

# Bees of Ohio, Part II

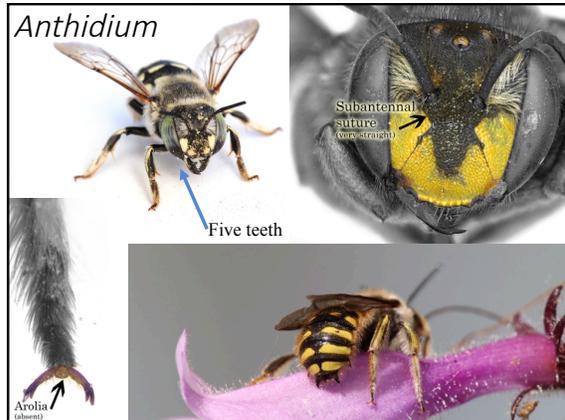
## Megachilidae

- Overview (~15 genera in OH)
  - Includes twig-, cavity-, and ground-nesting species that often bring mud, pebbles, resin, and leaves into their notes.
  - Some are managed for pollination.
  - Several introduced species.
- Identifying Features
  - Easy: Females have pollen-collecting hairs on the abdomen instead of the legs. Often look rounder and cigar- or submarine-shaped.
  - Medium: Two submarginal cells on the wing
  - Hard: Large, rectangular labrum.



## Anthidium

- Overview:
  - Four species: 2 are introduced and common, 2 are native and restricted to forested regions.
  - Summer-Fall
  - Medium to large
- Identifying Features:
  - Easy: Black and yellow with stripes. Fast flying, and like to hover in front of flowers. Body is tucked up tight and they look burly.
  - Medium: Mandible has many teeth—five or more.
  - Hard: No arolium between tarsal claws.
- Most similar to:
  - *Anthidiellum*, *Paranthidium*, *Dianthidium*



*Megachile*

- Overview:
  - 29 species
  - Mostly summer
  - Medium to large.
  - Cut pieces off of leaves or flowers to line nest cells—usually in pre-existing cavities (a few nest in ground)



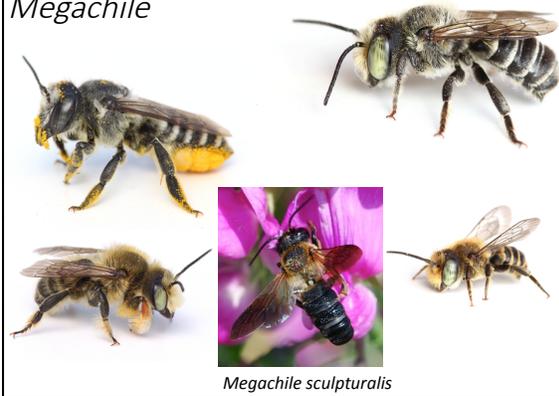
*Megachile*

- Identifying Features:
  - Easy: Black. Often with thin bands of white hair across tergal segments.
    - *Megachile sculpturalis* often takes over old nests of the Carpenter Bee.
  - Medium: No arolium between tarsal claws (like *Anthidium*), but also no yellow on the terga (unlike *Anthidium*)
  - Hard: Teeth number, shape, and size identifies species from each other. If mandibles are closed or worn, this is difficult.

- Most similar to:



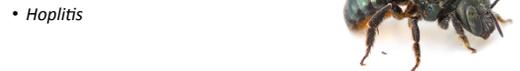
*Megachile*



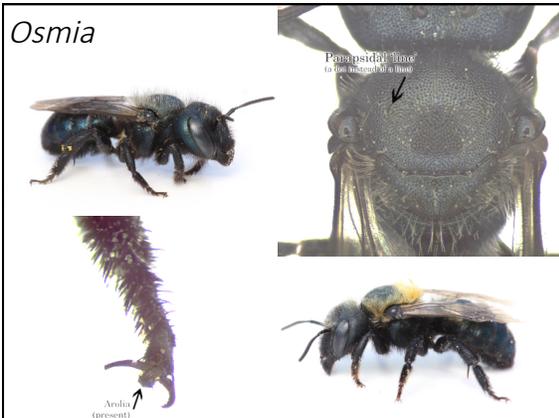
*Osmia*

- Overview:
  - ~20-25 species
  - Mostly spring through early summer (overwinter as adults)
  - Medium to large.
  - Cut pieces off of leaves or flowers to line nest cells—usually in pre-existing cavities (a few nest in ground—e.g. *O. inermis*)
- Identifying Features:
  - Easy: Usually metallic blue but there is one green species, and there are several black ones. Each body section looks very rounded. Pollen is on the underside of the abdomen.
  - Medium/Hard: Parapsidal line is a dot instead of a line.

- Most similar to:

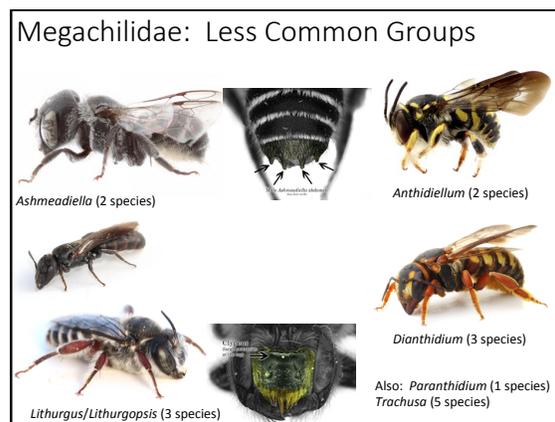


*Osmia*



*Hoplitis*

- Overview:
  - ~8-9 species
  - Summer bees
  - Range from small to quite large.
  - Often nest in hollow stems or holes in wood. Introduced *H. anthocopoides* makes nests out of small pebbles, mashed together on exposed surfaces.
- Identifying Features:
  - Easy: Metallic blue to green, often longer than *Osmia*. Antennae often with hooks or clubs or balls at the tips.
  - Medium/Hard: Parapsidal line is a line instead of a dot.
- Most similar to:
  - *Osmia*



### Parasitic Megachilidae (generally uncommon)

#### • *Stelis*

##### • Overview:

- 12 species in Ohio
- Rare, medium sized bees.
- Look a little like *Osmia*, but often with yellow markings on the abdomen, which *Osmia* don't have.

##### • Identifying features:

- No scopa.
- Abdomen looks chunkier than it should.



### Parasitic Megachilidae (generally uncommon)

#### • *Coelioxys*

##### • Overview:

- 17 species in Ohio
- Though usually around, they are not commonly seen.
- Parasitize *Megachile*, so fly when *Megachile* are flying.

##### • Identifying features:

- No scopa.
- Axillae, on back side of scutum, have little points that flare outwards.
- The abdomen is long and pointed, with spines and projections sticking out of the back of males.



### Halictidae

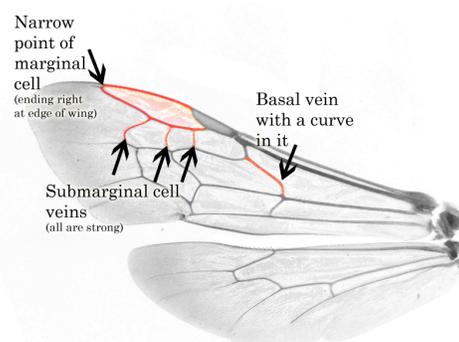
#### • Overview

- Small-medium/large bees, some bright green, but most dark brown or black.
- 'Weed bees', often super-abundant.
- Ground-nesting.
- Includes solitary species, and also several semi-social or primitively eusocial.

#### • Identifying Features

- Easy/Medium: Arcuate basal vein. Three submarginal cells.
- Hard: Short-tongue, one subantennal suture.

### Halictidae



### Halictus

- Overview:
  - 6 species. Extremely common
  - Late spring through fall bees
  - Range from small to medium
  - Nests in the ground, sometimes solitary, sometimes aggregations, sometimes semisocial
- Identifying Features:
 

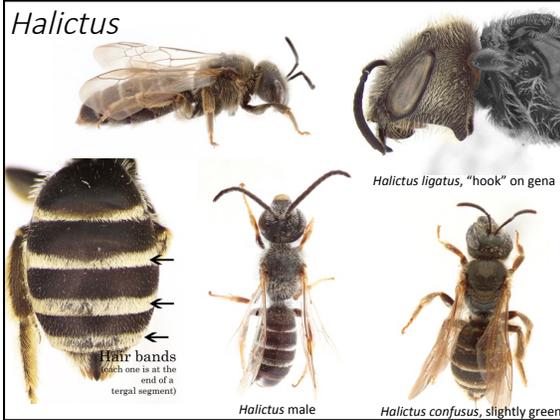
Several species are easy (er) to identify to species

  - Easy: Brown or with a light metallic green sheen. Small to medium size.
  - Medium: Apical hair bands on abdomen are very distinctive.
  - Hard: All submarginal cells are of equal thickness.
- Most similar to:
  - *Andrena*, *Lasioglossum*, *Colletes*

### Halictus



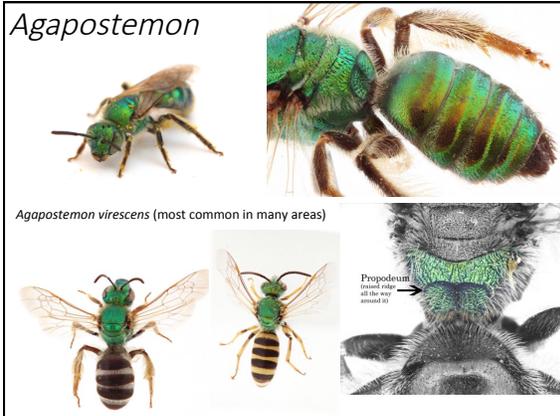
### Halictus



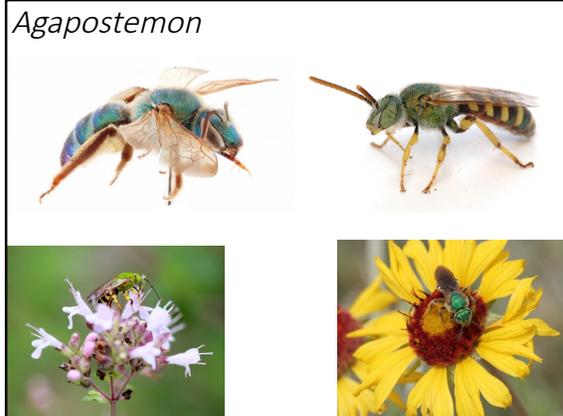
### Agapostemon

- Overview:
  - 4 species, Fairly common
  - Late spring through fall bees
  - Medium sized
  - Nests in the ground, sometimes solitary, sometimes aggregations.
- Identifying Features:
  - Easy: Large, bright green, males have green thorax and black and yellow abdomen which is very distinct.
    - *Agapostemon virescens* females have a black and white abdomen and green thorax.
  - Medium: Carina around the outside edge of the propodeum. Often visible even in pictures.
  - Hard: ??
- Most similar to:
  - *Augochlora pura*, *Augochlorella*, *Augochloropsis*

### Agapostemon

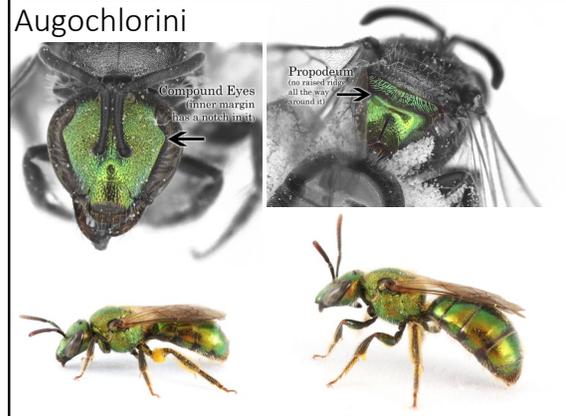


### Agapostemon



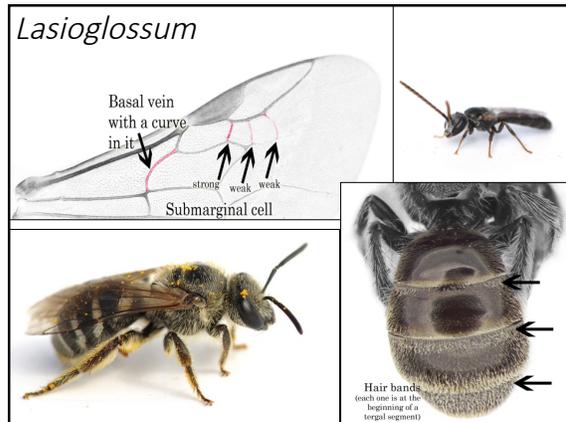
### Augochlorini

- **Overview:**
  - 5 species in three genera; one common species in each genus.
    - *Augochlora pura* (sometimes with copper undertones)
    - *Augochloropsis metallica* (*sumptuosa* may also be abundant in some areas)
    - *Augochlorella aurata*
  - Late spring through fall bees
  - Medium or small sized
- **Identifying Features:**
  - Easy: Medium-sized bright green bee with often purple undertones.
  - Medium: Eye has a notch along inner margin (*Agapostemon* does not), and there is often a dip in the clypeal margin, near the compound eyes.
- **Most similar to:**
  - *Agapostemon*

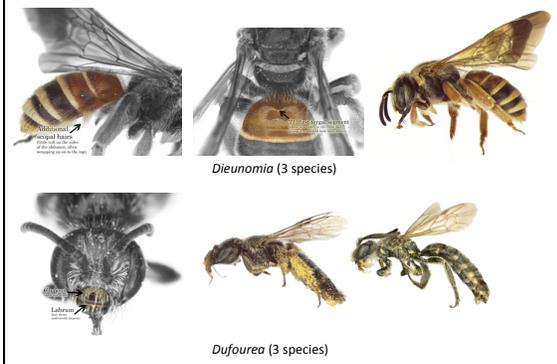


### Lasioglossum

- **Overview:**
  - ~70 or more species in Ohio. Very common, but often overlooked because they are small.
  - Late spring through fall bees
  - Medium or (most-often) small sized
- **Identifying Features:**
  - Easy: Small bees, often with a greenish/goldish/metallic shine, though there are also black species that tend to be larger.
  - Medium: Basal hair bands, instead of apical (compare to *Halictus*)
  - Hard: Outermost submarginal cell vein is thin and the edges aren't well-defined.
- **Most similar to:**
  - *Halictus*



### Halictidae: Less Common Groups



### Parasitic Halictidae (generally uncommon)

- *Sphecodes*
- **Overview:**
  - ~30 species. Relatively common
  - Parasites of Halictidae.
  - Late spring through fall bees
  - Medium to small-sized
- **Identifying Features:**
  - Easy: Red abdomen and dark black thorax, sometimes with a black tip.
  - Medium: Males are entirely black. Dense sculpturing on the thorax.
  - Hard: No hair bands on the abdominal segments, though there is some white hair on the tergal segments.
- **Most similar to:**
  - *Halictus* or *Lasioglossum*



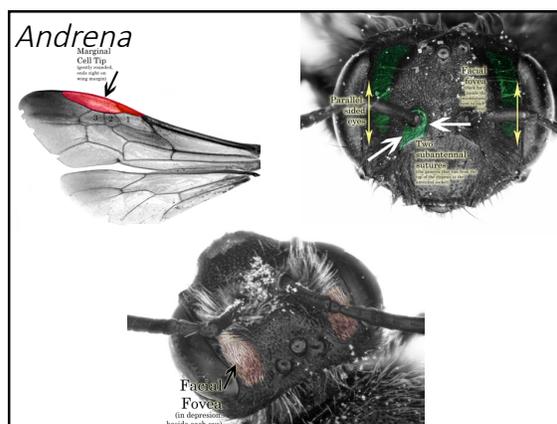
## Andrenidae

- Overview
  - Ground-nesting bees, that sometimes nest in aggregations of several hundred or thousand.
  - Many specialists.
- Identifying Features
  - Easy: Dainty-looking spring bee, ranging in color from gray to yellow to black. Thorax usually hairy, but abdomen may or may not be. Abdomen appears as perfect flattened oval.
  - Medium/Hard: Two subantennal sutures.

## Andrena

- Overview:
  - Many species, and relatively common
  - Mostly seen in the early spring, but there are summer and fall bees.
  - Small to medium-large in size.
- Identifying Features:
  - Easy: Some are covered in brightly-colored hair, but some are grey and black. Perfectly oval abdomens, and a petite look. Males often have yellow on their faces.
  - Medium/Hard: Facial fovea and two subantennal sutures.
- Most similar to:
  - *Halictus*

## Andrena

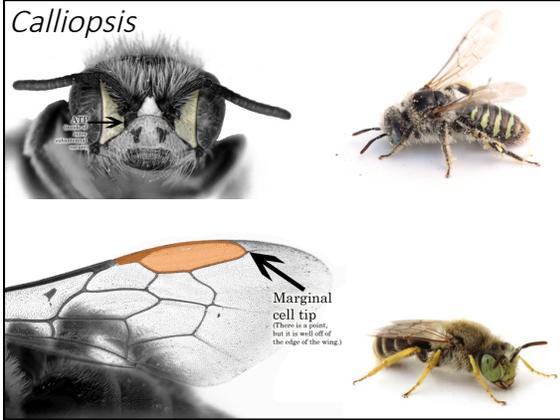


## Calliopsis

- Overview:
  - 3 species; *Calliopsis andreniformis* is the common one, especially in disturbed areas.
  - Late spring through summer.
  - Ground nester, sometimes in aggregations.
- Identifying Features:
  - Easy: Small, dark colored but with yellow markings on the face, especially of males.
  - Medium: Two subantennal sutures
  - Hard: Marginal cell bends gently away from the edge of the wing.
- Most similar to:
  - *Halictus*



*Calliopsis andreniformis* © USGS BLM

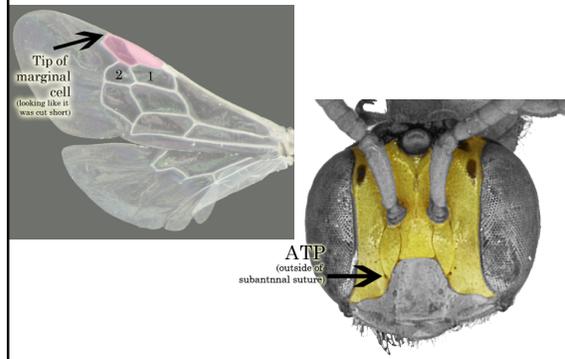


*Perdita*

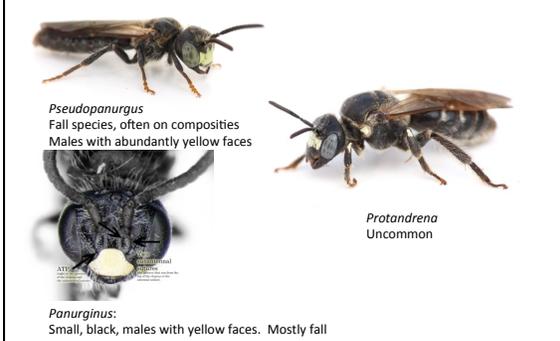
- Overview:
  - Not overly common in Ohio, but may be locally abundant.
  - Late spring through fall.
  - Ground nester, but nests are very difficult to see.
  - Many can be seen on composites, and as they fly they resemble gnats more than bees.
- Identifying Features:
  - Easy: The smallest of all the bees in North America. Male and females are yellow and black (some more yellow, some more black).
  - Medium/Hard: Short, truncated marginal cell.
- Most similar to:
  - Perhaps *Lasioglossum*



*Perdita*



Andrenidae: Less Common Groups



Colletidae

- Overview
  - See next slides
- Identifying Features
  - Easy: Two genera that look nothing alike. Familiarize yourself with the generic characters instead of family characters for this family

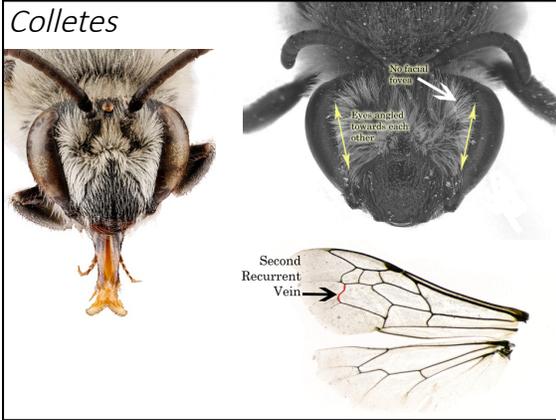
*Colletes*

- Overview:
  - ~30 species.
  - Can be quite common at any given location.
  - Mostly spring, some summer and fall.
  - Ground nester, seldom in aggregations. Lines inside of nest with a cellophane-like substance that is waterproof.
  - Many species are specialists.
- Identifying Features:
  - Easy: Medium-sized grey fuzzy bees with heart-shaped faces. Often mistaken for honey bees, but honey bees have corbicula, instead of scopa.
  - Medium: The outer most vein on the second row (second recurrent vein) bulges outward in a noticeable way.
  - Hard: Tongue is short, and forked.
- Most similar to:
  - *Apis mellifera*, *Andrena*

*Colletes*



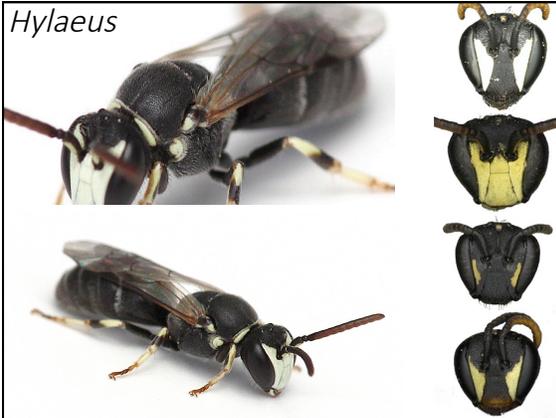
*Colletes*



*Hylaeus*

- Overview:
  - ~15 species in Ohio.
  - Can be quite common at any given location.
  - Mostly summer and fall.
  - Twig-nesting bees, common near riparian areas.
  - No specialists, but some appear to prefer Rosaceae.
- Identifying Features:
  - Easy/Medium: Small, skinny black bees with yellow markings on the face. Not very hairy, and no scopa (they ingest pollen).
  - Hard: Tongue is short, and forked.
- Most similar to:
  - *Protandrena*, *Panurginus*, *Pseudopanurgus*, maybe *Ceratina*

*Hylaeus*



Melittidae (All Three Genera Are Rare)

- Seldom seen, and with few easy-to-see unifying features.

*Melitta*: 3 species.  
Small, seldom seen, specialists on Ericaceae

*Macropis*: 4 species.  
Rare specialist on *Lysimachia* (loosestrife)

*Hesperapis*: 2 species.  
Very uncommon.



## Apidae

- **Overview**
  - A diverse group that includes many of the most well-known kinds of bees, including honey bees, bumble bees, carpenter bees, squash bees, digger bees, and long-horned bees.
  - Includes both specialists and generalists
  - Majority are ground-nesters, but also bees that live in hives or colonies.
- **Identifying Features**
  - **Easy:** Most big fuzzy bees in the Ohio are in this family.
  - **Medium/Hard:** These bees have long tongues.

## Anthophora

- **Overview:**
  - 6 species.
  - Common, spring through fall.
  - Most are ground nesting, often in interesting locations, like river banks
- **Identifying Features:**
  - **Easy:** Easy to say: "Probably *Anthophora*" when a big fuzzy grey or yellow bee flies by in the spring. Harder to be 100% certain. Males have yellow on their face, usually the clypeus.
  - **Medium:** No hairs on the inner portions of the wing, when looking across it.
  - **Hard:** The junction of the veins on the wing distinguishes it from the similar-looking *Habropoda* (not common in Ohio)
- **Most similar to:**
  - *Habropoda*, *Eucera*, *Melissodes*

## Anthophora



## Anthophora



## Svastra

- **Overview:**
  - 4 species.
  - Late summer through the fall.
  - Ground-nesting.
- **Identifying Features:**
  - **Easy:** Very large, very fuzzy, and flies rather fast. An overall orange tint to hairs, and scopal hairs are stiff.
  - **Medium:** The tegula are oval shaped, not tear-drop shaped, like *Melissodes* which flies at the same time.
  - **Hard:** Tiny flattened hairs along the basal edge of the second tergal segment, just underneath the rim of the tergal segment in front of it.
- **Most similar to:**
  - *Habropoda*, *Eucera*, *Melissodes*, *Anthophora*.



## Melissodes

- **Overview:**
  - ~25 species.
  - Late summer through the fall.
  - Ground-nesting.
  - Many specialize on composites, and can be readily seen on these plants.
- **Identifying Features:**
  - **Easy:** Medium to large bees. Males are easily identified by long antennae that arch across back. Females are more difficult.
    - *Melissodes bimaculatus* is all black
  - **Medium/Hard:** The tegula are tear-drop shaped, but this may be hard to see if the hair is thick.
- **Most similar to:**
  - *Habropoda*, *Eucera*, *Svastra*, *Anthophora*.



*Eucera*

- Overview:
  - 5 species.
  - Spring bees.
  - Ground-nesting.
- Identifying Features:
  - Easy: Look very similar to *Melissodes*, but fly in spring, whereas *Melissodes* are in the fall. Strongly protruding clypeus, and males with long antennae that arch over the back.
  - Medium/Hard: Tegula are oval instead of tear-drop shaped.
- Most similar to:
  - *Eucera*, *Svastra*



*Ceratina*

- Overview:
  - 4 species in Ohio.
  - Very common, summer through fall.
  - Nest inside the pithy stems of perennial plants.
  - Generalist.
- Identifying Features:
  - Easy: Shiny, weakly metallic. Blue-black small bees. Males may have a yellow spot in the center of the clypeus. Abdomen is long and cigar-shaped.
- Most similar to:
  - *Hylaeus*



*Xylocopa virginica*

- Overview:
  - Very common, spring through fall.
  - Nests in wood, often chewing its own new 'galleries' and expanding on ones started by last year's generations.
  - May nest communally.
- Identifying Features:
  - Easy: Very large, aggressive and hard-to-miss bees. All black, shiny abdomen. Females have stout scopae (pollen-collecting hairs) on black legs. Males have yellow or white on their faces. Very broad and round heads.
- Most similar to:
  - *Bombus*



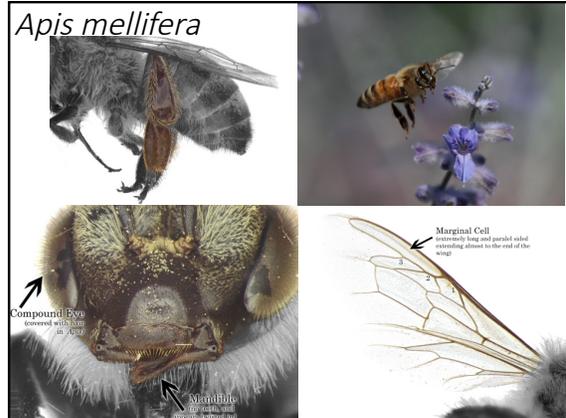
*Bombus*

- Overview:
  - 16 species in Ohio; *Bombus impatiens* may be the most commonly seen.
  - Very common: queens in the spring and workers from late spring through fall.
  - Nests in the rodent burrows in the ground, with colonies of 100-300 individuals.
  - Generalists.
- Identifying Features:
  - Easy: Very large, but not as 'boisterous' as the male carpenter bee. Black, but abdomen has bands of yellow, white, or red hair. Females have corbiculae instead of scopae on black legs. Males do not have yellow on their faces. Face is usually quite long.
  - Hard: Hind wing does not have a jugal lobe.
- Most similar to:
  - *Xylocopa*



*Apis mellifera*

- Overview:
  - Very common to see workers
  - Generalists.
  - Nests in hives, domestic, or feral, colonies of tens of thousands of individuals.
- Identifying Features:
  - Easy: Amber to dark thorax. Legs often dangle beneath or behind the bee when she flies. Corbicula instead of scopal hairs.
  - Medium: Mandibles and wings look very different from other bees.
  - Hard: Compound eyes have hair on them.
- Most similar to:
  - *Andrena*, *Colletes*



### Parasitic Apidae: *Nomada*

- Overview:
  - ~40 species in Ohio
  - Common in the spring, when *Andrena* are flying.
  - Parasite of mostly *Andrena*, but also *Agapostemon*, *Lasioglossum*, and *Halictus*.
- Identifying Features:
  - Easy: Very distinctive yellow, black, or red markings on abdomen and head and thorax, and looking very wasp-like. Often seen hovering a few inches above the ground or perched on low leaves, probably searching for *Andrena*.
- Most similar to:
  - Wasps



### Parasitic Apidae: *Melecta pacifica*

- Overview:
  - Common when *Anthophora* flies
  - Parasite of *Anthophora*
- Identifying Features:
  - Easy: Fuzzy (often red), thorax, and black abdomen, which looks slightly pointed. No pollen collecting hairs on females.
  - Medium: Marginal cell is short, so that the three submarginal cells are longer.
- Most similar to:
  - *Anthophora*, *Eucera*, *Melissodes*



*Melecta pacifica* © USGS BLM

### Parasitic Apidae: *Triepeolus*

- Overview:
  - 23 species.
  - Parasite of *Melissodes* (thus, only out in fall)
- Identifying Features:
  - Easy: Smiley-faced bee. Fairly large in size, with white buzz-cut patches of hair on black body.
  - Medium: Little points on the end of the thorax (axillae).
  - Hard: Pygidial plate is rectangular in shape.
- Most similar to:
  - *Epeolus*



*Triepeolus* © USGS BLM

### Parasitic Apidae: *Epeolus*

- Overview:
  - 9 species.
  - Spring through the fall.
  - Parasite of *Colletes*.
- Identifying Features:
  - Easy: Black and sometimes red, with white patches of very short hair. Smaller than *Triepeolus*
  - Medium: Axillae are pointed, at the back of the thorax.
  - Hard: Pygidial plate is angled, towards a point, rather than rectangular.
- Most similar to:
  - *Triepeolus*.



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### Apidae: Less Common Groups



**Florilegus condignus**

- Specialist on *Pontederia* (pickersweed)
- Not commonly seen.
- Hairbands appear appressed on abdomen



**Mellifera taureae**

- Medium to large in size. Widespread, but never super abundant. Specializes on morning glories (Ipomoea)
- Black and white hair bands, often visible when bee is foraging in flowers.



**Clypeus**  
(Illustration in *Conservation*)

**Crematogaster ipomoeae**

- Large bee. Specializes on morning glories (Ipomoea).



**Philothrix bombiformis**

- Specialist on *Hibiscus*. Seen in late spring and early summer when *Hibiscus* are in bloom.
- Nests in ground, often along the edges of marshy areas. Nests can be identified by balls of mud lining the entrance.



**Peponapis pruinosa**

Same color as honeybee, but bigger  
Often found inside squash and pumpkin flowers very early in the morning.  
Clypeus looks like a roman nose from the side; tegulae are oval shaped.

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