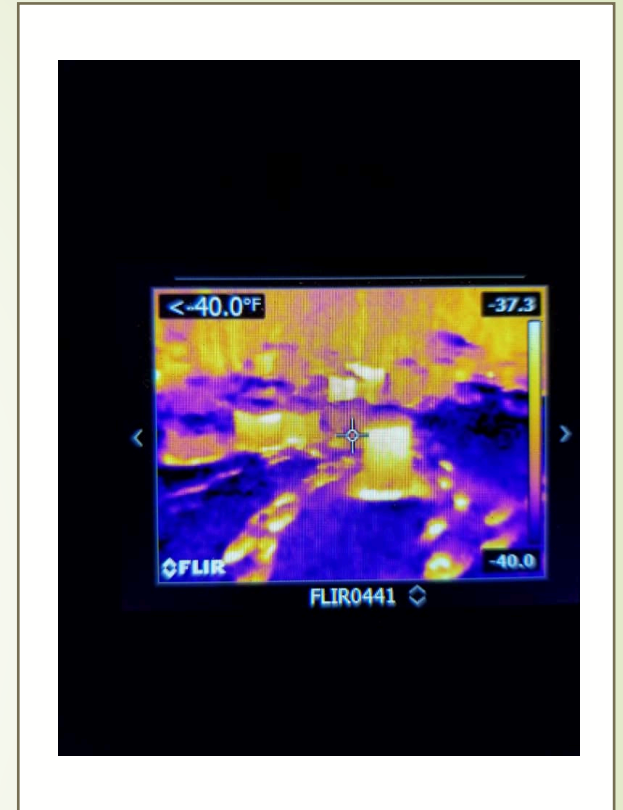
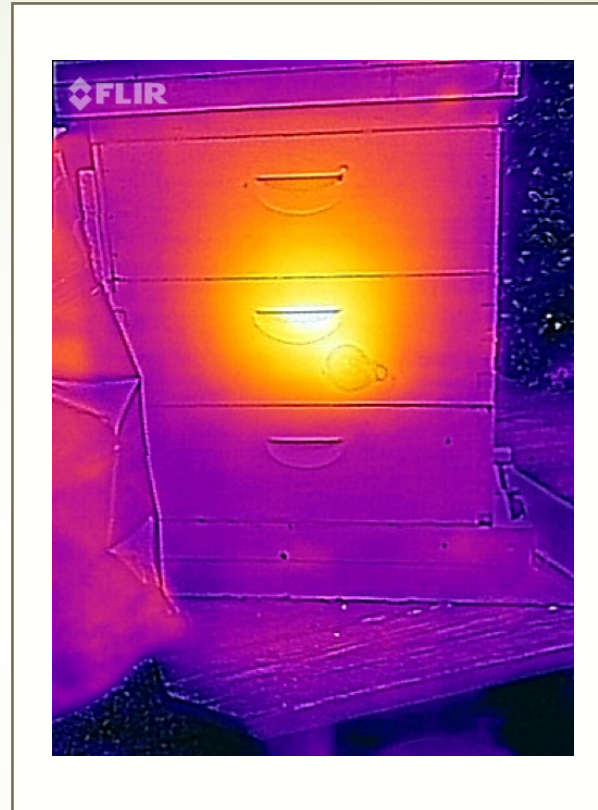
Types of hives

➤ Skep

➤ Top Bar

➤ langstroth
hive





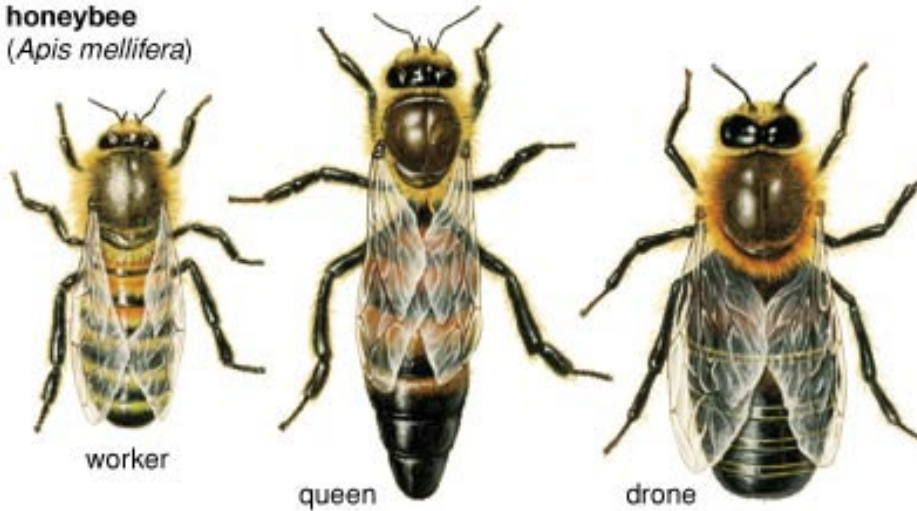
Honey Bees Overwinter in the hive

Honey Bees in nature



The family unit makes the Honey Bee unique

honeybee
(*Apis mellifera*)



© 2006 Encyclopædia Britannica, Inc.

Bee Ancestry

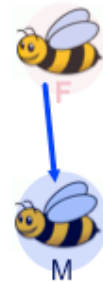
The Fibonacci Sequence as seen through tracing a bee's family tree



A simple fact about bee reproduction hides mathematical connections: Female bees can reproduce with or without a male!

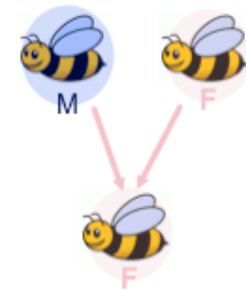
- Unfertilized, female bees bear male bees as offspring.
- Fertilized by a male bee they give birth to a female!

Only a female mother



Male Honey Bee

Both a female mother AND a male father



Female Honey Bee

In the hive





Swarming Honey Bees

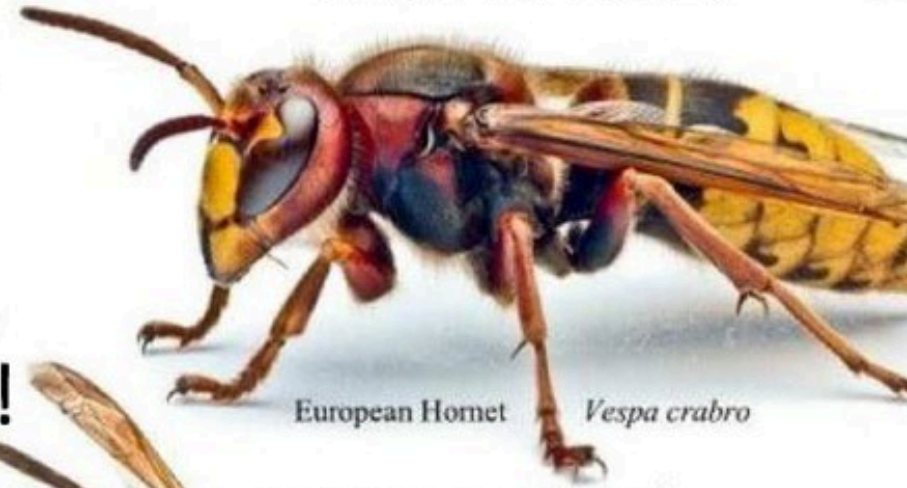


To Bee or not to Bee

NOT A BEE!



NOT A BEE!



NOT A BEE!



NOT A BEE!



Bees, Wasps, and Other Beneficial Insects
www.facebook.com/4wasps



0.5 inch
1.25 cm



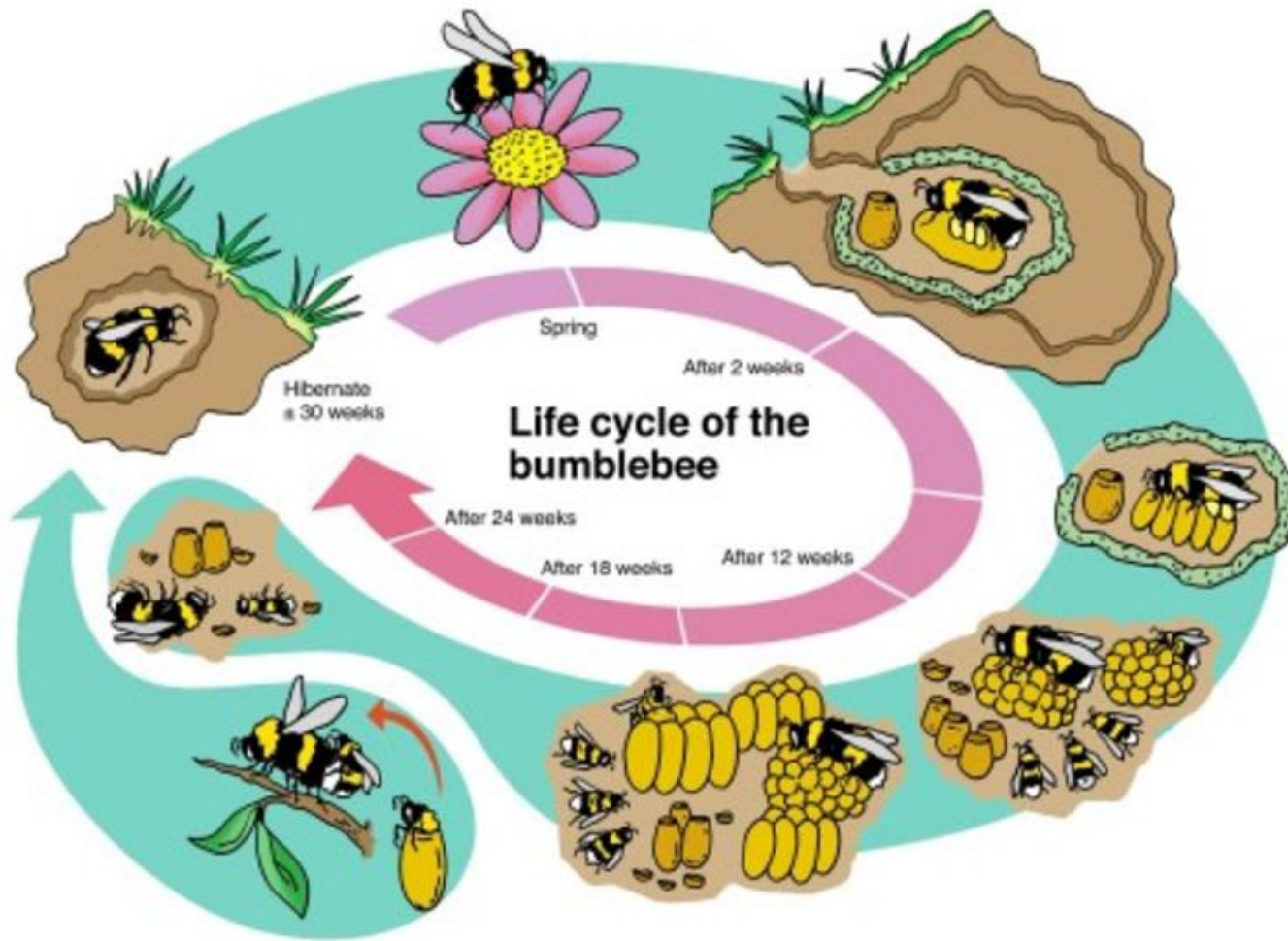
BEE

BEE

Bumble Bees

- ➔ Bumble bees are the only bees native to the US that are truly social.
- ➔ They live in colonies, share the work, and have multiple, overlapping generations.





- Unlike the non-native, European honey bees, the bumble bee colony is seasonal. At the end of the summer only the fertilized queens survive to hibernate through the winter.
- In the spring, she will find a new nest that eventually may grow to include dozens of individuals (occasionally a couple of hundred).

Mason or Leaf Cutter Bees

- ▶ Are far more efficient as pollinators than honeybees. This is partially because honeybees favor nectar gathering over pollen-gathering but mason bees favor gathering pollen.
- ▶ Are solitary. Each bee feeds itself and creates its own nest. With mason bees there is no minimum population needed for bees to be healthy.
- ▶ In North America, there are about 140 different mason bee species



Life of a Mason Bee



Red mason bee



Summer

2

Egg hatch and become Larva

Bee Larva Enters Pupal Stage

3

1

March - May
First Year

Females Build Nests
6-8 Eggs Per Hole

Spring

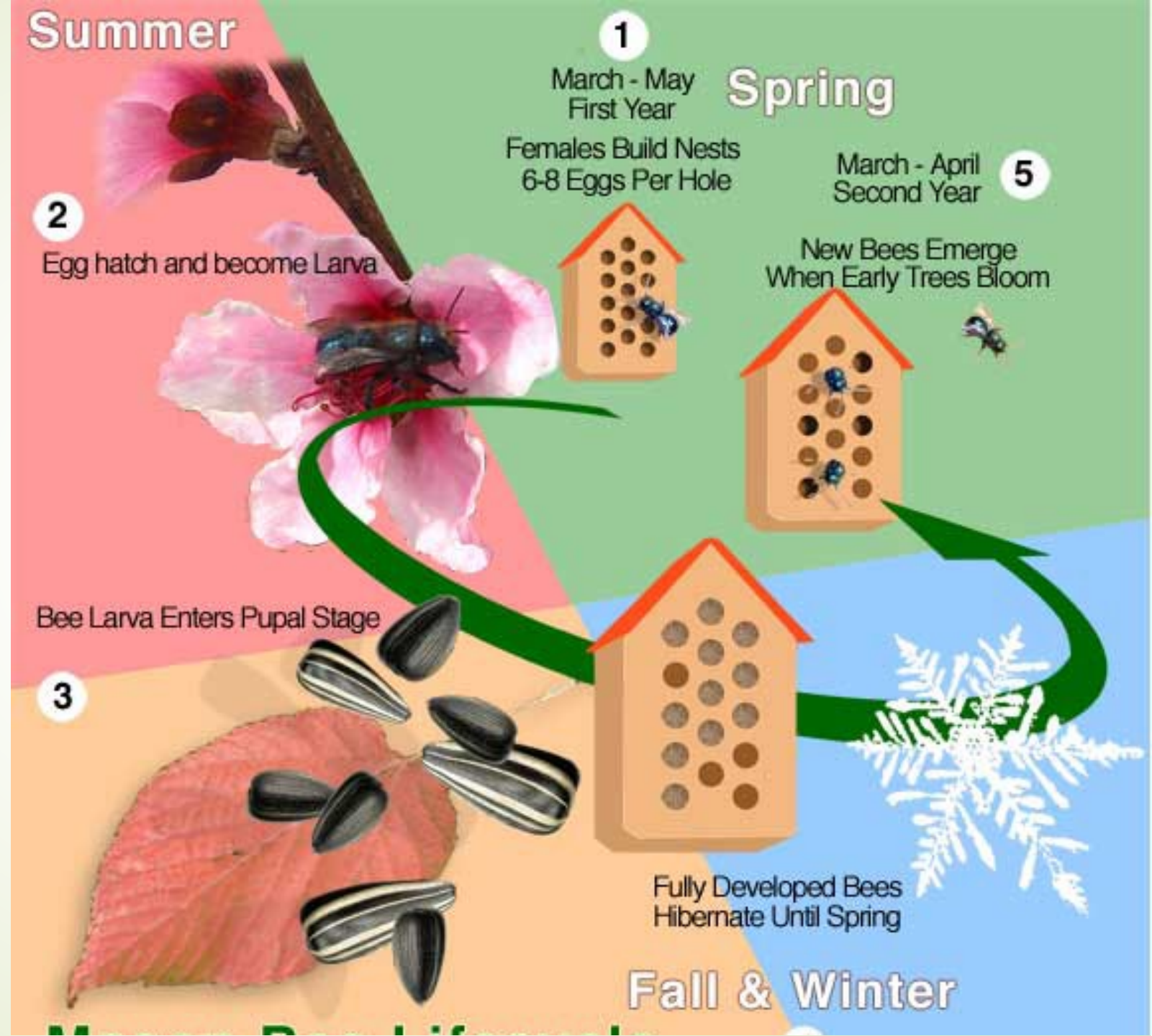
March - April
Second Year

5

New Bees Emerge
When Early Trees Bloom

Fully Developed Bees
Hibernate Until Spring

Fall & Winter



Leafcutter Bees



Hello Gardeners!

If you see neat, circular shapes cut from leaves, they are only made by me –
a leafcutter bee.

It won't harm your plant, so please don't
spray pesticide.

Thank you. xx



www.BuzzAboutBees.net/leafcutter-bee.html



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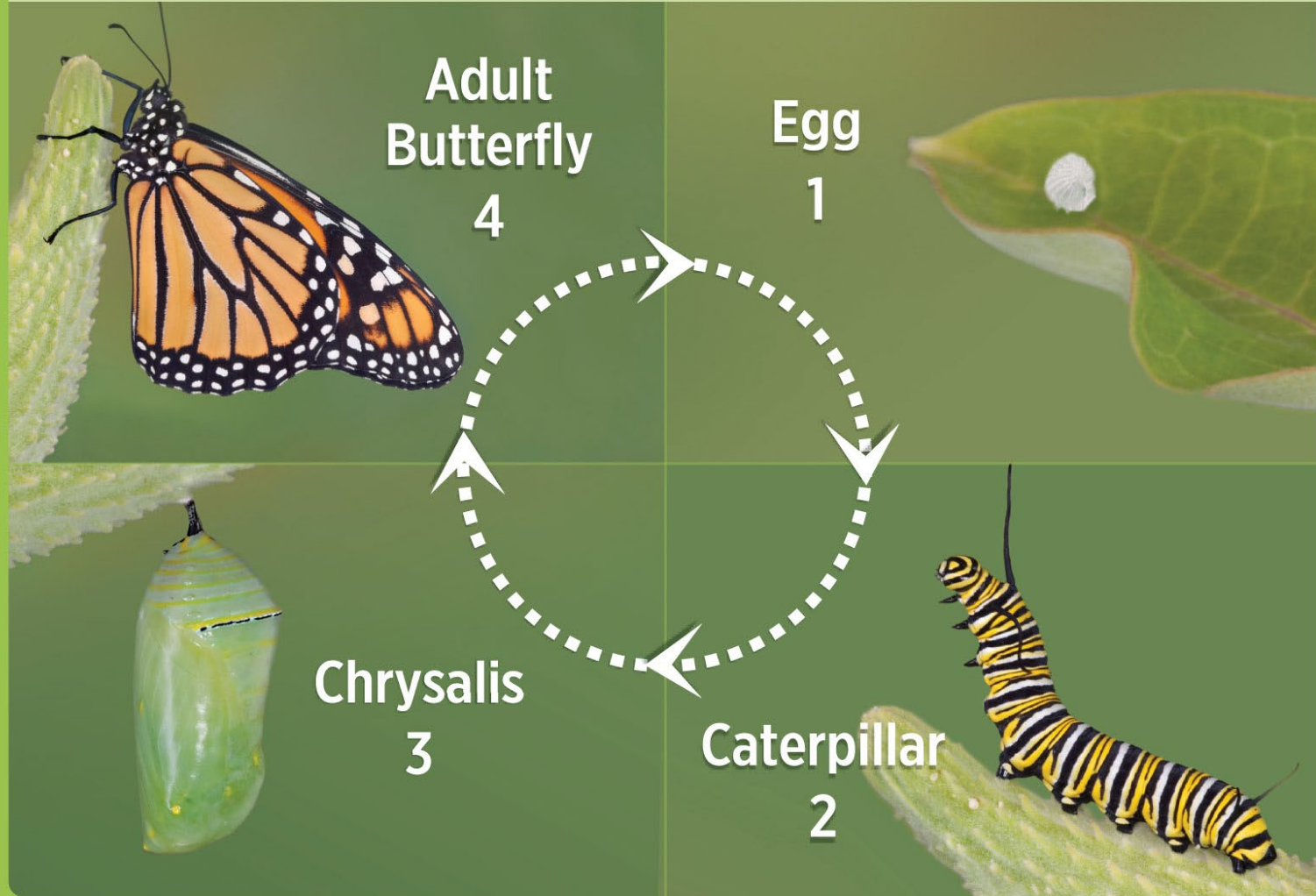
Buy a Mason Bee house or make one

Butterflies

- Butterflies visit a variety of wildflowers.
- Butterflies are less efficient than bees at moving pollen
- Highly perched on their long thin legs, they do not pick up much pollen on their bodies



THE LIFE CYCLE OF A MONARCH BUTTERFLY



Other Beneficials

Beneficial Insects (Predators)



Aphid Predator
Aphidus sp.



Lacewing
Chrysoperla rufilabris



Lady Beetle
Hippodamia convergens



Mealybug Destroyer
Montrosieri Cryprolaemus



Minute Pirate Bug
Orius sp.



Praying Mantis
Tendora aridifolia sinensis



Predatory Mite
Phytoseiulus persimilis



Trichogramma
spp.



Whitefly Parasite
Encarsia formosa

Attracting Beneficials



Bee Waterer



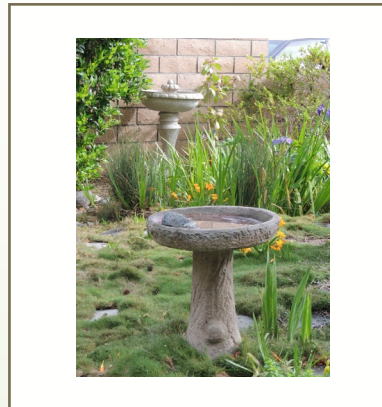


Providing Mud

- It is believed that butterflies congregate on mud and other such substances primarily for salts. The salts and amino acids absorbed during mud-puddling play various roles in butterfly ecology.
- Males seem to benefit more from the sodium uptake as it aids in reproductive success, with the precious nutrients often transferred to the female during mating.
- **Female mason bees need mud for their eggs, it's important to have open ground (without grass or bark covering) nearby. Families can also make a "mud pie," with the soil moist, but not soupy.**



Keep a
birdbath
winter and
summer
Keep water
fresh



Milkweed for
the Monarchs
and more



Herbs

Let herbs go to flower





Don't forget the trees

Create a safe environment

- Reduce or eliminate pesticides, and herbicides
- Leave some natural areas with leaves, twigs etc.
- Resist having the perfect yard.



bees



other guys



ladybugs





Room Rates
per night, in dead bodies
(aphids, spider mites,
caterpillars, snails or grubs!)

Twig Room	15
Bark Room	12
Pine Cone Room	15
Bamboo Suite	20
Burser Suite	20
Log Cabin	25





Hummingbirds

- Hummingbirds are the tiniest birds in the world.
- Hummingbirds are very smart and they can remember every flower they have been to, and how long it will take a flower to refill.
- A hummingbird will use its tongue to lap up nectar from flowers and feeders.
- Male hummingbirds are very aggressive and will chase another male hummingbird out of its territory.

Indiana Hummingbirds

The Ruby-throated Hummingbird is by far the most common species that breeds in the eastern half of North America

Rufous described as "feisty," It may have the ideal size-to-weight ratio among North American hummingbirds. Rufous outflies all other species, and gets its way at feeders at the expense of slower, less-maneuverable hummers. It has the longest migration route of all US hummingbirds.



Indiana Hummingbirds

Black-chinned Hummingbird (*Archilochus alexandri*)

A small green-backed hummingbird of the West, with no brilliant colors on its throat except a thin strip of iridescent purple bordering the black chin, only visible when light hits it just right. Black-chinned Hummingbirds are exceptionally widespread, found from deserts to mountain forests.

The Calliope prefers high mountains, and has been seen as high as 11,000 feet. It builds its nests over creeks or over roads next to streams or lakes, usually repairing the previous year's nest or constructing a new one atop the old. This bird usually forages within five feet of the ground.



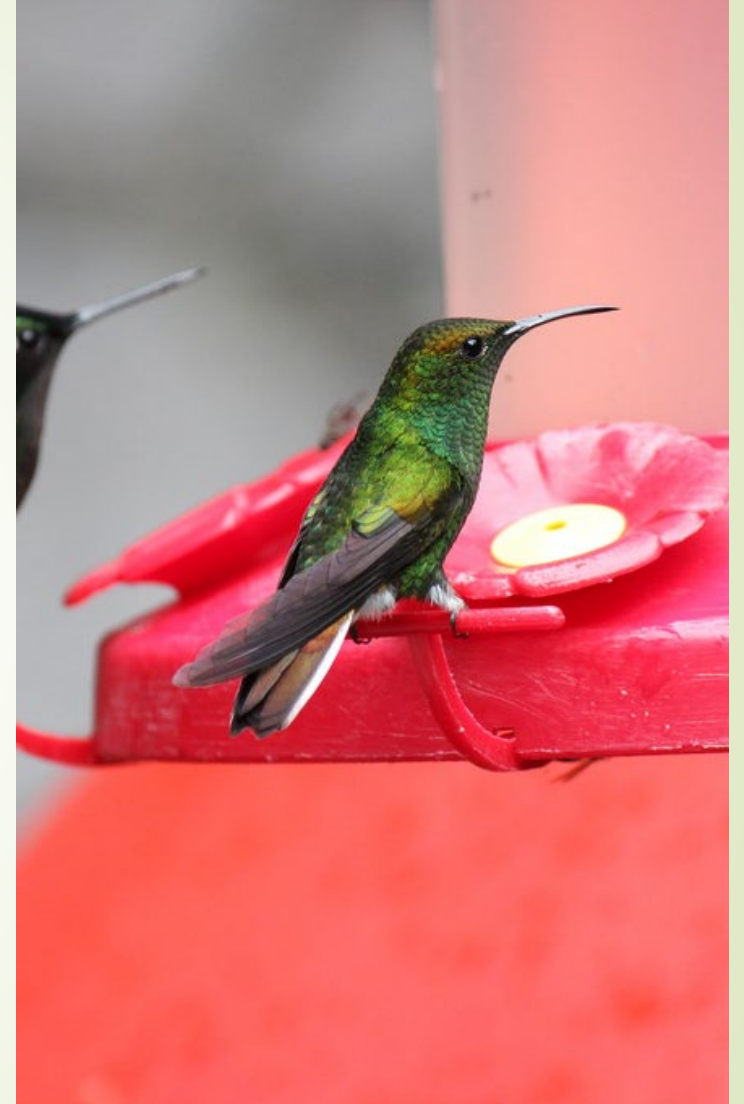
Track Hummingbird Migration

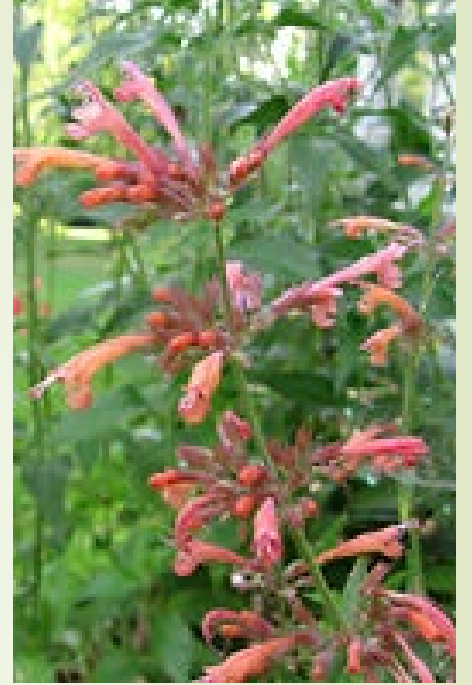
- <https://www.hummingbird-guide.com/hummingbird-migration-spring-2019.html>



Attracting Hummingbirds

- ▶ Track hummingbirds and put feeder out before they arrive
- ▶ Put feeders out of site of other feeders. Hummingbirds are protective of their space.
- ▶ Give them a place to perch



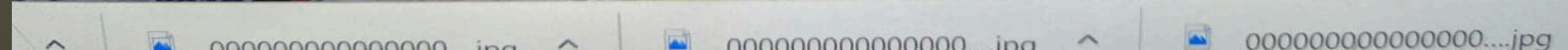


Add flowers & A Birdbath

Create a
diverse
habitat



Google



Thank You
Questions?

