# Wild About Bees

## Halictid Bee

Family Halictidae, subfamily Halictinae, genera *Agapostemon, Augochlora, Augochlorella, Augochloropsis, Halictus* and *Lasioglossum*

Halictid bees are small to medium-sized (three to 12 millimetres) and generally black or weakly metallic coloured. Some species are bright green. Halictid bees often have bands of pale hairs on the abdomen. Pollen hairs are found on the female's hind legs. Sometimes called sweat bees, certain species are attracted to the sweat of humans in hot weather. They are found throughout the spring, summer and fall, although males are usually found only late in the season.

**Nest:** Most halictid bees nest in soil, but some will nest in dead wood. Brood cells are lined with a wax-like secretion. Sociality varies among species, from solitary to social, with up to a dozen workers in the nest.

## Bumble Bee

Family Apidae, subfamily Apinae, genus *Bombus*

Bumble bees are large (13 to 25 mm), hairy bees that are usually black and yellow, sometimes with red or orange. The hind legs of females have a wide, concave, shiny bare area surrounded by long bristles. This structure forms the pollen basket. The queens are active in spring, the workers throughout the summer and most males in late summer.

**Nest:** Bumble bees usually nest underground in abandoned rodent burrows. They secrete wax to make the cells. Bumble bees have annual colonies started by a queen in spring, who produces numerous workers throughout the summer, then males and next year's queens in late summer and fall. They will defend the colony. Bumble bees create limited amounts of honey to allow the colony to survive through times of food shortage.

## Plasterer Bee

Family Colletidae, subfamily Colletinae, genus *Colletes*

Plasterer bees are small to rather large (seven to 14 mm), hairy bees with a convex abdomen covered in bands of hairs. Females have large pollen brushes on their hind legs. Some of the earliest spring bees are plasterer bees that visit maple blossoms. Others are active in late summer, often on goldenrod.

**Nest:** Plasterer bees dig their nests in the ground. Nests are lined with secretions that resemble cellophane. These bees are solitary, but in good nesting sites, large numbers of nests can be found close together.

## Honey Bee

Family Apidae, subfamily Apinae, species *Apis mellifera*

Honey bees are medium-sized (12 to 19 mm), golden brown bees usually with orange-striped abdomens. Like female bumble bees, female honey bees have hind legs with a bare area surrounded by stiff hairs for transporting pollen. Honey bees can be found flying from spring through to the fall.

**Nest:** Honey bees nest in hollow trees and artificial hives. Combs of cells are made with wax. Highly social, honey bees are able to communicate the location of food sources and other information. Colonies reproduce by fission: the old queen leaves the nest with thousands of workers in a swarm. They create large amounts of honey to allow the colony to survive the winter.

## Mason Bee

Family Megachilidae, subfamily Megachilinae, genus *Osmia*

Mason bees are medium-sized (seven to 14 mm), hairy bees, which are usually dull metallic bluish or blue-green. Stiff hairs on the underside of the abdomen allow mason bees to carry pollen. Mason bees are spring and summer bees.

**Nest:** Most mason bees use existing cavities, such as under bark and in beetle tunnels, hollow stems, holes in walls or abandoned nests of other bees or wasps. These are lined with mud, plant material or a mixture of the two, materials that the mason bees collect and bring to the nest. Plant fibres are chewed into a paste before use. Mason bees are solitary, but they will nest close together.

## Leaf-Cutter Bee

Family Megachilidae, subfamily Megachilinae, genus *Megachile*

Variable in size (seven to 20 mm), leaf-cutter bees have large heads and robust jaws. They are usually black with long pale or red-brown hair on the thorax and long white, orange or black hair on the ventral surface of the abdomen (where they collect the pollen). The top of the abdomen has sparse hairs, but each segment is usually fringed with bands of white hair. Leaf-cutters are mostly summer bees.

**Nest:** Leaf-cutter bees use pre-existing cavities, such as hollow plant stems, beetle tunnels and crevices in dead trees. They line their nests with oval or circular pieces of leaves or petals that they cut out and carry to the nest. Most leaf-cutter bees are solitary but they may form large clusters of nests in one area if the area is highly suitable for nesting.

## Nomad Bee

Family Apidae, subfamily Nomadinae, genus *Nomada*

Nomad bees are relatively hairless, medium-sized (10 to 15 mm), wasp-like bees that are variable in colour: some are black with red or yellow markings, and some are reddish-brown, with or without yellow markings. They have no pollen hairs. Most species are active in spring, a few in summer and fall.

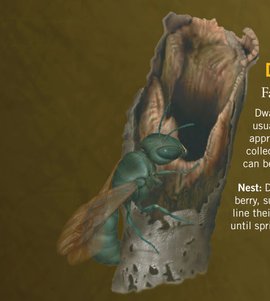
**Nest:** The female nomad bee does not construct a nest but instead lays her eggs in the nests of other bees, usually those of solitary mining bees. They can often be seen flying just above the ground looking for host nests.

## Wool Carder Bee

Family Megachilidae, subfamily Megachilinae, species *Anthidium manicatum*

Wool carder bees are thickset, medium-sized (nine to 12 mm) black and yellow bees. They have a row of yellow markings along the side of the abdomen and on the legs and face. Females are smaller than males and less vibrant in their markings. The pollen-collecting hairs of the female form a broad brush on the ventral side of the abdomen. Introduced from Europe, they have become established in Canada. They are active in the summer.

**Nest:** Wool carder bees nest in existing holes in tree trunks, plant stems or old walls. The female wool carder bee scrapes the hair off downy plant leaves and stems, such as those of lamb's ear or yarrow, gathers it in a ball and flies it back to her nest. Once there she uses these woolly fibres to line the cell walls. The male wool carder bee will aggressively defend its territory — a patch of flowers — from other insects, and will even wrestle competitors to the ground and use prongs on the tip of his abdomen to crush them.



## Dwarf Carpenter Bee

Family Apidae, subfamily Xylocopinae, genus *Ceratina*

Dwarf carpenter bees are slender, relatively hairless and generally dark blue, usually with an ivory-coloured spot on the face and also on the legs. They are approximately five to seven millimetres in length. Females have sparse pollen-collecting hairs on their hind legs. These bees fly throughout the summer but can be found throughout the year (even in winter) in their stem nests.

**Nest:** Dwarf carpenter bees excavate nests in the broken or burned stems of raspberry, sunflower, elderberry, sumac and other pithy-stemmed plants. They do not line their cells. These bees are mostly solitary, although they share the natal nest until spring as overwintering adults.

## Sphecodes Cuckoo Bee

Family Halictidae, subfamily Halictinae, genus *Sphecodes*

These are small to moderate-sized (four to 11 mm), wasp-like comparatively bald bees. Most are shiny black with most of the abdomen shiny red. The males have dense greyish-white hairs on the face, but otherwise both sexes are comparatively hairless. Most species are coarsely sculptured with comparatively large pits on the thorax and ridges on its posterior portion. Sphecodes cuckoo bees lack pollen-collecting hairs because, similar to the behaviour of the common cuckoo bird, they lay their eggs in the nests of other bees. These bees are found from late spring until early fall.

**Nest:** As "cuckoo" bees, *Sphecodes* species do not construct nests, but enter the ground burrows built by other bees, usually *Lasioglossum*. Consequently, they are often seen flying low to the ground, or walking, and entering holes and other depressions as they search for host nests.

## Solitary Mining Bee

Family Andrenidae, subfamily Andreninae, genus *Andrena*

Solitary mining bees are variable in size (eight to 14 mm). These somewhat hairy bees are usually black or brown. The female mining bee has depressions covered in shiny hairs on each side of her face. Males occasionally have yellow markings on their face. Pollen hairs are found on the hind legs of females. Many early spring bees are solitary mining bees, but some species are active only in summer and a few in early fall.

**Nest:** Solitary mining bees dig long branching tunnels in the ground. The female loosens the soil with her jaws and front legs, and later uses her hind legs and abdomen to push soil to the surface. Brood cells are lined with secretions that give it a waxy finish. Most solitary mining bees are solitary, but in some species two or more females will use different parts of the same nest.

## Masked Bee

Family Colletidae, subfamily Hylaeinae, genus *Hylaeus*

Masked bees are small (four to nine mm), wasp-like and relatively hairless. Masked bees are so called because most species have distinct yellow or white markings on the face, with the males usually having almost the entire face pale and the females usually having a pair of triangular pale marks. Otherwise they are black with white or yellow bands on the legs and often spots on the thorax. They lack specialized hair for transporting pollen. Instead, they swallow the pollen, carry it back to the nest in their crop, and regurgitate it into the nest cell. Masked bees are active in the summer.

**Nest:** Most masked bees nest in pre-existing holes in plant stems and galls (swellings on a plant), insect tunnels in dead wood, and abandoned bee and wasp nests. They can often be found in old raspberry canes. Nests are lined with secretions that resemble cellophane. Most species are completely solitary.

## Oil-Collecting Bee

Family Melittidae, genus *Macropis*

Oil-collecting bees are small to medium-sized (seven to 12 mm) with a robust body. Males have yellow face marks. The hind legs of females are covered in short, dense velvety hairs and also fine, feathery hairs for the collection and transportation of floral oil. These bees are found in July.

**Nest:** Oil-collecting bees generally nest in burrows made in the soil. Cells are lined with oil from flowers. All species are dependent on oil collected from flowers of Lysimachia for larval food. All oil-collecting bees are solitary except for one species in which females may share a nest.

## Hoary Squash Bee

Family Apidae, subfamily Apinae, genus *Peponapis*

These large (12 mm), robust bees have a dull brownish-yellow haired thorax and pale bands on a black background on the abdomen. Males have quite long antennae. They are most easily recognized by the flowers they frequent. They are common pollinators of a variety of squash plants, rapidly darting in and out of the flowers. Males often sleep in the flowers at night. The females have pollen-collecting hairs on their hind legs. These are summer bees.

**Nest:** Hoary squash bees nest in the ground. The only species in Canada is *Peponapis pruinosa*.

## Long-Horned Bee

Anthophoridae, subfamily Anthophorinae, genus *Melissodes*

Long-horned bees are stout, medium to large (15 to 20 mm), fast-flying bees with velvety fur. The male long-horned bee can usually be distinguished by its very long antennae. Pollen hairs are found on the hind legs of females. These are late summer and fall bees.

**Nest:** Long-horned bee nests are built in the ground and brood cells are lined with a wax-like secretion. These bees are solitary, although some species will nest in large aggregations.

## Cuckoo Leaf-Cutter Bee

Family Megachilidae, subfamily Megachilinae, genus *Coelioxys*

These are moderate-to-largish bees (seven to 14 mm), shiny black with spots and stripes of white hairs. The abdomen has transverse stripes of white hair and is conical in shape tapering to a point in females, but blunter and bearing several lateral spines in males. They are coarsely sculptured and less hairy than most bees. Cuckoo leaf-cutter bees lack pollen-collecting structures because, similar to the behaviour of the common cuckoo bird, they lay their eggs in the nests of other bees. They are found in summer.

**Nest:** As "cuckoo" bees, *Coelioxys* females do not construct a nest but lay eggs in the nests of leaf-cutter bees of the genus *Megachile*. Their hosts nest in a diverse range of places, including holes in walls, pithy stems and in the ground. Consequently, these bees can be found searching for host nests on fences, brick walls and similar structures.

## Wild About Bees

Approximately one-third of all human food is prepared from plants that depend on animal pollinators — and bees make the biggest contribution. The most familiar bee is the honey bee (*Apis mellifera*), which was introduced from Europe almost 400 years ago. Although we may first picture the honey bee when we think of pollinators, our native bees, such as the bumble bee or the mason bee, are often actually more effective and efficient pollinators.

Unlike the social honey bee, which shares labour and caretaking of its young, most of our native bees are solitary. This means that each female prepares her own nest, provisions it with food (nectar and pollen) for her offspring, lays her eggs and provides little further care. Because they don't have a large nest or colony to defend, solitary bees tend to be much less aggressive, stinging only if trapped, stepped on or handled — and for some of them, not even then.

Bumble bees are the most social of our native bees. They form a temporary colony that starts with just the queen in spring. She produces workers, and then males and young queens, and the colony breaks up with the onset of winter. Bumble bees aggressively defend their nest if disturbed. Away from the nest, however, like any bee, they are unlikely to sting unless threatened.

Dwindling bee populations could have severe consequences for food crops, garden plants and wilderness areas. Our agricultural areas are already feeling the effects of a shortage of pollinators. When pesticide was sprayed in New Brunswick forests to control spruce budworm, the pollinators of neighbouring blueberry crops suffered significant population declines. This resulted in serious economic losses for the blueberry industry. Many farmers across Canada now rent hives of pollinators from beekeepers to help pollinate their crops.

You can help bees and other pollinators with a little thoughtful gardening. Even a small garden or patio can be easily adapted to meet many of their needs for survival. For ideas on how you can do this, see our *Gardening for Pollinators* handout or visit our website at **www.wildaboutgardening.org**.

Bees come in a variety of shapes and sizes. Canada boasts approximately 800 species. Although it takes an expert to identify most bees by species, some clues can help the casual beewatcher identify a bee as belonging to a particular group. Size and appearance can help, but bees are often grouped together based on less apparent characteristics. Here is a general guide to some of the types of bees native to Canada.

## Wanna-bees

### Flower Flies Family Syrphidae

Many flower or hover flies mimic bees or wasps to discourage predators. Though similar in colouring, they are generally smaller (eight to 15 mm), have only one pair of wings, and antennae that tend to be short, somewhat flattened and fat. They do not collect pollen on special hairs on their legs or abdomen. You can see the adults hovering around your flowers where they feed on nectar and pollen. Adult flower flies are important pollinators, and as larvae many species are effective predators of caterpillars, thrips, aphids and other problem insects.

Flower Fly

### Wasps

Wasps and bees belong to the order Hymenoptera, which also includes ants and sawflies. There is a huge diversity of wasps. Many are parasitoids — meaning their larvae develop in or on other insects, killing them in the process. The wasps that most people think of, however, are the stinging wasps (suborder Aculeata). Instead of laying their eggs on or in host insects, these wasps developed stingers to allow them to immobilize their prey and transport it to their nest as food for their larvae. As with bees, many of these wasp species are solitary and therefore not aggressive. However, we have a number of social wasp species well known for their aggressiveness — in particular, the hornets and yellowjackets of the Vespidae family. In general, you can distinguish these wasps by their cylindrical shape, comparatively smooth body, and yellow or white markings that are on the body surface and not made up of hairs. Also, these wasps will roll their wings longitudinally when at rest. In contrast, bees tend to be hairy, which makes their waist less visible, most have pollen-collecting hairs on their hind legs or underneath the abdomen, and they do not longitudinally roll their wings. For information on avoiding stings, go to **www2.ville.montreal.qc.ca/insectarium/gareaudard/site_en/index.html**.

Bee Wasp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