

## **TO BEE OR NOT TO BEE – LECTURE HANDOUT**

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### **What does your garden look like from a bee's point of view?**

- 2 Different Types of Eyes
  - o 3 Ocelli maintain stability, navigate, gather light intensity & detect UV flower colors
  - o 2 Compound Eyes with 1000's of tiny lenses called facets, bee's GPS system
- Trichromatic
- Bees see blue, green & UV but NO red tones

### **Invisible Patterns in Flowers – Ultraviolet Light**

- Many flowers have “nectar guides” only visible in UV light that gives bees an advantage when seeking nectar. Examples: Bulls-eyes & Landing strips

### **Basics of Bee Design**

1. Recognize existing habitat
2. Protect existing habitat sites
3. Provide new habitat
4. Maintain habitat

### **Providing New or Enhancing Habitat - Planting Layout**

- Planting in Larger Flower Groupings ~3ft in diameter of an individual species
  - o Flower Constancy: Bees will repeatedly visit one particular plant species on any given foraging trip. Important because then pollen isn't wasted by getting delivered to the wrong species of flower.
- Flight Distance

### **Providing New or Enhancing Habitat - Flower Characteristics**

- Large Landing Pads
- Many Small Flowers
- Blooms Very Early
- Blooms Very Late
- No Double Flowers

### **Providing New or Enhancing Habitat - Diversity & Bloom Succession**

- VERY important to provide a continuous food supply!
- Choose at least 3 different plants within each season

### **Many others beyond this brief list of plants**

#### **List of Spring Pollinator Plants**

- Amsonia, Baptisia, Geranium, Goatsbeard, Heuchera, Nepeta, Penstemon, Spiderwort

#### **List of Summer Pollinator Plants**

- Butterfly Weed, Coneflower, Joe Pye Weed, Leadplant, Liatris, Monarda, Rattlesnake Master, Salvia

#### **List of Fall Pollinator Plants**

- Anemone, Aster, Goldenrod, Helenium, Helianthus, Obedient Plant, Rudbeckia, Vernonia

### **Rusty Patched Bumble Bee, *Bombus affinis***

- First insect to be listed as an endangered species in March of 2017 under the U.S. Endangered Species Act. Several were spotted at Olbrich Botanical Gardens and the University of Wisconsin Arboretum!
- Plant highlight for bumble bees: *Baptisia spp.* or False Indigo

### **Leafcutter Bees**

- All are solitary nesters that find pre-existing cavities, either abandoned beetle tunnels, hollow stems, etc.
- Female cuts pieces of leaves to construct their brood cells. The female can cut a piece of leaf in less than 3 seconds!
- Plant highlight for leafcutter bees: *Cercis canadensis* or Redbud

### **Carder Bees**

- Use their sharp mandibles to harvest hairs from fuzzy plants species – they card or comb it off, similar to carding wool – they then use these hairs to line their brood cells.
- Plant highlight for carder bees: *Tradescantia* or Spiderwort

### **Polyester or Cellophane Bees**

- Secrete a cellophane-like material for the lining of their brood cells, this creates a completely waterproof lining – hence polyester bees.
- Plant highlight for polyester bees: *Dalea purpurea* or Purple Prairie Clover

### **Providing New or Enhancing Habitat - Nesting Habitat**

- 70% are Ground Nesters
- 30% are Cavity Nesters

### **List of Hollow Stemmed Plants**

- Joe Pye Weed (Eupatorium)
- Cup Plant (Silphium perfoliatum)
- Fleecflower (Persicaria)
- Upright Stonecrop (Sedum)
- Bamboo (Fargesia)
- Forsythia (Forsythia)
- Sunflower (Helianthus)
- Ornamental Onion (Allium)
- False Indigo (Baptisia)
- Ornamental Grasses
  - o Switchgrass (Panicum)
  - o Big Bluestem (Andropogon)

### **What is a native bee house?**

- Bee houses are essentially artificial nest sites, usually made by drilling holes in dry logs or blocks of wood or by artfully arranging hollow stemmed plants.
- Lots of big examples, research shows that smaller is better (solitary bees, less disease transfer, etc.)
- Creative Native Bee House Workshop @ Olbrich Botanical Gardens this summer!

## RESOURCES & UPCOMING EDUCATIONAL OPPORTUNITIES:

All books below are available for Olbrich Members to check out at Olbrich's Schumacher Library along with an assortment of other garden related books! You can become a member by stopping by our booth #132-134.

### The Bees In Your Backyard

by Joseph S. Wilson & Olivia Messinger Carril  
ISBN 978-0-691-16077-1

### Pollinator Friendly Gardening

by Rhonda Fleming Hayes  
ISBN 978-0-7603-4913-7

### 100 Plants to Feed the Bees

by The Xerces Society  
ISBN978-1-61212-701-9

### Attracting Native Pollinators

by The Xerces Society  
ISBN 978-1-60342-695-4

### The Bee Book

by Fergus Chadwick  
ISBN 978-1-4654-4383-0

### Pollinators of Native Plants

by Heather Holm  
ISBN 978-0-9913563-0-0

## PLANTING FOR POLLINATORS:

Selecting Plants for Pollinators: Eastern Broadleaf Forest

<http://pollinator.org/PDFs/Guides/EBFContinentalrx13FINAL.pdf>

Planting for Pollinators: USDA Forest Service

<https://www.fs.fed.us/wildflowers/pollinators/gardening.shtml>

The Xerces Society: Pollinator Plant Great Lakes Region

[http://www.xerces.org/wp-content/uploads/2014/03/GreatLakesPlantList\\_web.pdf](http://www.xerces.org/wp-content/uploads/2014/03/GreatLakesPlantList_web.pdf)

## POLLINATOR INFORMATION & BEE IDENTIFICATION:

Pollinator Partnership

<http://pollinator.org/>

Xerces Society - Native Bee Biology

<http://www.xerces.org/pollinator-conservation/native-bees/>

Bumble Bee Watch

<https://www.bumblebeewatch.org/>

## UPCOMING OLBRICH CLASSES:

### **Pollinator-Friendly Spring Plants Walk**

*You and your family can help encourage native pollinators to thrive. The secret is to plant flowers and herbs they can use as food sources. Join Olbrich Horticulturist Katey Pratt on a walk in Olbrich's outdoor gardens, where she will show you a variety of early spring plants that are attractive to pollinators and are well-suited for gardens with various light and soil conditions.*

**Thursday, May 24th 6:30-8pm Register by: May 17th**

**Cost: \$17/\$13**