

## PLANT BY NUMBERS:

# Specialist Bees

*Plants, growing steps, and a sample design to support native specialist bees*

## Meet the Specialist Bees



PHOTO: KATE ESTROP

Hibiscus turret bee (*Ptilothrix bombiformis*) on crimsoneyed rosemallow (*Hibiscus moscheutos*)



PHOTO: DOUG BERUBE

Drury's long-horned bee (*Melissodes druriellus*) on aster (*Symphyotrichum*)



PHOTO: DOUG BERUBE

Aster cellophane bee (*Colletes compactus*) on brown-eyed Susan (*Rudbeckia triloba*)



PHOTO: JOE MACINDEWAR

Hairy-banded mining bee (*Andrena hirticincta*) on goldenrod (*Solidago*)

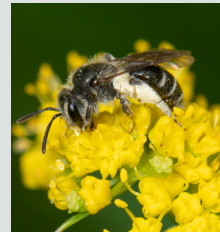


PHOTO: HEATHER HOLM

Golden-Alexanders mining bee (*Andrena ziziae*) on golden zizia (*Zizia aurea*)

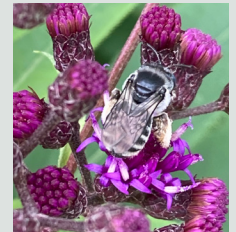


PHOTO: G. HUGHES

Denticulate long-horned bee (*Melissodes denticulatus*) on ironweed (*Vernonia*)

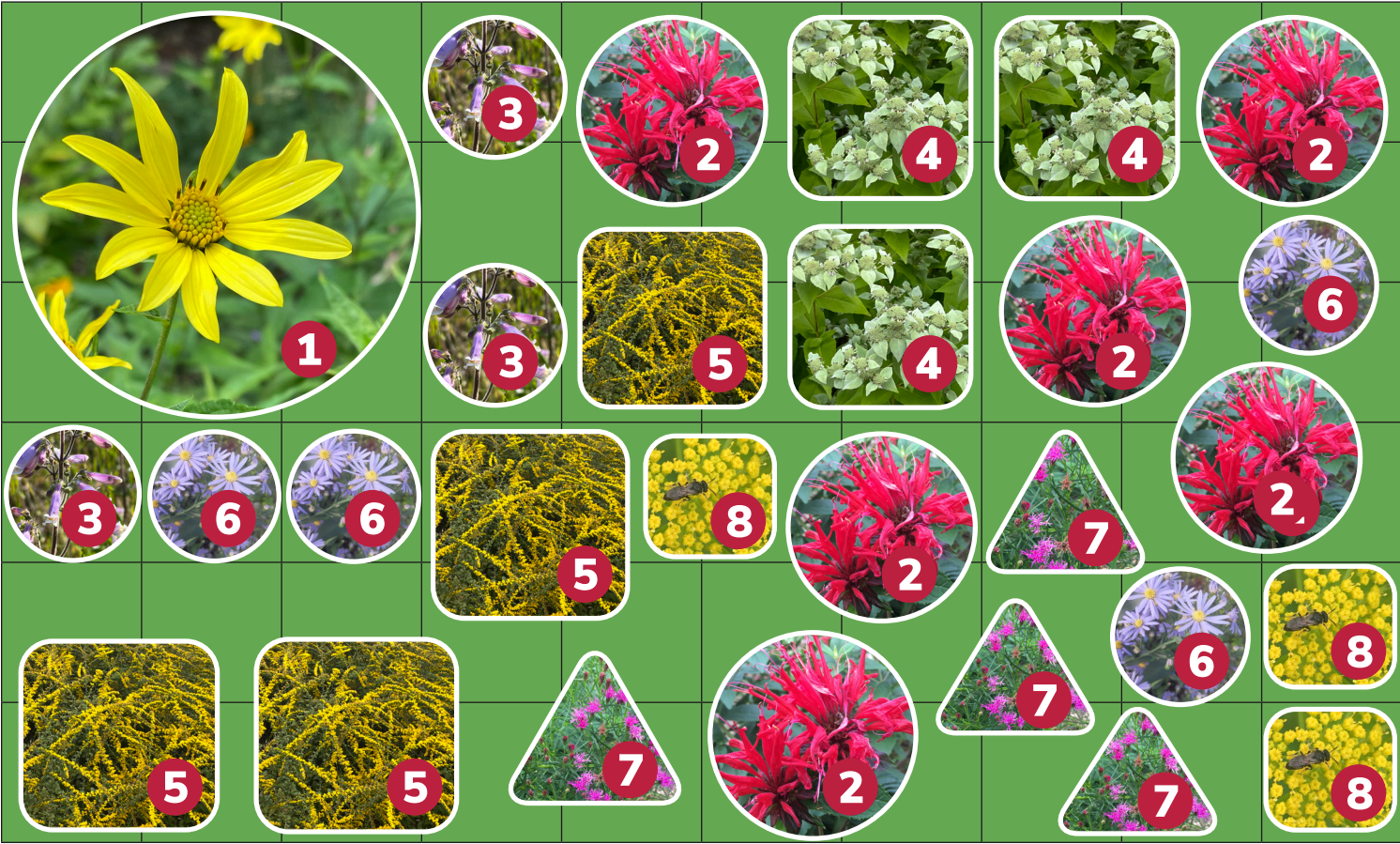
- Unlike bumble bees and honey bees, specialist bees are solitary, meaning they do not have queens, workers, or drones. Female specialist bees prepare and provision the nest cells where the offspring develop. The only role of male specialist bees is to mate with the female.
- About one-third of all bee species are pollen specialists, meaning they use pollen only from a narrow range of native plants as food for the developing bee larvae. Approximately 100 species of wild bees in Ohio are thought to be pollen specialists.
- Adult female specialist bees are very picky about which plants they visit for pollen to provision nest cells for their offspring.
- Although a few specialist bees nest above ground in hollow stems or other tunnels, most nest in solitary tunnels underground. After gathering pollen and nectar in the nest cell, the female lays an egg and closes off the cell. She never meets her offspring!
- Adult specialist bees are active for only a few weeks of the year, in sync with the bloom time of their pollen host plants.
- Specialist bees will not nest in an area without their host plants. Once host plants are added to gardens and other settings, these bees will often find their favorite flowers and might decide to nest nearby.
- Solitary bees are docile and will rarely if ever sting.



# Planting for Specialist Bees

Use this diagram to plant a small 6'x10' garden plot to attract an assortment of specialist bees.

1 square = 1 foot



## Planting

- The planting site should be in full sun (6 or more hours per day) with good drainage.
- Prepare the site by completely smothering or removing all grass and weeds.
- For best results, consider adding 2 inches of compost or other organic soil amendment to the site before planting.
- Water plants after planting, then water as needed (possibly weekly) if the season is dry.
- These native perennials are relatively drought-tolerant once established.
- Mulch around newly planted perennials with straw, wood mulch, or newspaper to prevent weed growth.
- The plants in this design can grow to 4 feet or taller. If planting along a walkway or sidewalk, consider softening the front edge by enlarging the plan to 8' x 10', then plant the front 18 inches with native annuals such as zinnia, marigolds, or annual salvia.

## Maintenance

- To prevent reseeding, cut off spent flowers, or you can leave seed heads as food for birds. Then, weed out or share extra seedlings.
- Cut back standing dead stalks in late winter to heights of between 12 and 18 inches. These stalks can provide nesting sites for other wild bees in spring and summer.
- Reduce or eliminate the use of pesticides in the garden to protect bees and other pollinators. Consult your local Ohio State University Extension office for pollinator-friendly pest management strategies.
- Find your local Extension office:



Locate an Office | OSU Extension  
extension.osu.edu

# Native Plants for Specialist Bees

## FIRST PLANT OPTION

1

'Lemon Queen'  
PERENNIAL SUNFLOWER  
*Helianthus*  
(1)



2

'Jacob Cline'  
SCARLET BEEBALM  
*Monarda didyma*  
(6)



3

HAIRY BEARDTONGUE  
*Penstemon hirsutus*  
(3)



4

CLUSTERED MOUNTAINMINT  
*Pycnanthemum muticum*  
(3)



5

'Fireworks'  
ROUGH GOLDENROD  
*Solidago rugosa*  
(4)



6

SMOOTH BLUE ASTER  
*Symphyotrichum laeve*  
(4)



7

'Iron Butterfly'  
NARROWLEAF IRONWEED  
*Vernonia lettermannii*  
(4)



8

GOLDEN ZIZIA  
*Zizia aurea*  
(3)



## SECOND PLANT OPTION

CRIMSONEYED ROSEMALLOW  
*Hibiscus moscheutos*  
(1)  
  
\*THIS PLANT PREFERS WET OR MOIST SITES.



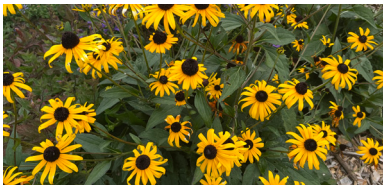
PALE PURPLE CONEFLOWER  
*Echinacea pallida*  
(6)



FRINGED LOOSESTRIFE  
*Lysimachia ciliata*  
(3)



ORANGE CONEFLOWER  
*Rudbeckia fulgida*  
(3)



FLAT-TOP GOLDENTOP  
*Euthamia graminifolia*  
(4)



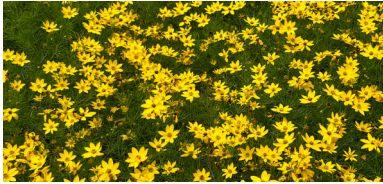
AROMATIC ASTER  
*Symphyotrichum oblongifolium*  
(4)



WHITE EVENING PRIMROSE  
*Oenothera speciosa*  
(4)



WHORLED TICKSEED  
*Coreopsis verticillata*  
(3)



The number in parenthesis is the number of plants needed for the design.

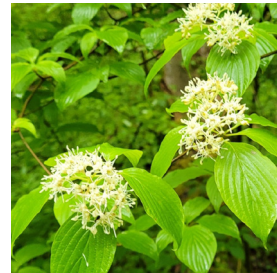
# Trees and Shrubs for Specialist Bees

Consider growing any of these native plants to invite even more specialist bees to the garden:

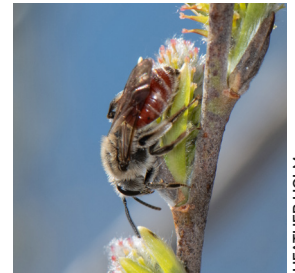
- Blueberry, *Vaccinium* spp.
- Dogwood trees or shrubs, *Cornus* spp.
- Willow trees or shrubs, *Salix* spp.



Blueberry flowers



Native dogwood in bloom



Willow flower with mining bee

## Finding Native Plants

Native plants are becoming easier to find and purchase at local nurseries and online. Check with both large and small nurseries as well as mail-order catalogs. To find native plant sales nearby, check with local or regional groups such as arboreta, botanical gardens, nature centers, zoos, county Soil and Water Conservation District offices, and local garden clubs and groups including Master Gardener Volunteers.

### Ohio Nurseries Selling Native Plants

- Ohio Native Plant Month's website ([ohionativeplantmonth.org/native-plant-sources](http://ohionativeplantmonth.org/native-plant-sources))
- Lake Erie Allegheny Partnership website ([leapbio.github.io/nurseries](http://leapbio.github.io/nurseries))



### For More Information

- *Creating a Pollinator Garden for Native Specialist Bees of New York and the Northeast* (free PDF). Cornell University.
- *Guide to Specialist Bees of Ohio* (free PDF). Amy Schnebelin, Livia Raulinaitis, and MaLisa Spring.
- *Pollen Specialist Bees of the Eastern United States* (website). Jarrod Fowler and Sam Droege.
- *Host Plants for Pollen Specialist Bees of the Eastern United States* (website). Jarrod Fowler.



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Garden design created by Debra Knapke.

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