Gardening with Good Bugs

Amelia Vogel, Rooting DC 2018
Hello, I’m Amelia. Nice to meet you!

- DC Master Gardener
- Employee of Ginkgo Gardens
- Blogger at www.dcpotager.com

Disclaimer: The opinions expressed in this presentation are my own and not necessarily those of Ginkgo Gardens or UDC.
Outline

- Introduction
- What do good bugs offer us?
- What do good bugs need from us?
- The Who’s Who list of good bugs
- Questions
Waitaminnit...insects or bugs?

- **Arthropods**
  - Insects (beetles; flies; bees, wasps, and ants; and butterflies and moths)
  - Arachnids (spiders, mites)
  - Myriapods (centipedes and millipedes)
  - Isopods (woodlice)
- **Gastropods** (slugs and snails)
- **Annelids** (earthworms)
- **Nematodes** (roundworms)
Size of individual organisms represents number of described species in major taxon.

Unit Area: □ = approximately 1,000 described species.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>No. of Described Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monera (Bacteria, Blue-green Algae)</td>
<td>4,766</td>
</tr>
<tr>
<td>Fungi</td>
<td>46,983</td>
</tr>
<tr>
<td>Algae</td>
<td>26,900</td>
</tr>
<tr>
<td>Plantae (Multicellular Plants)</td>
<td>248,628</td>
</tr>
<tr>
<td>Protozoa</td>
<td>30,800</td>
</tr>
<tr>
<td>Porifera (Sponges)</td>
<td>5,000</td>
</tr>
<tr>
<td>Cnidaria</td>
<td>9,000</td>
</tr>
<tr>
<td>Platyhelminthes (Flatworms)</td>
<td>12,200</td>
</tr>
<tr>
<td>Nematoda (Roundworms)</td>
<td>12,000</td>
</tr>
<tr>
<td>Annelida (Earthworms etc.)</td>
<td>12,000</td>
</tr>
<tr>
<td>Mollusca (Mollusks)</td>
<td>50,000</td>
</tr>
<tr>
<td>Echinodermata (Starfish etc.)</td>
<td>6,100</td>
</tr>
<tr>
<td>Insects</td>
<td>751,000</td>
</tr>
<tr>
<td>Non-insect Arthropoda (Mites, Spiders, Crustaceans etc.)</td>
<td>123,161</td>
</tr>
<tr>
<td>Pisces (Fish)</td>
<td>19,058</td>
</tr>
<tr>
<td>Amphibia (Amphibians)</td>
<td>4,181</td>
</tr>
<tr>
<td>Reptilia (Reptiles)</td>
<td>6,300</td>
</tr>
<tr>
<td>Aves (Birds)</td>
<td>9,040</td>
</tr>
<tr>
<td>Mammalia (Mammals)</td>
<td>4,000</td>
</tr>
</tbody>
</table>

Essential Services

What do good bugs offer us?

- Pollination
- Pest Control
- Decomposition
- Food source for other living things
attracting

beneficial bugs

to your garden

jessica walliser

author of good bug, bad bug
What do good bugs need?
Native plants for butterflies and moths

- Trees: Northern red oak, red maple, Virginia pine, American beech
- Shrubs: New Jersey tea, viburnums, spireas, sumacs, hydrangea, spicebush
- Grasses: little bluestem, sedge, panic grass
- Herbaceous perennials: milkweed, asters, violas, pea family flowers
Providing shelter

- No pesticides
- No tilling, no double-digging
- Save garden clean-up for spring
Putting it all together in the garden
Praying Mantids

- Generalist predators
- Overwinter in dried foam egg cases attached to plant stems
- Nymphs are wingless
Ladybugs

- Adults and larvae are predators of aphids, mites, whiteflies, and eggs of other bugs
- Adults also feed on nectar and pollen
- Overwinter as adults in tree bark and natural materials

Eggs  Larva  Pupa  Adult
Green Lacewings

- Larvae (aka aphid lions) are generalist predators
- Overwinter as pupae
- Adults are predators and nectar/pollen feeders
Fireflies

- Firefly larvae (aka glowworms) are predators of slugs, snails, worms, and other insect larvae
- Overwinter as larvae in moist soil
- Adults feed on pollen and nectar
Ground Beetles

- Nocturnal hunters at ground level
- Larvae live in soil, leaf litter, and mulch
- Overwinter as adults under rocks and logs
Braconid Wasps

- Specialist parasitoids
  - *Cotesia* - caterpillars
  - *Aphidiinae* - aphids
- Adults feed on nectar and pollen
- Overwinter as pupae
Predatory and Parasitoid Flies

Hoverfly larvae are predators; adults are pollinators

Tachinid flies are parasitoids and pollinators
More Generalist Predators

Spider

Minute Pirate Bug

Big Eyed Bug

Spined Soldier Bug

Damsel Bug

Assassin Bug
Questions?

Email your garden bug photos to: amelia.vogel@gmail.com

Thanks to Jason Schilberg for art direction