

The Wonderful World of Pollinators!

SANDY RODE, MASTER GARDNER 2012

Definition of Pollination

“ The carrying of pollen grains (the male sex cells in plants) to the female sex cells for fertilization.

Pollination can occur between plants when pollen is carried by the wind or by insects such as the honeybee (cross fertilization), or within the same plant, in which case is called self-fertilization.”

Dictionary.com

Definition of pollinator

“one that pollinates: as; an agent (as an insect) that pollinates flowers. Merriam-Webster

“A pollinator is the *agent that moves pollen* from the *male anthers* of a flower to the *female stigma* of a flower to accomplish fertilization or syngamy of the female gamete in the ovule of the flower by the male gamete from the pollen Grain. Online Biology Dictionary.

Today's Featured Pollinators

- ❖ Bumble Bees, honey bees, and other bees of the bee persuasion.
- ❖ Butterflies and moths
- ❖ Bats
- ❖ Beetles
- ❖ Humans


What's all the Buzz about the Bees?

There are nearly fifty species of bumble bees in North America. Two: the franklin bb and Rusty patch are on the verge of extinction.

The decline of bumble bees is certain but believed to be attributed to competition with honey bees, change in habitat, weather changes, pesticides, overgrazing, and introduction of nonnative pathogens.

For Bumble bees to survive they need high quality habitats.




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- ❖ WE need to Protect, restore, enhancing and creating new habitats.
 - ❖ Of note, honey bees are perennial meaning the colony lives through the winter by consuming stored honey reserves when it is winter. Bumble bees on the other hand are annuals: they die during the winter, the queen is the only surviving member and emerges in spring foraging for pollen incubating developing larvae. The newly emerging adults become the workers to gather pollen and the queen returns to the den to lay eggs and rear offspring.
 - ❖ At the right time the colony switches from raising workers to producing future reproductive members, queens and drones which will leave the colony to create new colonies.
 - ❖ BB forage on a diverse group of plants. Depending on the length of the tongue, and yes different bumble bees have different length of tongues. BB with long tongues forage on Penstemon and beebalm that have long corolla tubes. Species with short tongues forage on flowers with open structure such as sunflower and prairie coneflower. Short tongue bb will engage in “nectar robbing” from flowers with corolla tubes by biting a hole in the base. The little snots get the goods without pollinating.
 - ❖ BB nest underground or at ground level: any mowing, plowing, or other ground disturbances can destroy both nesting and overwintering site as does conversion of extensive grasslands to monoculture landscapes.

- ❖ Pesticide use is the biggest problem for all pollinators. Herbicides reduce floral diversity and remove nesting sites. Praying in early morning helps honey bees yet hurts bumble bees. I suggest we all get chickens to kill the bugs we don't want, and to help control some weeds we hire small children to pull them out.
- ❖ Honey Bees compete with bumble bees. Honey bees were introduced to the US by Europeans in the 17th century. Honey bees can have large hives 50,000 bees. They remove hundreds of pounds of nectar and tens of pounds of pollen from an area in a year.


What can we do to help?

- ❖ Create High quality Habitat: Grow flowers rich in nectar and grow lots of flowers.....go to the MG plant sale on May 9th at the Urban Mission 3737 N. Portland, 9am – 12pm.
- ❖ Dedicate a section to native plants. They are hardier, spread faster and don't need to be fussed with.
- ❖ Colors BB prefer Purple, blue, or yellow. Some sites say BB don't see red, per the official entomology site they do see red, it just isn't their favorite color.
- ❖ BB prefer Perennials.

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- ❖ Fire: burn meadows only once every 3-6 years.
 - ❖ Tillage: avoid tilling fence margins, hedgerows, debris piles, ditches, compost heaps.
 - ❖ As Master Gardner's we have a responsibility to educate the community and put into practice what we preach.
 - ❖ Last year I counted 209 Bumble bees in my yard.

There is fluttering in the Butterfly World about Monarchs.



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- ❖ Monarchs (*Danaus plexippus*) migrate from the United States and Canada to hibernate in the Central Mexican forests.
 - ❖ Monarchs are on the Near Threatened list.
 - ❖ Habitat loss: Monarchs need the mountains in Mexico for their winter habitat and nearby human communities' also rely on them and create pressure on forests through agriculture and tourism activities.
 - ❖ In the US monarchs need places to reproduce and feed. However, herbicide use is decreasing the availability of their primary food source, the milkweed plant (*Asclepias*).





❖ Climate change threatens to disrupt the monarch butterfly's annual migration pattern by affecting weather conditions in both wintering and summer breeding grounds.

❖ Monarchs use their eyes to locate flowers, they use their antennae to smell the nectar and the minute receptors lodged in their feet called "tarsi" come in handy to taste sweet substances

❖ Monarchs feed on nectar and water by sipping on it using a sucking tube called Proboscis

❖ .



The main food source for the Swallow tail is from the Apiacease family. Carrot family. In the wild Queen Anne's lace. Other is dill, carrot top, caraway.



Gulf Fritillary Butterfly



Host Plant is the Passion Vine.

Humming along with the humming bird.







Humming Bird Nectar Recipe

1. Mix 1 part sugar with 4 parts water and bring to boil to kill any bacteria or mold.
2. Cool
3. Add 1 gallon Love
4. Pour into feeder
5. Extra can be stored in refrigerator.
6. Do not add red dye.



Hummers are attracted to Red or orange petals or bracts.

Long and tubular

Hang down and point downward so that a hovering bird has easiest access.

Long stamens that deposit the pollen on the forehead of the unsuspecting bird.

Hummers are not so fussy that they won't go for other nectar plants. My hummers like my Sage plant.

Place many feeders around the yard.

Batty World of Bats



Bats are important pollinators in tropical and desert climates.

Two species of nectar feeding bats are *lesser long nosed bat* and the *Mexican long tongued bat*. These guys are federally endangered.

Migrate 1000 miles or more from Mexico into Arizona, New Mexico, and Texas.

They are most important for pollinating Saguaro and Agave plant.

Bats eat bugs and they love mosquitos. All over the world.

PLANTS TO ATTRACT POLINATORS





Lantana: sun, low spreading, comes back every year.

This is not an all inclusive list....these are some suggested plants. The world is your seed box, explore research and plant it!!



Butterfly Bush: (Buddleia) most varieties grown as a very large bush. Lo and behold in the picture is 24-36 inches.

Butterfly Weed:
from the asclepias
family (milkweed).
Full sun, 18-30
inches tall.
Perennial.



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Pentas:
annual, 12-
14 inches
tall, variety
of color.



Swamp milkweed: grows best near ponds, creeks, and boggy areas. Sun to part shade. 36-48 inches tall.



Salvias: sun, most are perennial.







Russian Sage: Full hard sun, bushy up to 50",
perennial, BUBBLE BEES LOVE THIS STUFF



HERBS

Dill, Fennel, parsley, rue.

Sage





Passiflora vine (Mayhop, or Passion vine): sun and shade, vigorous vine, devoured by the Gulf Fritillary Caterpillars.



crossvine

Moon vine: Sphinx Month caterpillars food.



Morning glory



zinnias



Bee Balm

Petunia

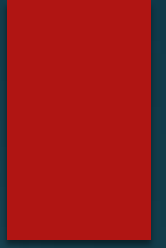
Coneflowers



marigolds













Frog fruit: 3-5" tall, an evergreen that dies back in Oklahoma and may die if we have extended freezing weather. Easy to grow.



Hyssop: Likes it hot and dry, grows in poor soil.
Grows easily from seed.

Purple Prairie clover: member of the legume family: 2.5 feet tall, likes sandy loam soil, blooms from April to June.





Larkspur



Penstemon: Perennial 16-18"



Phlox





Narrow leaf Mountain Mint: attracts beneficial insects. Sun, blooms July-Aug. Perennial. Height 12-24".



Sunflowers: Need I say more??

Amsonia: blooms late spring-early summer. 24-30



Black Eyed Susans





Pineapple lily: 24-30". Part shade , morning sun. Typically blooms late spring to early summer.



Agastache: Blooms to early fall. 24-36"

Flowering tobacco:
annual 3-4ft tall, part
shade to sun.



Coreopsis: perennial,
blooms till winter. Hardy
and spreads easily.



Blanket Flower



Switch grass: host to the skipper butterfly.



Tutti fruity butterfly
mint

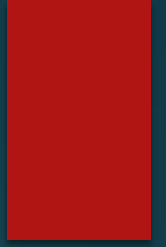


Orange Tango Mint

Indian Paint Brush



Honeysuckle









Walker low catnip





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Questions????????
Comments????????
Criticisms????????

