

OHIO STATE UNIVERSITY EXTENSION

## It Doesn't Have to Be All or Nothing! Incorporating Pollinator Plants Into Your Gardens

Pamela J. Bennett  
Associate Professor  
Agriculture and Natural Resource Educator  
State Master Gardener Volunteer Program Director  
2023




THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

## Native habitats

### Audubon Society

– *Restoring native plant habitat is vital to preserving biodiversity. By creating a native plant garden, each patch of habitat becomes part of a collective effort to nurture and sustain the living landscape for birds and other animals.*



THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

## Native Plants

- Plants that
  - Occur naturally in their ecoregion and habitat where over the course of evolutionary time they have adapted to physical conditions and co-evolved with the other species in the system.



THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

## Pollinator Gardens

# IT DOESN'T HAVE TO BE ALL OR NOTHING!




THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

## Pollinators

- Animals
  - Insect, avian, or mammalian
  - Move pollen from male anthers to female stigma (same plant species)
- Fertilize plants
  - Resulting in the formation of seeds and fruit
- Mutually beneficial
- Necessary for ¾ of the world food crop





THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

## Who are they?

- Honeybees
- Other bee species (500 native)
  - Bumblebees (social)
  - Mining bees (solitary ground-nesting)
  - Mason, leafcutting (solitary cavity-nesting)
- Butterflies
- Moths
- Wasps (nectar)
- Beetles
- Flies
- Birds (some)
- Bats





AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

## Pollinator problems

- Habitat loss
- Pesticides
  - Beekeeper
  - Agricultural
- Pest problems
  - Colony collapse disorder
  - Mites
  - Viruses
- Climate change



OHIO STATE UNIVERSITY EXTENSION

## Pollinator needs


- Food
- Water
- Shelter (cover) for nesting and overwintering
- Travel corridors
- Safety
- Space in a suitable arrangement



OHIO STATE UNIVERSITY EXTENSION

## Evaluate your garden (like a pollinator!)

- Include flowers with attractive color patterns and aromas
  - Blue, yellow, purple, violet, white
  - Pollen easily released from anther
  - Pollen with high protein content
  - Nectar reward



OHIO STATE UNIVERSITY EXTENSION

## Aim for flowers year-round – starting in early spring through late fall to provide food source



OHIO STATE UNIVERSITY EXTENSION

## Include at least three species in bloom each season



THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

## Provide season-long sources for pollen and nectar



Use masses of color to attract pollinators



In small areas, plant single species together to increase visibility to pollinators and increase foraging efficiency



Include a diversity of flower shapes to attract many different pollinators



Use garden planting to connect fragmented habitats



Create habitat close to crops and gardens



Small bees may fly less than 500 ft.,  
bumble bees up to 1 mile

OHIO STATE UNIVERSITY EXTENSION

## Floral Abundance and Diversity



OHIO STATE UNIVERSITY EXTENSION

## Species or Cultivars???




Locally native plants to support more abundant and species-rich pollinator communities



OHIO STATE UNIVERSITY EXTENSION

## Research at OSU

- Perennials for pollinators
- Annuals for pollinators
  - Container gardens during the growing season



Make pollinator-friendly plant choices – OBSERVE!



**Other plants are buffets:  
Native milkweeds (*Asclepias* spp.)**

- High quality nectar source for pollinators
- Obligate host plants for monarch caterpillars
- Top species for attracting beneficial insects (lady beetles, parasitic wasps, pirate bugs, syrphid flies).






Photo: Denise Elsworth

Photo: Eric Eldredge

**Native trees:  
Eastern and Midwest U.S.**

- Basswood (*Tilia*)
- Black Locust (*Robinia*)
- Catalpa (*Catalpa*)
- Cherry (*Prunus*)
- Dogwood (*Cornus*)
- Hawthorn (*Crataegus*)
- Redbud (*Cercis*)
- Serviceberry (*Amelanchier*)
- Sourwood (*Oxydendrum*)



Photo: Denise Elsworth

**Native shrubs:  
Eastern and Midwest U.S.**

- Blueberry (*Vaccinium*)
- Dogwood (*Cornus*)
- Elderberry (*Sambucus*)
- Fothergilla (*Fothergilla*)
- New Jersey Tea (*Ceanothus*)
- Spirea (*Spirea*)
- Summersweet clethra (*Clethra*)
- Viburnum (*Viburnum*)
- Virginia sweetspire (*Itea*)
- Willow (*Salix* spp.)



Photo: Denise Elsworth

OHIO STATE UNIVERSITY EXTENSION


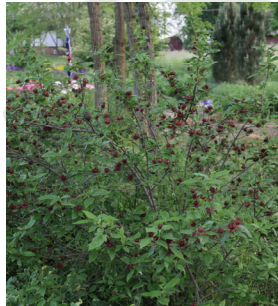
***Aronia melanocarpa*  
Black Chokeberry 'Autumn Magic'**




COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES



OHIO STATE UNIVERSITY EXTENSION

***Calycanthus floridus*  
Carolina allspice, sweetshrub**

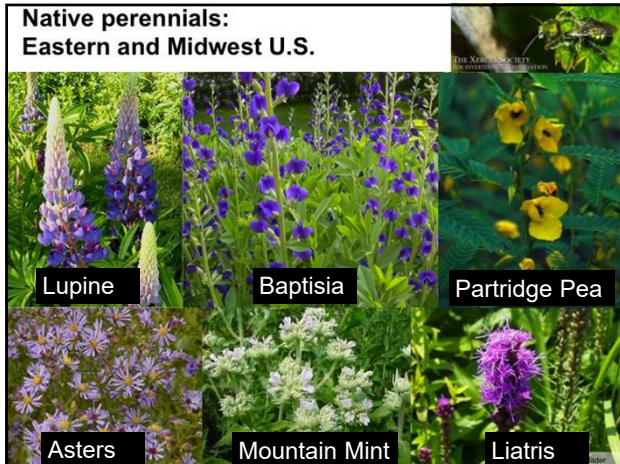
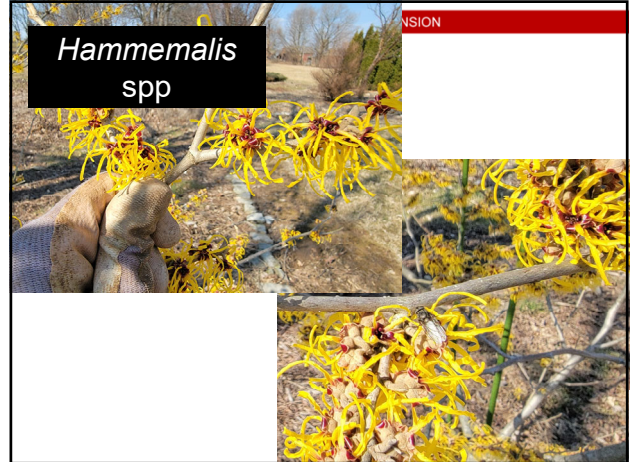



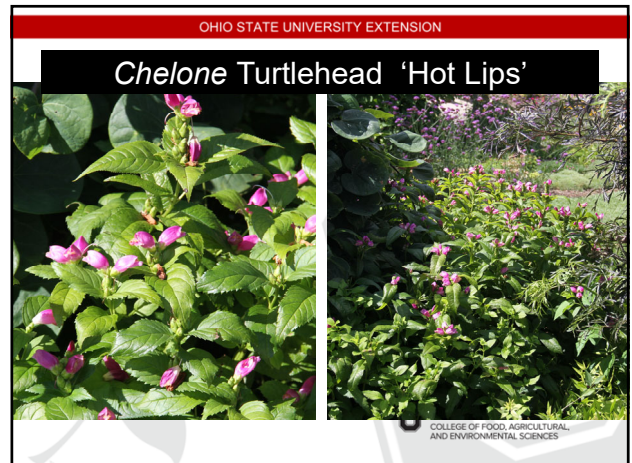
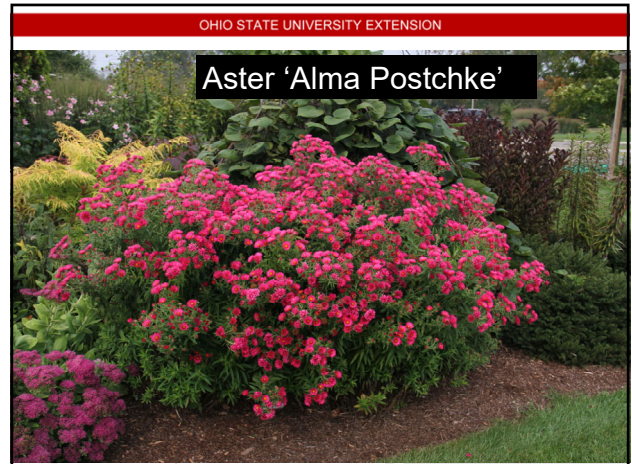
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

***Cephalanthus occidentalis* Buttonbush**

***Cephalanthus occidentalis*  
'SMCOSS' or Sugar Shack™ buttonbush**





OHIO STATE UNIVERSITY EXTENSION

*Echinacea* 'Pink Shuttle'    *Echinacea* 'Cheyenne Spirit'

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

*Eupatorium* 'Gateway'

THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

*Monarda fistulosa* X *Monarda didyma*  
wild bergamot X scarlet bee balm

*Monarda. sp*    *M. 'Jacob Cline'*

*Passiflora incarnata* Passionflower  
'Ammons Blue'

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

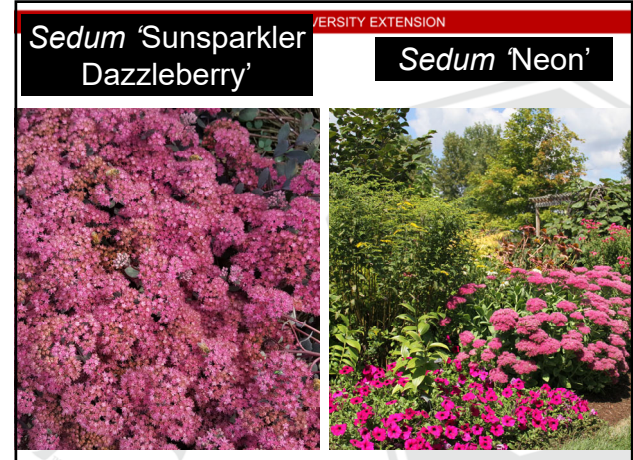
*Rudbeckia maxima* giant coneflower, giant brown-eyed Susan

OHIO STATE UNIVERSITY EXTENSION

*Rudbeckia* 'Goldsturm'

*Rudbeckia* 'Henry Eilers'





OHIO STATE UNIVERSITY EXTENSION

Use IPM – integrated pest management

- Keep plants healthy – right plant right location
- Use floating row covers to exclude pests
- Rotate crops, especially vegetables
- Use resistant varieties when available
- Sanitation
- Choose the right product for the pest problem – soaps or oils

THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

Make smart pesticide decisions

- Keep in mind:
  - Time of day
  - Formulation
  - Inert ingredients
  - Herbicides and fungicides are pesticides

THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

### Invite beneficial insects to help manage pests.

• Many of the garden changes that support pollinators also support predatory and parasitic insects.

- Soldier beetle**
- Syrphid fly drinking raspberry nectar**
- Parasitoid wasp**
- Ladybird beetle**

Photos: Mace Vaughan, Paul Jepson, Mario Ambrosio

OHIO STATE UNIVERSITY EXTENSION

### Spring Pollinator Friendly Landscape

- Maple spp.
- Buckeye
- Catalpa
- Hackberry
- Corus mas
- Crataegus spp.
- Honeylocust
- Crabapple
- Tulip poplar
- Redbud 'Rising Sun'
- Serviceberry 'Autumn Brilliance'
- Magnolia
- CherryBlack locust
- Willow
- Sassafras
- Elm
- **OAK!**

- Hamamelis
- Callicarpa
- Viburnum
- Chokeberry
- Spicebush
- Pussy willow
- Candytuft
- Bloodroot
- Columbine
- Gentians
- Phlox
- Trillium
- Tulips/crocus/**daffodils???**

THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

### Summer Pollinator Friendly Landscape

- Sourwood
- Linden
- Black cherry
- H. quercifolia (many cultivars)
- H. paniculata (many cultivars)
- Itea
- Winterberry
- Allium

- Coreopsis spp.
- Echinacea
- Monarda
- Iris spp
- Mondard
- Penstemon
- Phlox
- Rudbeckia

THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

OHIO STATE UNIVERSITY EXTENSION

### Fall Pollinator Friendly Landscape

- Heptacodium
- Sumac
- Clethra
- Asters
- Coreopsis
- Lobellia
- Rudbeckia
- Joe-pye-weed
- Sunflowers
- Rattlesnake master
- Lobelia cardinalis
- Solidago (several cultivars)

THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

### Build a gourmet landscape

<p><i>Spring</i></p> <ul style="list-style-type: none"> <li>• Serviceberry</li> <li>• Crabapple</li> <li>• False Indigo</li> <li>• Eastern redbud</li> <li>• Corneliancherry dogwood</li> <li>• Winter king hawthorn</li> <li>• False Indigo</li> <li>• Foster's holly</li> <li>• Flowering cherry</li> <li>• American yellowwood</li> </ul>	<p><i>Early summer</i></p> <ul style="list-style-type: none"> <li>• Bottlebrush buckeye</li> <li>• Climbing prairie rose</li> <li>• Clethra</li> <li>• Hydrangea paniculata</li> <li>• St. John's wort</li> <li>• Winterberry holly</li> <li>• Golden raintree</li> <li>• Itea</li> <li>• Linden</li> </ul>	<p><i>Late summer</i></p> <ul style="list-style-type: none"> <li>• Winged sumac</li> <li>• Glossy abelia</li> <li>• Seven son flower</li> <li>• Devil's walking stick</li> <li>• Button bush</li> <li>• Autumn blooming clematis</li> <li>• Sedum</li> <li>• Asters</li> <li>• Sunflowers</li> <li>• Fennel</li> </ul>
--	---	--

**Plant some from each column**

OHIO STATE UNIVERSITY EXTENSION

### Resources

- u.osu.edu/beelab
  - Click on plants
    - Click on Attracting Pollinators to the Garden
- Pollinator Partnership - <http://pollinator.org/>
- OSU Bee Lab and Pollinatorium - <http://u.osu.edu/beelab/>
- The National Academies of Sciences, Engineering, Medicine Resources on Pollinators - <http://nas-sites.org/pollinators/>
- The Xerces Society Great Lake Region - <https://xerces.org/pollinators-great-lakes-region/>
- USDA Forest Service Pollinator site - <https://www.fs.fed.us/wildflowers/pollinators/index.shtml>

THE OHIO STATE UNIVERSITY  
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES