

Field guide to common summer bees of  
Medford/Somerville



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There are over 350 species of wild bees in New England. These bees have diverse lifestyles: some live underground, others in twigs above ground; some visit a wide diversity of plants, others just one or a few species; some are active all summer long, while others emerge for just a few weeks before the fall frost.

It is difficult to become familiar with all these different species and their lifestyles because identifying bee species is hard. It requires knowledge of microscopic features and how those features vary within and among species. In fact, in most cases, identification necessitates killing the bee to examine it under a microscope. Even then, identifying some bee species poses a challenge for seasoned taxonomists.

Yet, a lot can be learned by identifying bees to genus, rather than to species. Bees can often be assigned to genus through binoculars, rather than under a microscope. This means you can be outside and identify bees, whether they're resting or collecting pollen on flowers, stopping for a drink in a muddy puddle, or darting past. Inspired in part by North American Native Bee Collaborative's [Field Guide to Bees of Maryland](#) as well as our own scientific interest in collecting data on bees *without* killing them, we created this field guide to identify common bees in New England to genus.

The layout of this guide is straightforward. There are six bee families in New England, five of which occur regularly in cities. Family level identification is often unhelpful, and sometimes harder than genus, since it relies on microscopic features, rather than ecologically relevant traits.

Within each bee family, we have listed common genera that you are likely to encounter in summer in urban New England. For each genus, we provide helpful field identification tips including size, flight season, floral preferences, and distinctive behaviors. We have also listed species in bold for which field identification is possible.

To attract and support wild bees, we recommend that you plant native [wildflowers](#), [shrubs](#), and trees. Your garden (whether in a yard or in a container on a balcony) should contain a diversity of flowering plants in order to attract a diversity of bees. Ideally, these plants will vary in color, height, flower shape, and most importantly, bloom time.

While you're watching bees, take time to notice their behaviors. How each individual holds its wings, the flower being visited, or how two different looking bees interact. These are clues that can help you make your identification. If at first all the bees look the same (especially the small dark ones), don't fret! With time, you'll start to recognize the frequent visitors to your garden and be able to distinguish them from the newcomers by a combination of looks, flight season, flower preference, and behavior.

Don't hesitate to get in touch with us on social media @PollinateTufts or via email at [tuftspollinators@gmail.com](mailto:tuftspollinators@gmail.com) and post your sightings to iNaturalist. We'd love to hear from you.

## Rarity of Genera

**Common** (These are the most common bee genera to visit native and ornamental gardens. You will typically find many individuals of these genera at gardens when their preferred flowers are present.)

*Apis*  
*Bombus*  
*Ceratina*  
*Melissodes*  
*Megachile*  
*Halictus*  
*Lasioglossum*  
*Agapostemon*  
*Hylaeus*  
*Xylocopa*

**Uncommon** (These bee genera are typically found as singletons in gardens. Do not expect to find many of them unless you're surveying a host plant.)

*Andrena*  
*Coelioxys*  
*Sphecodes*  
Augochlorini group  
*Eucera*  
*Heriades*  
*Pseudoanthidium*  
*Anthophora*  
*Colletes*  
*Triepeolus*

**Rare** (These genera are rare in Medford/Somerville in summer and should not be recorded without photo documentation.)

*Nomada*  
*Calliopsis*  
*Osmia*  
*Hoplitis*

## Nick's Tips for Field Identification of Bee Genera

1. **Use context clues** to help you make your ID. What time of year is it? What flower is the bee visiting? Is it holding its wings close to its body or out at an angle? How does it behave on the flower?
2. **Turn it into a game of chance:** what is the likelihood I just observed that really rare bee? Could I be mistaking it for another more common genus? Watch the same patches of flowers over again if you think you've found a rare bee; individual bees often have high patch fidelity and you may get a better look when it returns.
3. Remember that the images and field marks presented in this guide do not account for the full extent of variation in individuals. When making your ID, integrate multiple lines of evidence to reach a conclusion.
  - a. **Hair color can be unreliable**, especially since individuals within a species can vary more in hair color than individuals between species.
  - b. **Use size with caution.** While sometimes helpful, size can be difficult to determine accurately in the field.
  - c. **Wear can also sabotage an identification.** For example, bumble bee workers can lose a lot of their hair by the end of their life.
4. **Carry a camera!** Take photos of all bees that stand out to you, even the common ones. Reviewing photos of bees on a rainy day will help improve your identification skills. Species identification is also sometimes possible from photographs.
5. **Practice, practice, practice.** Get outside and watch bees as much as possible. Visit your local garden—whether in your backyard or at a park—and take notes on what you see. Try to identify as many bees as you can. Ask experts at the [Tufts Pollinator Initiative](#), on [social media](#) or on [iNaturalist](#) for help. The bee identification community is incredibly welcoming.

**Family: Apidae**

**Apis (Honey bees)**

1 species, *A. mellifera* European honey bee (slender, golden, hairy eyes). Carries wetted pollen loads in specialized hairs on leg (corbicula).



*Apis mellifera*, Max McCarthy top and bottom

*Natural History Note:* Most honey bees live in colonies managed by hobbyist or professional beekeepers. They are the only species of bee in New England that makes edible honey.

## *Bombus* (Bumble bees)

Stocky, hairy bees, with all species in area having some combination of yellow and black hairs. Females carry pollen in corbiculae on legs. 6 species \*expected\*, traits given for females, males are much more variable in color patterns and do not carry pollen:

***B. impatiens*** (all year long, very common single yellow band on thorax)

***B. griseocollis*** (all year long, very common, short thorax hairs and rusty band on T2)

***B. bimaculatus*** (active earlier in year, solid T1, yellow spot on T2)

***B. vagans*** (tricky to distinguish from *B. perplexus* yellow “armpit” and T1/T2 lemon yellow)

***B. perplexus*** (uncommon and tricky to distinguish from *B. vagans*, black “armpit” and T1/T2 dandelion yellow)

***B. fervidus*** (uncommon, T1-T4 all yellow)

Of the six species in Medford/Somerville, these are the three **more commonly** seen species:



*Bombus impatiens*, Wikimedia



*Bombus bimaculatus*, Team Colletes Flickr



*Bombus griseocollis*, Dan Mullen Flickr

## *Bombus* (Bumble bees) cont.

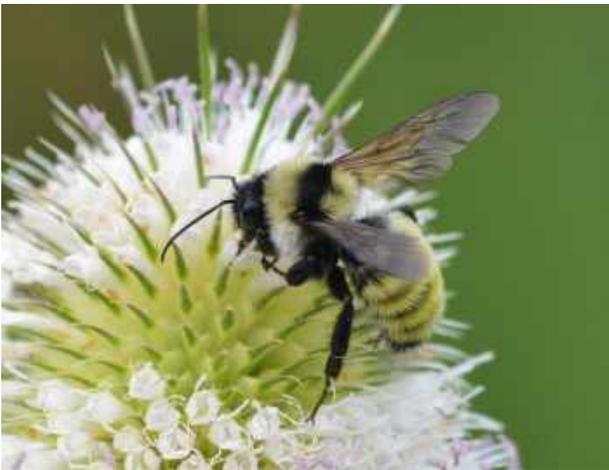
Of the six species in Medford/Somerville, these are the three **less commonly** seen species:



*Bombus vagans*, Max McCarthy



*Bombus perplexus*, Wikimedia



*Bombus fervidus*, Wikimedia

*Natural History Note:* Bumble bees are social bees that live in underground (sometimes aboveground) colonies. Large queens emerge in early spring and forage for pollen and nectar to start a colony. Workers do all the foraging after that point, until new queens and males are produced in fall. Each colony lasts one year.

*Xylocopa* (Large carpenter bees)

*X. virginica*, only species in genus to occur in area. 2-3x honey bee size, bigger than most bumble bee workers. Very short thorax hairs with hairless black dot in the center of thorax. Shiny black abdomen. Unmistakable.



*X. virginica*, Shane Kemp Flickr



*X. virginica*, Katja Schulz Flickr

*Natural History Note:* *X. virginica* nests in cavities excavated in wood. Unfortunately, this species has an inordinate fondness for nesting in human-made wooden structures. Annual nests will seemingly persist for many years because each generation will return to the same cavity to nest. To safely remove *X. virginica* nests from your property, plug the nest entrance with steel wool or caulk. Never use pesticides.

### *Ceratina* (Small carpenter bees)

Small, metallic blue bees with flat cigar shape. Males have yellow coloring on face. When viewed from above abdomen is slightly more bulbous than head and thorax. 0.5x honey bee. No obvious hairs on body. Visits many kinds of flowers. Nest in pithy stems, hence their common name of small carpenter bee.



*Ceratina* sp., Wikimedia top and bottom

*Natural History Note:* Some *Ceratina* females intentionally give less food to one female offspring than all the others. This destines that offspring to a life of servitude: it helps the mother forage for its siblings and guard the nest from intruders.

### *Melissodes* (Long-horned bees)

Handful of species in area, most are ground-nesting specialists of Asteraceae. Males have long antennae (hence common name “long-horned bees”). Females are very hairy with shorter antennae but they also have noticeably thick brushes of hair on their legs for collecting pollen. 0.75-1.25x size of honey bee. In the area, *Helianthus*, *Heliopsis*, *Rudbeckia*, *Coreopsis*, and *Vernonia* flowers are some of the best places to find female *Melissodes*. For specialist species, males hold territories on flowers waiting for females.

***M. bimaculatus***, 1x honey bee, male black with white hairs on legs and long antennae, patrols patches of flowers; female, black legs but two white spots on abdomen. Our only large, all black bodied bee.



*M. bimaculatus*, Wikimedia



*M. trinodis*, Max McCarthy



*Melissodes* sp., Nick Dorian

*Natural History Note:* Though uncommon in cities, *Triepeolus* is a genus of bees that parasitize *Melissodes* nests.

### *Eucera* (Long-horned bees)

Clypeus (lower half of face) protruding, viewed from side it protrudes the same distance as the width of the eye. Long-antennae like *Melissodes*. Only one species really expected:

***Eucera* (formerly *Peponapis*) *pruinosa***, hoary squash bee, flies in mid-July to early August when squash flowers are abundant. Specializes on *Cucurbita pepo* (squash) flowers so unlikely to be found away from community gardens where zucchini, pumpkins, summer squash etc. is grown. Banded abdomen, rich orange thorax hair. 1-1.2x size of honey bee, abdomen not nearly as golden.



*E. pruinosa*, Wikimedia

*Natural History Note:* *E. pruinosa* is only active in early morning when squash flowers are open. This bee's entire life cycle revolves around squash.

### *Nomada* (Wandering cuckoo bees)

Nest parasite of *Andrena* and *Agapostemon*. Wasp-like. Common in spring, less so in summer and fall. Most species not field identifiable. Spring *Nomada* hold their wings against their body while feeding; summer/fall *Nomada* often hold wings out at 45° angle. Brightly colored: usually red and yellow, less commonly black and yellow. Most not field identifiable to species.



*Nomada* sp., Katja Schulz



*Nomada* sp., North American Insects

*Natural History Note:* *Nomada* don't have a nest to return to at night, so they often sleep on plants. They clench their jaws around the leaf and sleep dangling.

### *Anthophora* (Digger bees)

Stocky, bumble bee-shaped bees. First thought is usually “that’s a weird bumble bee.” Depending on species, 1-2x size honey bee. Often seen hovering in front of tubular flowers. Flat top of head with short antennae. Males with extensive white/yellow patterning on face. Do not have shiny corbicula on legs (so no moist pollen pellets on legs like bumble bee and honey bees), rather pollen is collected dry in a thick brush of hairs.

Primary experience with this genus in Medford/Somerville will be ***A. terminalis***, 1x size of honey bee



Max McCarthy top and bottom

*Natural History Note:* Unlike larger members of this genus that nest in hard-packed ground, *A. terminalis* nests in pithy stems and rotting wood.

### *Triepeolus* (Variegated cuckoo bees)

Uncommon to rare. Boldly marked (typically white and black bands on abdomen), “mean looking,” and lacking long hair. Rear of the thorax with two spiny projections. Depending on species, 0.75-1x of size honey bee. Often holds wings out while visiting flowers. Visits variety of open flowers, though seems to prefer Asteraceae.



*Triepeolus lunatus*, Nick Dorian



*Triepeolus sp.*, Max McCarthy

*Natural History Note:* Members of this genus are cleptoparasites of bees in the genera *Melissodes* and *Eucera*. Their presence in urban areas indicates robust populations of host bees.

**Family: Andrenidae**  
**Andrena (Mining bees)**

Very common in spring, uncommon in summer and fall. Ground-nesting solitary bees. Females always have two vertical velvety areas just inside eyes called foveae. Females always have black faces. Summer species hold their wings against their body; fall species often hold their wings at 45° angles out to side.

**A. wilkella**, exotic species with fondness for legumes in the genus *Trifolium*, *Vicia*, and *Melilotus*. Active in July and August. Strongly banded abdomen resembles *Halictus*, but rarely found on composites (which *Halictus* loves) and larger (approx. size of honey bee).



Max McCarthy

**A. nubecula** likes goldenrods and often holds its wings out at a 45° angle.



Dan Mullen Flickr

*Natural History Note:* Few *Andrena* are active in mid-summer. Many *Andrena* are spring-active, taking advantage of spring ephemerals and flowering trees. One species, *A. claytonia* is a specialist bee on spring beauty, collecting all its pollen and nectar from this tiny spring wildflower. Others are fall-active, like *A. helianthi* that specializes on sunflowers, especially *Helianthus tuberosus*.

### *Calliopsis* (Campus bees)

1 species: *C. andreniformis* 0.5x size of honey bee, face wider than long, with “chin” jutting outward, particularly noticeable in profile. Yellow or pale markings on legs and face with pale white bands on abdomen. Distinctively pale eyes. Likes *Melilotus* and *Trifolium*, though will forage on other plants if those are unavailable.



*C. andreniformis*, Max McCarthy

*Natural History Note:* *C. andreniformis* is a ground-nesting bee that prefers packed, well-trampled soils of paths rather than undisturbed ground.

## Family: Megachilidae

NB: Female members of this group carry pollen beneath their abdomen, not on their legs.

### Megachile (Leaf-cutter bees)

Very common, above-ground nesting species. Often wide-bodied and stout with abdomens held rigidly (or arched slightly upwards) when collecting pollen. Ranges from 0.5 to 2.5x size of honey bee. Thinly banded abdomens, none all black. Not many species field-identifiable, but the genus is widespread on many plant genera.

***M. sculpturalis***, exotic, giant resin bee, active starting in early July. Large, similar in length to *X. virginica* but slender. Holds out wings and raises abdomen when on flowers.



*M. sculpturalis*, Wikimedia



*Megachile sp.*, Wikimedia

*Natural History Note:* Many members of *Megachile* line their nests with leaves. It is thought that the antimicrobial properties of the leaves confer added protection to the offspring.

### *Anthidium* (Wool carder bees)

*A. manicatum*, very common in cities, males aggressively patrol and defend patches of flowers, often tubular ones like *Salvia* or *Penstemon*. They hover in front of flower entrances and dive-bomb similar sized intruders. Distinctive patterning.



*A. manicatum*, Max McCarthy



*A. manicatum*, Nick Dorian

*Natural History Note:* *Anthidium* gets the common name of wool carder bees because they “card” or scrape off leaf hairs to line their cavity nests.

### *Heriades* (Small resin bees)

Tiny, cavity nesting bees that visit a variety of flowers. Narrow, slender and elongate body with light bands on abdomen. Roughly cylindrical in shape. 0.25-0.5x size of honey bee. Strongly pitted thorax with squarish pits along junction of thorax and abdomen.



*Natural History Note:* *Heriades* also collect resin from trees to build their nests in above-ground cavities.

### *Hoplitis* (Mason bees)

All black bee, 0.5-0.75x honey bee sized. Thin white bands on abdomen resembles *Heriades* but *Hoplitis* is stockier, less slender, and a bit hairier. This is a tricky ID because it's not super distinctive. Once you have a bit of experience with them in the field, it's easier.



*Natural History Note:* *Hoplitis* are colloquially known as mason bees because they collect mud to line their nests.

### Coelioxys (Leaf-cutting cuckoo bees)

Nest parasite of *Megachile*. Noticeably hairless with long pointed abdomen resembling a cone. Abdomen often thinly banded. Close look reveals multiple spikes at tip of abdomen. Mostly black, sometimes with reddish legs. Often seen on mints and composites.



*Coelioxys sayi*, Max McCarthy



*Coelioxys sp.*, Wikimedia

*Natural History Note:* *Coelioxys* parasitize the nests of Megachilid bees by sneaking into the nest, slicing open the closed brood cell, and laying an egg. The cuckoo's egg hatches faster than the host bee egg and the cuckoo larva kills the host bee egg before chowing down on the the pollen and nectar provisions in the cell.

### *Osmia* (Mason bees)

Short, wide bees, 0.5-0.75x honey bee. Rare in summer. Spring species are often metallic blue or have rusty hairs on face and abdomen (*O. taurus* and *O. cornifrons*). Rarer summer bees are all dark with some non-obvious metallic reflections. Not likely to be encountered in Medford/Somerville in July/August.



*Osmia* sp. Max McCarthy



*Osmia* sp. Judy Gallagher Flickr

*Natural History Note:* Two species commonly found in cities, *O. taurus* and *O. cornifrons* are introduced from Europe. Introduced bee species are commonly above-ground nesting bees in the family Megachilidae because it's easier for above-ground bee nests than below-ground nests to be unknowingly transported across borders.

## *Pseudoanthidium*

Single species occurs in area, *P. nanum*. Small, stocky bee, 0.5x honey bee size, much smaller than *Anthidium manicatum*. Black body with yellow-white bands on abdomen and yellow-white marks on thorax and head. Orange legs. Prefers Asteraceae. Exotic.



*P. nanum*, Bugguide.net



*P. nanum*, Bugguide.net

*Natural History Note:* *Pseudoanthidium* bees are entirely native to Europe, Asia, and Africa. Their nesting biology is poorly known, but at least three of the ~60 known species in the genus have an affinity for human-disturbed habitats. One study reports that *P. nanum* will nest in stems, galls and abandoned snail shells.

## Family: Halictidae

### *Agapostemon* (green metallic sweat bees)

Substantial, mellitic green bee. Definitely identified by presence of a raised ridge along back of thorax (though difficult to see in field).

***Agapostemon virescens***, common, female has green thorax with black-and-gray striped abdomen. Likes *Echinacea*, but readily visits many different plants. Males of *A. virescens* are difficult to distinguish from other *Agapostemon* males since they have black and yellow abdomen. Females of other *Agapostemon* species are entirely green.



*Agapostemon virescens*, Nick Dorian



*Agapostemon virescens*, John Flannery Flickr



*Agapostemon virescens*, Judy Gallagher Flickr

**Natural History Note:** *Agapostemon* live in below-ground communal nests. Unlike workers eusocial colonies, each female in a communal nest lays and provisions her own offspring. However, there is shared labor. When one female is off foraging, there's usually another on guard duty, making sure no unwanted predators or parasites sneak into the nest.

### Augochlorini (green bee group)

Comprises three genera not readily separated in field without good photos: *Augochlora*, *Augochloropsis*, *Augochlorella*. All slender, metallic gold-green (rarely blue-green which indicates *Augochloropsis*). 0.66x size of honey bee. No noticeable hair bands and no ridge on back of thorax like *Agapostemon*, usually smaller too.

If you can get a good photo of the face and/or back of your green mystery bee, identification of genus (occasionally species) is often possible.



*Augochlora pura* Wikimedia



This is cuckoo wasp (family: Chrysididae), not an Augochlorini bee! Note the antennae low on the face and the rough textured body. Cuckoo wasps also vibrate their abdomen quickly up and down. **Rachael Bonoan**



*Augochlorella aurata*, Katja Schulz



*Augochlorella aurata* Wikimedia

*Natural History Note: Augochlora pura* is a social bee. Queens overwinter as adults and build nests in rotting logs.

### *Lasioglossum* (small sweat bees)

Small, abundant bees. Many confusing species in this group, do not expect to identify any to species level. Generally smaller than *Halictus*, <0.5x size of honey bee. Often green/blue metallic, but all black and golden metallic species exist. Visits variety of flowers. Compared with parasitic wasps, antennae are never low on face and abdomen is never oscillated up and down. Look also for females carrying pollen on hind legs.



*Lasioglossum* sp. Rachael Bonoan



*Lasioglossum* sp. Ryszad Flickr

*Natural History Note:* *Lasioglossum* can be found across the growing season in Medford/Somerville, from April through October. Many members of this genus are social and colonies have more than one generation per year. Sociality in *Lasioglossum*, however, is not a fixed trait and depending on environmental conditions, some social species can become solitary.

### *Halictus* (furrow bees)

Abundant, generalist bees. 0.5-0.75x honey bee. Uniformly brown-black body or dully metallic green. Thin white bands on abdomen. Fond of composites, especially *Rudbeckia*, but has a generalist diet. Generally larger than *Lasioglossum* and less metallic.



*Halictus* sp. male, Wikimedia

*H. ligatus* has a brown-black body (not metallic) with sharp protrusion from base of head near chin. If you can get a view or picture in profile, this trait can usually be seen.



*Halictus ligatus*, Nick Dorian

*Natural History Note:* *Halictus* are primarily eusocial nesters, just like bumble bees and honey bees. Expect to find them throughout the summer and into fall because they have several overlapping generations.

### *Sphecodes* (Blood bees)

Nest parasites of Halictid bees. 0.5-0.75x size of honey bee. Head and thorax all black, sides of thorax rough, abdomen entirely blood red. No yellow markings on abdomen as you might find with *Nomada*.

Movements are deliberate, not frenetic as is the case with some wasps, and abdomen is not oscillated up and down. *Sphecodes* does not have a thin waist.



*Sphecodes* sp., Wikimedia

*Natural History Note:* Although primarily nest parasites of Halictid bees, *Sphecodes* could parasitize many other kinds of ground-nesting bees. Very little is known about its biology.

## Family: Colletidae

### Colletes (Cellophane bees)

Common bees in spring, but uncommon in summer and fall. Primarily aster and goldenrod specialists in fall, but one species is a *Physalis* (tomatillo, ground cherry) specialist active in mid-summer, 0.75-1x size of honey bee. Quite hairy with color ranging from pale yellow to rich dandelion. Characteristic “heart-shaped” face caused by convergent inner margins of eyes (not parallel). Definitive ID can be made with photo of the wing venation, but this is difficult to observe in the field.



*Colletes* sp., Wikimedia



*Colletes inaequalis*, Max McCarthy

*Natural History Note:* Spring *Colletes* form large conspicuous nesting aggregations in open, sandy areas. Once of the best places to find nesting aggregations is a cemetery. To learn more about the life cycle of *Colletes*, check out [this video](#).

### *Hylaeus* (Masked bees)

It is easy to mistake *Hylaeus* for wasps since they are primarily black, hairless, and thin. 0.5x honey bee. All black except for light yellow markings on face and thorax. Often forage on flat-topped flowers like *Daucus carota* (queen anne's lace) and *Achillea millefolium* (yarrow) since they have short tongues.



*Hylaeus* sp., Wikimedia



*Hylaeus* sp., Max McCarthy

*Natural History Note:* *Hylaeus* carry pollen internally back to their nests so they don't have any special pollen collecting hairs ("scopae") on their body.

