



Helpful Insects & Pollinators



Class Objectives

- Habitat for pollinators
- Meet the Pollinators and Beneficial Insects
- Native plants
- Other annuals and perennials
- Get Involved
- Questions/Wrap-up

Gardening Trends

- Utilize Native and Pollinator-Friendly Plants
- Add natural elements like rocks & boulders
- Don't trim hedges – let them go a bit wild



Why Pollinators & Helpful Insects are Important



- 99% of insects are harmless or even beneficial!
- About 75% of the world's major food crops require pollination
- 1/2 of the world's oils, fibers and raw materials require pollination
- Pollinate most flowers.
- Assist in breaking down organic materials.
- Feed upon other insects.
- Provide food for birds and fish.
- Provide useful products such as honey, wax, and silk.

Loss of Habitat for Pollinators



- Between 2006-11 over 1 million acres of prairie was lost
- Extensive use of herbicides that eliminate host and food plants
- Insecticide use
- Disease and invasive species predation

Gardening for Pollinators

- Choose a sunny location.
- Test your soil to make sure it is adequate for planting.
- If space is limited, consider planting in pots or containers.
- Milkweed is a necessity for monarchs, so plant milkweed!
- Use native plants whenever possible.
- Water plants initially, until they are well established. You may also want to water in drought conditions.
- Avoid using herbicides or insecticides to get rid of unwanted plants or insects. Weed by hand as needed.

From: Monarch Lab, University of Minnesota

Creating Natural Habitats

- Shield from winds-- Include windbreaks, such as a fence, shrub, or wall.
- Plant to suit the animals you want to attract
- Create layers and more densely planted gardens while reducing areas dedicated to lawns
- Include a variety of different blooming species so that nectar is available throughout the growing season.
- Coordinate habitat with water use
- Locate food plants and feeders by shelter

Pollinators: Water and Shelter

- Provide layers of plants
- Leave dead snags for nesting sites
- Build bee boxes
- Leave some area of soil uncovered
- Group plantings
- Add water features
- Water sources include shallow or sloping side



Natives are Best

- “Our native insects will not be able to survive on alien plant species.” – Douglas Tallamy, “Bringing Nature Home”
- It takes evolutionary time for insects to recognize food
- Most insects are specialists



Best of the Best Trees (#of butterfly & moths supported)

- Oak (534)
- Willow (455)
- Birch (413)
- Poplar (368)
- Crabapple (311)
- Pine (203)
- Spruce (156)
- Basswood (150)

Compare: Norway Maple (0)



Best of the Best Perennials/Annuals (# of butterfly & moths supported)



- Goldenrod (115)
- Asters (112)
- Sunflower (73)
- Joe Pye Weed (42)
- Morning Glory (39)
- Sedges (36)
- Lupine (33)
- Black-eyed Susan (17)
- Milkweed (12)

Meet the Pollinators

- Bees, Butterflies, Moths, Beetles, Flies, Birds



- Food: plant in groups to increase efficiency
- Plant with bloom season in mind
- Plant a variety
- Herbs and annuals (even though non-native) are good for pollinators
- Recognize weeds as a food source
- Avoid pesticides



UW Madison Department of Entomology *Insect Diagnostic Lab*

http://labs.russell.wisc.edu



Insect Diagnostic Lab

[HOME](#)

[ABOUT US](#) ▾

[SUBMITTING SAMPLES](#) ▾

[ONLINE ID TOOL](#)

[RESOURCES](#) ▾

Department of Entomology

Search ...

SAMPLE SUBMISSION FORM

Use our handy **form** when submitting physical specimens. Check the **sample submission page** for instructions.

RECENT BLOG POSTS

Don't Be an (April) Fool: Look Out For Ticks
March 31, 2017

Wisconsin's Top Insect Trends of 2016 (#5 - #1)
February 5, 2017

The **University of Wisconsin-Madison Insect Diagnostic Lab** was established in 1978 to provide timely and accurate identification of insects and insect-damaged plant material from around Wisconsin. Part of the mission of the IDL is to provide support to the [county extension offices](#) throughout the state. In addition, the IDL provides diagnostic services for the general public, private companies, agricultural producers, pest control professionals, the green industry, medical professionals, and other groups.

The lab processes between over 2,000 samples each year. Homeowners are encouraged to check with their [local extension office](#) for help first because many samples can be handled in a more efficient manner locally. Mail in samples, e-mails (with pictures if possible) and walk in samples are all accepted. At the present time there are no charges for Wisconsin residents.

Two



Want to
Check o
Guide: I
#bees #



Pollinators

- Pollinator: any organism that moves pollen between flowers



Detailed insect slides from:
UW Insect Diagnostic Lab

"Wild" Bees



Sweat Bee



Squash
Bee



Leafcutter
Bee



Cellophane
Bee

All Photos on this slide by Christy
Stewart

Other Insect Pollinators

Wasps



Moths and Butterflies



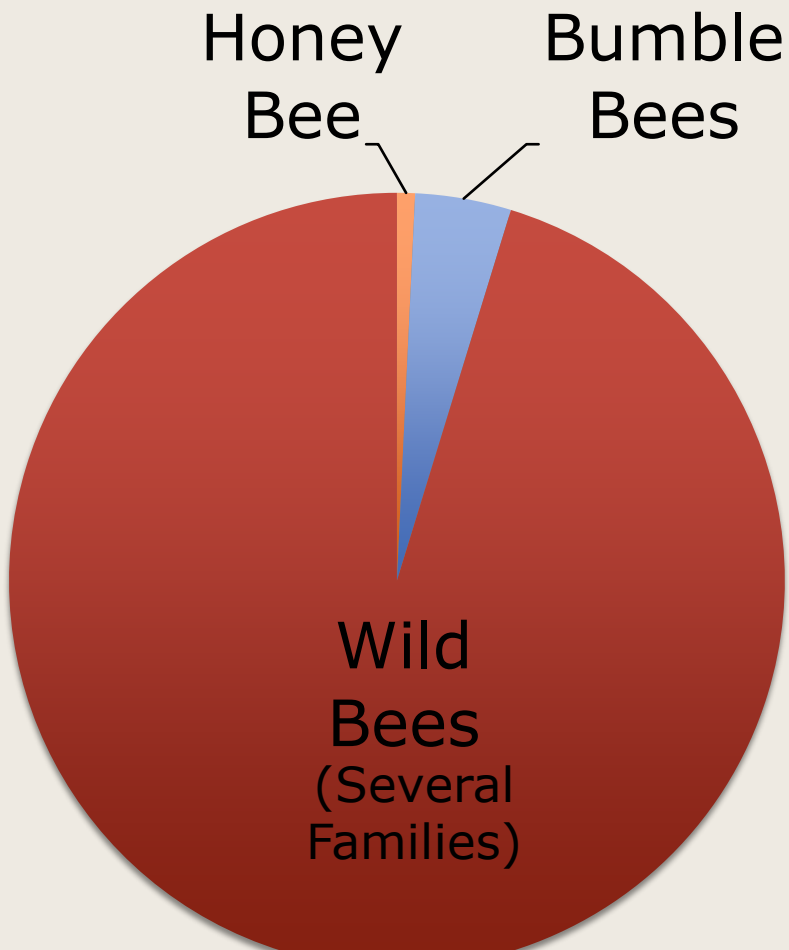
Flies



Beetles






Meet the Bees:



Wisconsin Bee Identification Guide

Developed by Patrick Liesch, Christy Stewart, and Christine Wen







Honey Bee (*Apis mellifera*)

The honey bee is perhaps our best-known pollinator. Honey bees are not native to North America and were brought over with early settlers. Honey bees are mid-sized bees (~ 1/2 inch long) and have brownish bodies with bands of pale hairs on the abdomen. Honey bees are unique with their social behavior, living together year-round as a colony consisting of thousands of individuals. Honey bees forage on a wide variety of plants and their colonies can be useful in agricultural settings for their pollination services. Honey bees are our only bee that produces honey, which they use as a food source for the colony during the winter months. In many cases, the honey bees you encounter may be from a local beekeeper's hive. Occasionally, wild honey bee colonies can become established in cavities in hollow trees and similar settings.


Photo by Christy Stewart



Bumble bees (*Bombus* sp.)

Bumble bees are some of our most recognizable bees. They are amongst our largest bees and can be close to 1 inch long, although many species are between 3/8 inch and 5/8 inch long. There are ~20 species of bumble bees in Wisconsin and most have a robust, fuzzy appearance. Bumble bees tend to be very hairy and have black bodies with patches of yellow or orange depending on the species. Bumble bees are a type of social bee and live in small colonies consisting of dozens to a few hundred workers. Their nests tend to be constructed in preexisting underground cavities, such as former chipmunk or rabbit burrows. Occasionally, they will nest in hollow spaces within compost piles, hay bales, and similar above ground spots in yards. Luckily, bumble bees are typically docile and are unlikely to sting unless their nest is disturbed. Bumble bees can be active during cool periods when most other insects are inactive. Bumble bees are great at pollinating certain plants, such as tomatoes, and are often used in greenhouses for pollinating vegetables.


Bombus auricomus
Photo by Christy Stewart



Leafcutter bees (*Megachile* sp.)

Leafcutter bees are small- to mid-sized bees (~ 1/4 - 3/8 inch long) and dark colored. They possess large mandibles, which are used like scissors to cut notches out of leaves. Leafcutter bees get their name from the female's behavior of cutting out round pieces of leaves, which they use to line their nests. These native bees nest in preexisting holes in wood created by other insects or in hollow plant stems. Females nest individually, although many females can nest in the same general area. Most female bees collect pollen and carry it using a patch of hairs on their back legs. Interestingly, leafcutter bees don't carry pollen with their hind legs—instead they carry it on the underside of their body.


Photo by Christy Stewart



Small Carpenter bees (*Ceratina* sp.)

Small carpenter bees are small- to mid-sized bees (~ 1/4 - 3/8 inch long) and have a dark metallic body. Males have a distinct white patch in the middle of their head, between the eyes. There are just a few species of small carpenter bees in Wisconsin, but these bees can be quite common. Female small carpenter bees typically nest inside of hollow twigs and plant stems. To create their nests, the females often dig out the soft, central pith to create a tunnel. These bees forage on a wide variety of flowers.

Photo by Christy Stewart



Sweat bees (*Halictidae* sp.)

Sweat bees get their name because some species can be attracted to the sweat on your skin. Many sweat bees are small in size (~ 1/4 - 3/8 inch long), although some species can be mid-sized (up to 1/2 inch long). They have dark or metallic green bodies. In some of the metallic green species the body is entirely green, while in others the head and thorax (first two body segments) may be green while the abdomen possesses black and yellow stripes. Female sweat bees are solitary nesters and often dig nests in the soil. Some species prefer to nest inside of rotting logs. If you ever stumble upon a metallic green bee in a rotting log, it's a sweat bee! Like most bees, these insects are docile and are unlikely to sting.

Photo by Christy Stewart

A Guide to North America's Bees

The BEEES In Your Backyard

Joseph S. Wilson & Olivia Messinger Carril

UWEX Pollinator Factsheet: G4001

1040011

Supporting native bees: Our essential pollinators



Sweat bee (*Halictus* sp.) on rattlesnake master

Fruit and vegetable pollination

Approximately 75% of the world's major food crops require or benefit from animal pollination. This includes many of the fruits and vegetables grown in Wisconsin gardens, such as strawberries, blueberries, raspberries, currants, plums, apples, ewe cherries, pears, watermelon, sunflower, cucumbers, squash, and tomatoes. For other crops such as carrots, onions, broccoli, cauliflower, cabbage, and many herbs, pollinators are beneficial solely for seed production.

Pollinators

Pollinators in Wisconsin are composed mostly of insects such as bees, flies, wasps, butterflies, moths, beetles, and ants, as well as hummingbirds. Bees are the most important pollinators for many plant species and feed almost exclusively on pollen and nectar. The non-native honeybee (*Apis mellifera*) is the most commonly used managed bee for pollination of large acreage crop plants, primarily because it is easily reared and transported and lives in perennial colonies that can sustain a size of 50,000 or more at their peak. The bumblebee, also introduced as the mason orchard bee (*Osmia lignaria*), is a native managed pollinator for orchards. Just 250 of these bees, at a price of 30,000 honeybees, will pollinate an acre of apple trees.



Rusty-patched bumblebee (*Bombus affinis*) with pollen collected from purple prairie clover



Small carpenter bee (*Ceratina* sp.) nectaring on alpine strawberry blossom

ing and ing native DS

are aware of the recent
collapse populations. However,
and native populations are
Cultivating flowering plants,
fing sites, and eliminating or
ing pesticide use will benefi
ers.

ing flowering

ing plants to provide food
for pollinators, as
ed other wildlife. Consider
of your lawn to habitat, for
ered below are conservatively
arding, native plants that are
good sources of food for bees.
edy of alternative will bloom
ing, to feed early emerging
a full when some bees such
e larvae are preparing to
are at least 2-3 plant species
ry given time.

Soil moisture
Average to wet
Average to wet
Average
Average to dry
Average
Average to dry
Average to dry
Average to dry

Swamp rose	<i>Rosa palustris</i>	Summer	8'	Sun	Wet
White moonflower	<i>Ipomoea alba</i>	Summer	3-5'	Sun	Average to wet
American basswood	<i>Tilia americana</i>	Summer	75-120'	Sun to shade	Average
Blackberry	<i>Spiraea tomentosa</i>	Summer to fall	2-4'	Sun to part shade	Average to wet

Meet the Beneficial Insects

- Predators and Parasites
- Decomposers



Predators: Beetles

Ground
beetles



Firefly Larva (w/slug)



Rove
beetles



Predators: *Lady Beetles*



Multicolored
Asian Lady
Beetle

(*Harmonia
axyridis*)



Minute Pirate Bug



Predators: True Bugs

Damsel Bug



Assassin Bug



Big Eyed Bug



Predators: Stink Bugs



Spined Soldier Bug

Two-Spotted Stink Bug





Predators: Flies

Hover Fly
(Diptera: Syrphidae)

Robber Flies



Lacewings



G254-37



Bald Faced Hornets



Predators: Wasps



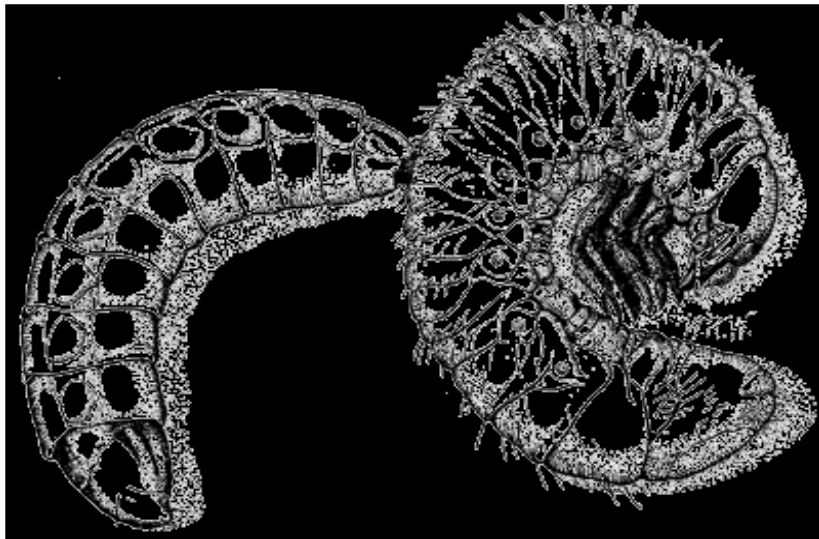
Paper Wasps and Yellowjackets

dison

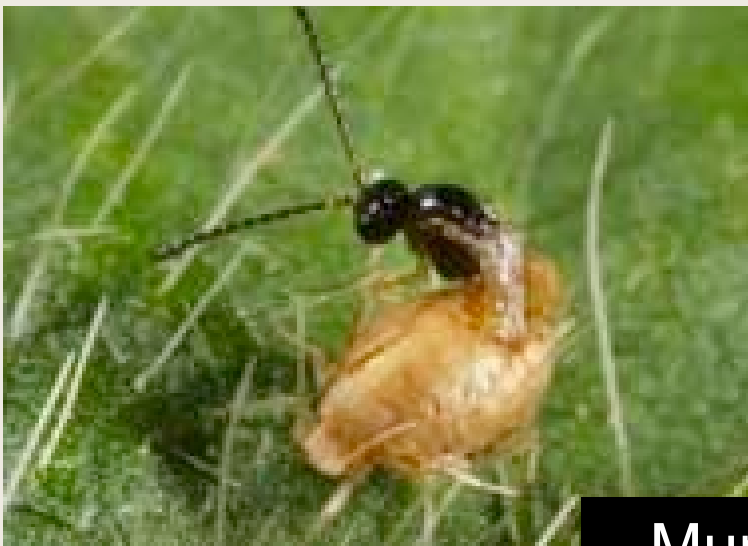


Parasitic Wasps

- Many species known
- Tend to attack only a single specific host
- Some have been purposely released for biocontrol



Parasitic Wasps



Mummies



Parasites: Flies



Pyrgotid Fly
and May/June Beetle



Tachinid Flies

Adult



Pupae



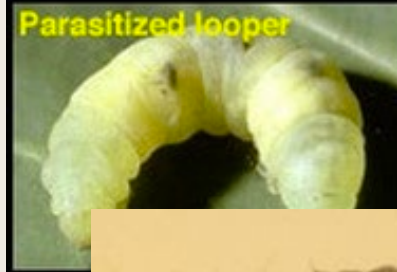
Eggs



Larva



Parasitized looper



Bee Stings or bug bits?

- Plantain – common weed
- Use as an effective poultice for bites or stings by crushing the leaves and rubbing the juice on the site

Photo Copyright : ANDRII GLUSHCHENKO



<https://wisconsinbutterflies.org/>

wisconsin butterflies

butterflies

tiger beetles

robber flies

Search species



Insect guides



Butterflies



Tiger Beetles



Robber Flies

Recent sightings

April 18

Joan Vennie, Dane County

Christine Stanke, Milwaukee County

Christine Stanke, Milwaukee County

Christine Stanke, Washington County

Sue Feyrer, Waukesha County

[All sightings »](#)

SWBA field trips

The [Southern Wisconsin Butterfly Association](#) (SWBA, pronounced "Sweeba"), is our local branch of the North American Butterfly Association. They run **field trips** throughout southern Wisconsin every summer for seasoned butterfly watchers and novices.

Visit the [SWBA site](#) for more information about upcoming events.

Butterfly Gardens

- Best colors: red, yellow, orange, pink and purple
- Full sun
- Easy eating with short tubes or long, flat petals
- Provide windbreaks



Plants for Butterflies & Moths

- Larval Host Plants:
Monarch are specialists,
most others are
generalists
- Prefer to land on flat
flowers
- Prefer nectar plants with
shallow composite
flowers
- Many moths are
nocturnal and are
attracted to white or
cream colored flowers
with strong scents



Larval Host Plants – some examples

- Monarchs – Milkweed (*Asclepias*)
- Swallowtails - Golden Alexanders (*Zizia aurea*), parsley, dill, and fennel
- Orange Sulphur, Painted Lady, moths, Frosted Elfin – Wild Lupine (*Lupinus perennis*)
- Moths – Bee Balm (*Monarda*)



Butterfly and Moth favorites for Food

- Perennials: Yarrow, Bee Balm, Shasta Daisy, Coreopsis, Verbena, Phlox, Coneflower, Butterfly weed
- Annuals: Zinnias, Dill, Cosmos, Petunia, Goldenrod, Morning Glory, Sweet Alyssum, Cleome, Marigold
- Host Plants: Borage, Dill, Snapdragon, Nasturtium, Parsley, Fennel, Butterfly Weed, Clover, Violets, Milkweed, Hollyhock



Hummingbirds

- Feeders –
4 parts water to 1 part
sugar (5:1, 7:1 ok), boil
for 2 minutes. No color
needed
- Vines, trees, shrubs:
honeysuckle, morning
glory, weigela, flowering
crabs



Plants for Hummingbirds

- Attracted to red, but also pink, rose, orange and purple
- Deep tubular flowers
- Flowers to plant: bee balm, begonia, bleeding heart, canna, cardinal flower, columbine, dahlia, delphinium, fuchsia, geranium, gladiolus, hollyhock, impatiens, lantana, lily, nasturtium, petunia, phlox, snapdragon, sweet william, verbena, zinnia. ,



For the Birds



- Flower Gardens
- Composting Leaves
- Ground cover
- Rough Grass
- Small shrubs
- Consistent source of food, water, shelter
- Think vertically
- Avoid pesticides, excess fertilizer

Plants that Support Pollinators



Native Trees best for landscape use



- Acer species
(maples)
- Betula species
(birch)
- Quercus species
(oaks)
- Tilia americana
(basswood,
linden)

Native Conifers

- Juniper: Prefers neutral to slightly acidic well-drained soil in full sun; tolerates drought and wind
- Balsam fir: Best in cool, damp places in partial shade to sun, keep away from hot, drying winds
- White Spruce: Best in well-drained, slightly acidic soils in full sun, keep away from winter winds and road salt
- White Pine: Best in fertile, acidic, well-drained soils in full sun. Does not need protection from winds but keep away from road salt
- White cedar-arborvitae: Moisture retentive soil in full sun or part shade, keep away from dry, windswept locations

Native Landscape Shrubs

- *Amelanchier* species (serviceberries)
- *Ilex verticillata* (winterberry)
- *Physocarpus opulifolius* cultivars (ninebark)
- *Potentilla fruticosa* cultivars (shrubby cinquefoil)
- *Prunus nigra* 'Princess Kay' (Canada plum)
- *Viburnum* species (viburnums)



Native Perennials



Bee Balm

Monarda, Wild bergamot

- 15-48 inches tall
- Flowers bloom early to mid-summer in red, pink, purple or white
- Sun to part shade in well-drained, moist soil
- Powery mildew can be a problem
- Attracts hummingbirds, butterflies, and bees



Coneflower

Echinacea spp



- Natives and hybrids
- 2-3 ft tall and wide
- Bloom July to August
- Full sun, well-drained soil, drought tolerant
- Reseed and hybridize easily: to keep the plants you started with, deadhead spent flowers or pull seedlings.

Iris

- Native & Hybrids
- Full sun, well-drained
- Divide mid to late summer every 3-5 years for good blooms
- Iris borer – remove foliage in fall, if brown streaks on leaves – dig rhizomes and dip in solution of 1 part bleach to 4 parts water



Columbine

Aquilegia

- Self-seeder, cross hybrids easily
- Hybrids tend to be short-lived
- Full to part sun; moist, well-drained soil
- Bloom in spring



Butterfly Weed

Asclepias tuberosa



© Larry Allain

Photo: Larry Allain @ USDA-NRCS
PLANTS Database

- Native to dry prairies
- Flowers from late spring to late summer
- Attracts butterflies
- Moist to dry soils in full sun to light shade
- Mature plants tolerate dry soil

Aster

Aster novae-angliae

- Native, fall-bloomer
- Moist, average soil in full sun to part shade
- Likes consistent moisture
- Pinch back stems in late May for bushier plants
- Divide plants in spring every 3rd year
- Avoid too much nitrogen which results in floppy plants and abundant foliage



Turtlehead

Chelone Glabra

- White turtlehead native to moist prairies
- Evenly moist to wet, rich soil in full sun to light shade
- Mature plants will tolerate dry spells
- Bloom late summer and early fall
- Plants spread by rhizomes but do not become invasive



Copyright: jimtan / 123RF Stock Photo

Joe-pye weed

Eupatorium purpureum



- Native to wet slopes, low prairies and woodlands
- Prefers moist, average to rich soil in full sun to light shade
- Tolerates drier conditions
- Easy to grow once established
- Divide in spring or fall
- Reseeds
- Plants too close may suffer from powdery mildew

Obedient Plant

Physostegia virginiana



- Full sun to part shade
- Moist, well-drained soil but will tolerate drier conditions and part shade
- Showy native, fall flowers
- Spreads aggressively by underground rhizomes
- Plant in shade for less aggressive or plant 'Miss Manners' (white), 'Variegata' (pale pink), or 'Vivid' (Rose)

Blazing Star or Gayfeather

Liatris spicata



Photo: ©2010 Grow Native!

- Native to prairies, savannas
- Showing pink-purple flower spikes in summer
- Moist, fertile, well-drained soil in full sun
- Once established, somewhat drought resistant
- Plants can reseed
- Wisconsin's special concern list
- Attracts bees, hummingbirds, butterflies

Black-eyed Susan

Rudbeckia hirta var. *pulcherrima*

- Native in variety of WI habitats
- Biennial or short-lived perennial
- Blooms attract bees and butterflies
- Winter interest
- Adapts well to container culture
- Sow seeds two years in a row for yearly blooming, once established plants will self-seed
- Rich soils tend to produce weak-stemmed plants



Lupine (*Lupinus perennis*)



- Biennial, Prefers dry, sandy soils, full sun
- Plants go into dormancy after blooms
- Is the only food plant for the caterpillar of the karner blue butterfly
- Difficult in a landscape setting

Goldenrod (*Solidago rigida*)



- Also known as stiff goldenrod, somewhat weedy plant, grows 3-5 feet tall
- Flowers attract bees & butterflies
- Prefer average to infertile, well-drained soil in full sun

Cardinal Flower (*Lobelia cardinalis*)

- Moist to wet soils, in partial sun
- Height: 2-4 feet
- Is short-lived, so add seedlings every couple of years to maintain
- Plants may not survive winter if insufficient moisture, mulch is helpful



Photo: Rotary Gardens, Janesville – Mark Dwyer

Sedges (*Carex* sp.)



- Cool season, 2-4'
- Upright, open
- Average to wet soils, light to full shade
- Good alternative to lawn grasses in the shade
- Cultivars:
 1. *Carex grayi*, Gray's sedge
 2. *Carex muskingumensis*, Palm sedge 'Little Midge' and 'Oehme'
 3. *Carex morrowii* 'Bowles Golden' and 'Ice Dance'

Annuals and Non-natives for Pollinators



Hollyhocks

alcea rosea

- Full sun, well-drained soils
- Classified as a biennial or short-lived perennial
- Reseed readily
- Water plants thoroughly whenever top few inches of soil is crumbly and moist, keep foliage dry to minimize disease problems
- Avoid excess nitrogen that can increase disease



Cosmos



- Starts from seeds or transplants after last spring frost
- Avoid over fertilizing, too much nitrogen will produce tall, leafy plants
- Pinch back early in season to promote fuller, sturdier plants
- Attracts butterflies

Heliotrope (*Heliotropium arborescens*)

- Tender perennial, can be used as an indoor plant in winter
- Available as seed or as bedding plant
- Grow in full to part sun in moist well-drained soil
- Often grown as a container plant
- Nectar source for hummingbirds and butterflies



Mexican sunflower (*Tithonia rotundifolia*)



- Full sun annual, dry to medium moisture in well-drained soil
- Start from seeds or transplants
- 4-6 feet tall
- Avoid rich soils to prevent excess foliage
- Attracts hummingbirds and butterflies; deer resistant

Morning Glory (*Ipomoea purpurea*)

- Annual vine, starts from seeds or transplants
- Grow in full sun, guide onto a support structure
- Each flower opens in the morning and lasts 1 day
- Avoid excess water and fertilizer for more flowers and less leaves
- Attracts butterflies and hummingbirds



Sedum

- Non-native
- Low-maintenance
- Four seasons of interest
- Blooms summer to fall
- Full sun
- Lean soil, well-drained
- Reduce flopping on tall plants by cutting back by 1/2 in spring when plant is 8 inches high



Starflower (*Pentas lanceolata*)



- Long blooming annual (may be difficult to find)
- Grow in full sun with moist well-drained soils
- Also a nice cut flower
- Provide nectar for butterflies and hummingbirds

Sun Flowers (Helianthus annuus)

- Native annual
- Start from seed or transplants
- Full sun in well-drained soil
- Water regularly
- Proper spacing will avoid powdery mildew
- Can harvest seeds by removing flower with 1-2 ft. of stems and hanging upside down to dry, store in refrigerator



How You Can Get Involved

1. Knowledge, become a citizen scientist
2. Address habitat loss in your backyard
3. Support organizations that preserve pollinators
4. Add host and food plants to your garden



Copyright: lightpoet/123RF Stock Photo

Observing and Recording

- Keep a garden journal
- Organize data
- Photography
- Take note of first appearance of plant or birds or insects
- Mark beginnings and endings (1st frost, temperature)



Phenology

- Study of plant and animal life cycles and how these are influenced by seasons and variations in climate
- Lilac is the cornerstone for observations
- Monarchs have been studied and is considered an indicator on the effects of climate changes to insect populations
- Chicory is a summer-blooming indicator plant, when first flowers open prevent damage from squash vine borer
- Canada thistle in bloom, apple maggot adults are abundant and fruit should be protected

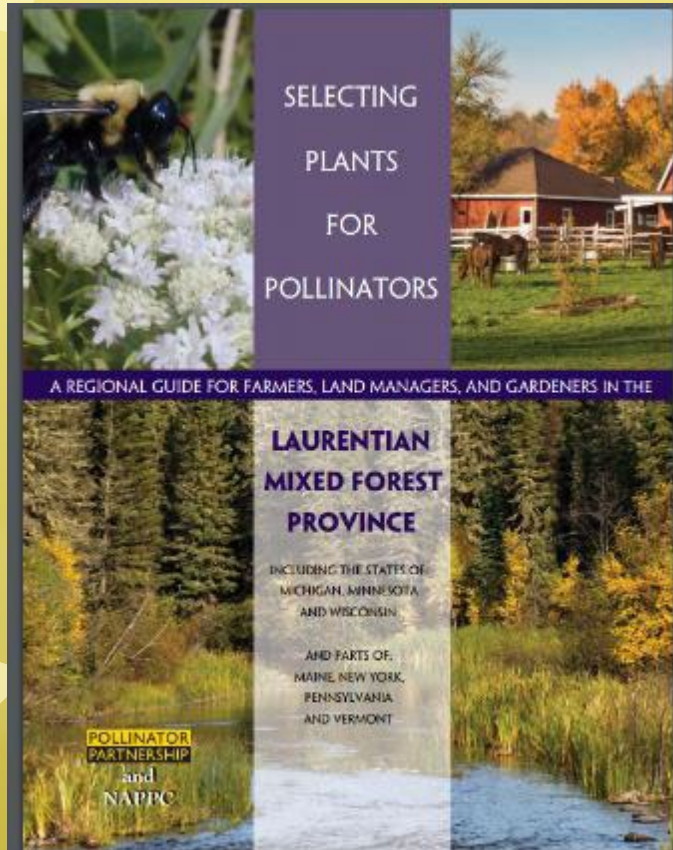
Organizations

- Monarch Watch <http://monarchwatch.org/>
- Wild Ones www.wildones.org Website on native plants, natural landscapes
- Pollinator Partnership www.pollinator.org Organization dedicated to the protection and promotion of pollinators and their ecosystems. Download a free 'Pollinator Friendly Planting Guide'.
- Million Pollinator Garden Challenge <http://millionpollinatorgardens.org/> Campaign to register a million pollinator gardens

Resources

- ***A Guide to Natural Gardening***, Jim Knopf, Sally Wasowski, John Kadel Boring, Glenn Keator, Jane Scott, Erica Glasener, Fog City Press 1997
- ***Bringing Nature Home***, Douglas W. Tallamy, Timber Press, 2007.
- ***Pollinators of Native Plants***, Heather Holm, Pollination Press, 2014
- "Supporting native bees: Our essential pollinators", UW Extension bulletin G4001
<https://learningstore.uwex.edu/Assets/pdfs/G4001.pdf>

Resource-“Selecting Plants for Pollinators”



<http://www.pollinator.org/PDFs/Laurentian.rx9.pdf>

Resources

- ***Landscaping with Native Plants of Wisconsin***, Lynn M. Steiner, Voyageur Press, 2007
- UW Madison Insect Diagnostic Lab
<http://labs.russell.wisc.edu/insectlab/>
- Wisconsin Bee Identification Guide,
<https://hort.extension.wisc.edu/files/2016/08/WI-BEE-IDENTIFICATION-GUIDE.pdf>
- ***The Bees in Your Backyard***, *A Guide to North America's Bees* by Joseph S. Wilson, Olivia J. Messinger Carril
- Bug Finder Identification – searchable database
<http://www.insectidentification.org/>

Questions/Wrap- up

