Pollinator Gardening

• Kelly Allsup
University of Illinois
Extension Educator,
Horticulture
Livingston, McLean and
Woodford Counties
http://web.extension.illinois.edu/lmw/
kallsup@illinois.edu

Why are we including pollinator plants?
• Diverse landscape = Resilient landscape

Pollination Facts
• Many plants cannot reproduce without the help of pollinators.
  - 75% of plants are pollinated by animals
  - Over 90% of flowering plants
• The plants they pollinate provide food for humans and wildlife, such as migratory birds.
  - 1/3 of our food depends on pollinator/plant interactions
    - Over 150 food crops in the United States
• Pollinators include many bees, butterflies, some moths, wasps, beetles, flies, birds and a few bats.

NECTAR
• Nectar is a sweet liquid made in special glands called nectaries that are found on flowering plants.
• Nectaries are most often found by the base of a flower’s petals.
• Nectar is the reward given to insects and small animals for their help with pollination.
• Nectar is the base ingredient of honey and is replenished.
Pollen

- Pollen are dust-like grains which are unique to each type of flowering plant species.
- Pollen develops within the anther, part of the male reproductive structure.
- Pollen consists of proteins, starch, sugars, fats, minerals, vitamins and free amino acids.
- Food source for many pollinators.

Pollinators Syndromes

<table>
<thead>
<tr>
<th>Traits</th>
<th>Type of Pollinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td></td>
</tr>
<tr>
<td>Bright white, yellow, blue or UV</td>
<td>Bright red and purple, purple</td>
</tr>
<tr>
<td>White or green</td>
<td>Pale, or dull brown, purple</td>
</tr>
<tr>
<td>Scarlet, orange, red or white</td>
<td>Pale red, purple, pink or white</td>
</tr>
<tr>
<td>Nectar guides</td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>Present</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Odor</td>
<td></td>
</tr>
<tr>
<td>Fresh, mild, pleasant</td>
<td>None to strongly fruity or foul</td>
</tr>
<tr>
<td>None</td>
<td>Fresh but fresh</td>
</tr>
<tr>
<td>None</td>
<td>Putrid</td>
</tr>
<tr>
<td>Nectar</td>
<td></td>
</tr>
<tr>
<td>Usually present</td>
<td>Sometimes present</td>
</tr>
<tr>
<td>Sometimes present</td>
<td>Ample, deeply hidden</td>
</tr>
<tr>
<td>Ample, deeply hidden</td>
<td>Ample, deeply hidden</td>
</tr>
<tr>
<td>Usually absent</td>
<td>Ample, deeply hidden</td>
</tr>
<tr>
<td>Nectar pollen</td>
<td>Limited, yellow, sticky, scented</td>
</tr>
<tr>
<td>Ample</td>
<td>Limited</td>
</tr>
<tr>
<td>Limited</td>
<td>Limited</td>
</tr>
<tr>
<td>Flower shape</td>
<td></td>
</tr>
<tr>
<td>Shallow, with landing platform, tubular</td>
<td>Shallow, funnel-like or complex, with trap</td>
</tr>
<tr>
<td>Large and bowl-shaped</td>
<td>Shallow, funnel-like, with trap</td>
</tr>
<tr>
<td>Large, funnel-like, strong perch support</td>
<td>Limited</td>
</tr>
<tr>
<td>Narrow tube with spur, wide landing pad</td>
<td>Limited</td>
</tr>
</tbody>
</table>

Beetles

- Flower: White or green
- Nectar guides: None
- Odor: None to strongly fruity or foul
- Nectar: Sometimes present
- Pollen: Ample
- Flower shape: Large and bowl-shaped or small, clustered
- Cucumber tree (Magnolia acuminata)
- Sweetshrub (Calycanthus floridus)
- Tulip tree (Liriodendron tulipifera)

What are these?

Complete Metamorphosis

What does this larva turn into?
Lady bugs

Hover fly

Butterflies

Hummingbird Moth

Wasps and Bees

Photos by Alex Wild
Bees

- More than just honey bees...

Pollinator Plants

Photos by Zachary Huang, BeeSpotter & http://cyberbee.zacharyhuang.com

Photo by Phil Nixon

Nectar Guides

Pollinator Pockets

- http://web.extension.illinois.edu/cfiv/pollinators/
- Basic designs for variety of sites
  - Small manageable way to start
  - Perennial plants selected for easy care, availability, seasonal bloom
  - Check back as we develop more designs

Cranesbill

Geranium maculatum

Sedum ternatum

Whorled Stonecrop

Solidago caesia

Blue-stemmed Goldenrod

Cranesbill

Geranium maculatum

Sedum ternatum

Whorled Stonecrop

Native Woodland Plants

Partial Shade – Medium Moisture
4’ x 6’ Oval

Options:
1. Replace Goldenrod with Penstemon hirsutus (Hairy Beardtongue) or Solidago ulmifolia (Elm-leaved Goldenrod)
2. Replace Stonecrop with Polygonatum odoratum (Variegated Solomon’s Seal) for more height
3. Plant Claytonia virginica (Spring Beauty) in front of Goldenrod or Geraniums

Aquilegia canadensis

What do I attract?

Rob Routledge, Sault College, Bugwood.org

Chris Evans, Illinois Wildlife Action Plan, Bugwood.org
Mixed Native and Non-Native Plants
Full-Partial Sun, Medium Moisture
4'x6' oval

Options:
1. Replace Stonecrop 'Autumn Joy' with Hylotelephium spectabile 'Neon' (Stonecrop)

False Indigo
Baptisia alba
Beardtongue
Penstemon digitalis
Black-eyed Susan
Rudbeckia fulgida
Stonecrop Hylotephium 'Herbstrfreud' 'Autumn Joy'
Catmint Nepeta racemosa 'Walker's Low'

Black-eyed Susan
Rudbeckia fulgida
Stonecrop Hylotephium 'Herbstrfreud' 'Autumn Joy'
Catmint Nepeta racemosa 'Walker's Low'

Purple Coneflower
Echinacea purpurea
Giant Hyssop Agastache 'Blue Fortune'
Giant Hyssop Agastache 'Blue Fortune'

Agastache foeniculum (anise hyssop)

What do I attract?

Liatris pycnostachya (prairie blazingstar)

What do I attract?
Asclepias tuberosa (butterfly weed)

What do I attract?

Native Plants
Full-Partial Sun, Moisture Dry

Echinacea purpurea (purple coneflower)

What do I attract?

Other Pollinator Garden tips

• Plant in clumps rather than single plants
• Plant three different types of flowers per season
• Provide habitat for nesting and egg-laying, such as:
  – Shrubs, tall grasses, and low-growing plants
  – Patches of fallen branches and brush
  – Small patches of bare ground
  – Layers in the Landscape
• Protection from wind
• Allow an untidy garden (Leave dead tree trunks) in your landscape for wood-nesting bees and beetles, build overwintering habitat and mow less.

What about Cultivars?

• “Straight species” best (not cultivars)
• Pick single petal over double petal

Photos by Sandy Mason
Debris that Mimics the Forest Floor

Where do bees overwinter?

Why you don’t cut back perennials in the fall

Adding water to your garden attracts wildlife.

Be still so you won’t scare her away.
Organic Pest Control

- Eliminate/Reduce Pesticide Use
- Pesticide Resistance
- Safer for beneficial insects and pollinators

- Use Biopesticides
  - Pyrethrum
  - Neem Oil
  - Spinosad
  - Bacillus thuringiensis
  - Potassium of Fatty Acids

- Encourage beneficial insects
  - Plant pollen and nectar

- Physical Protection
  - Row Cover
  - Mulch
  - Yellow Sticky Cards

- Limit Optimal Conditions
  - Rotate Crops
  - Plant Disease Resistant Cultivars
  - Limit Weeds
  - Clean Debris
  - Clean Gardening Tools

- Outsmart them
  - Use Trap Crops
  - Companion planting

Identify the Pests

- Flowers, Fruits and Frass
  - Blog http://web.extension.illinois.edu/lmw/eb255
- Livingston, McLean and Woodford Master Gardeners on Facebook
- University of Illinois Hort Nerd on Twitter