**Identifying & Observing Pollinating Insects in Pennsylvania**

**Beetles**
- Order: Coleoptera
- Hardened first/outer pair of wings (elytra)
- Large eyes & short antennae
- 2 wings (1 pair)

**Flies**
- Order: Diptera
- 2 wings (1 pair)

**Bees**
- Order: Hymenoptera
- Smooth body
- Thin “wasp waist”
- 4 wings (2 pairs)

**Wasps**
- Order: Hymenoptera
- Fuzzy body (usually)
- No “wasp waist”
- 4 wings (2 pairs)

**Butterflies, Moths, & Skippers**
- Order: Lepidoptera
- Long antennae, thickest at the ends
- 4 wings (2 pairs), usually covered in colored scales

---

**Why are bees important?**

Non-managed, native bee communities provide valuable pollination services in natural habitats and agricultural systems. Most of the bee species in PA are generalists – they visit, and feed on nectar and pollen a wide variety of plants. When a bee moves pollen from one flower to another, it allows the plant to produce seeds, fruits, or vegetables. Without bees, we would not have as many nutritious foods or beautiful flowers!

**What do bees do with pollen?**

Most female bees specifically collect pollen from flowers. Depending on the bee species, different parts of the body are used for transporting pollen. Pollen is a critical protein source for developing larvae – baby bees!

- **Pollen Basket** (pollen-pellet packing area; hind legs only)
- **Pollen Scopae** (specialized brushes of hair)
- Only bees in the family Megachilidae carry pollen in scopae under their abdomens.

---

* Insects shown approximately life-size

**Produced by:** Shelby K. Kilpatrick, June 2020. **Photos:** Nick Sloff (PSU Dept. of Entomology), USGS Bee Inventory & Monitoring Lab, & pngimg.
### Identifying & Observing Bees in Pennsylvania

<table>
<thead>
<tr>
<th>Honey Bee</th>
<th>Bumble Bee</th>
<th>Carpenter Bee</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Apis mellifera</em> (Apidae)</td>
<td><em>Bombus spp.</em> (Apidae)</td>
<td><em>Xylocopa virginica</em> (Apidae)</td>
</tr>
<tr>
<td>Only collects pollen from pumpkin &amp; squash plants, but will visit other plant species for nectar!</td>
<td>Many of the species in this family are bright metallic green or shiny black; a few have stripes.</td>
<td>These bees are most closely related to Carpenter Bees, but are very tiny in comparison!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Squash Bee</th>
<th>Sweat Bee</th>
<th>Small Carpenter Bee</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Eucera pruinosa</em> (Apidae)</td>
<td><em>Halictidae spp.</em></td>
<td><em>Ceratina spp.</em> (Apidae)</td>
</tr>
<tr>
<td>Some species are important pollinators of tree fruits, particularly apples in PA!</td>
<td>Females may nest close together, forming large aggregations in the spring!</td>
<td>Females collect soft hairs from fuzzy plants to line their nests!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mason Bee</th>
<th>Mining Bee</th>
<th>Wool-carder Bee</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Osmia spp.</em> (Megachilidae)</td>
<td><em>Andrena spp.</em> (Andrenidae)</td>
<td><em>Anthidium spp.</em> (Megachilidae)</td>
</tr>
<tr>
<td>Females cut out &amp; use circle-shaped pieces of leaves to line their nests!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leaf-cutting Bee</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Megachile spp.</em> (Megachilidae)</td>
</tr>
<tr>
<td>Females cut out &amp; use circle-shaped pieces of leaves to line their nests!</td>
</tr>
</tbody>
</table>

### Field Notes
Which types of insects can you find? Record your observations of their activities!

### How many species of bees are there?

World-wide, there are 20,400+ bee species. In Pennsylvania, there are 430+ bee species. Most of the bees in PA are native, but some are non-native. A few species are also endangered or threatened.

In PA, you can find bees on all kinds of flowers! The best times of the year to look are the spring through the fall.

Scan the code to learn more about bees in PA!

Website: tiny.cc/BeesofPA
Social Media: #BeesofPA

*Bees shown approximately life-size*