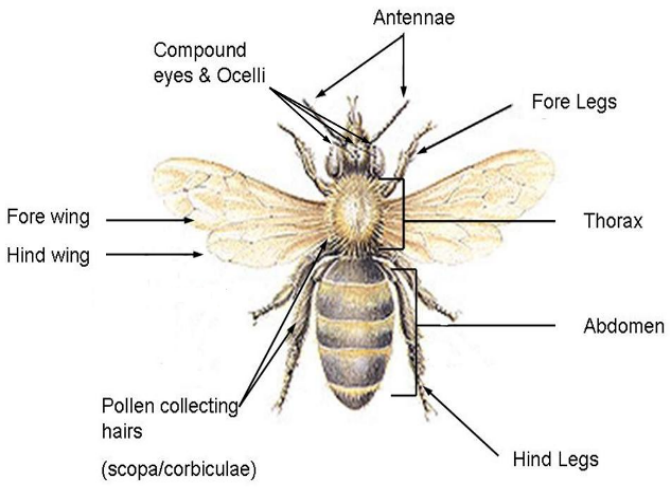

New Jersey Native Bees

Animals pollinate 85% of plant species worldwide[1], and in most types of ecosystems bees are the main pollinators.[2] The conservation of bees is therefore very important. Yet few bee species have been studied sufficiently for scientists to know their conservation needs.[3] Most people are familiar with the honey bee (*Apis mellifera*), but it is only one of the world's 20,000 bee species, and is not one of the 4000 species native to North America. Many wild bee species do well in suburban and even urban areas provided that there are flowers (weeds or gardens) and areas where bees can nest. This suggests that citizens can make important contributions to bee conservation by managing their yards to be bee-friendly. This guide introduces some of the bees that are common in New Jersey.

LARGE BEES (Up to 2.5 cm)

Bombus species (Bumble bees)

Bumble bees are one of our most efficient pollinators due to their large size and ability to buzz pollinate anthers.

Queens are large (2-2.5 cm) but workers are often much smaller (1-1.5 cm).

Xylocopa virginica (Carpenter bee)

Xylocopa dig holes in wood to build their nests.

Abdomen is shiny, not hairy. The largest bee in our area (2.5 cm).

Colletes species (Plasterer bees)

Many are spring bees.

Very hairy on thorax and about the size of a honey bee.

Megachile species (Leaf-cutter bees)

Harvest leaves to line their nests.

Carry pollen on hairs under their abdomen. Generally black and white striped.

MEDIUM SIZED BEES (1.0–1.5 cm)

Andrena species (Digger bees)

Many Andrena are active only in spring.

Often furry on face and thorax.

Halictus species (Sweat bees)

Common in disturbed habitats.

Distinct stripes on abdomen; males have yellow legs.

Peponapis pruinosa (Squash bee)

A specialist on squash and pumpkin flowers.

Orange body hairs and about the size of a honey bee.

Melissodes species (Long-horned bees)

Fast flyers; tend to fly early in the day

Very hairy legs and thorax.

TINY BEES (< 1.0 cm)

Lasioglossum species (Sweat bees)

The smallest bees in our region and quite common.

Iridescent black to brown exoskeleton.

Ceratina species (Small carpenter bees)

Nest in hollow stems..

Blue tinted body; teardrop-shaped abdomen.

GREEN BEES (0.5 - 1.5 cm)

Augochlora and related genera (Green sweat bees)

Common bees even in human-disturbed areas.

These bees are distinct for their bright green exoskeleton.

FEMALE OR MALE?

Females have shorter antennae (12 segments)

Males have longer antennae (13 segments)

Only **female** bees carry pollen on their legs or abdomen.

PLANTS THAT ATTRACT BEES

Yellow giant-hyssop (*Agastache nepetoides*)
Swamp milkweed (*Asclepias incarnata*)
Butterfly weed (*Asclepias tuberosa*)
Spotted Joe Pye weed (*Eupatorium maculatum*)
Flat-topped goldenrod (*Euthamia graminifolia*)
Great blue lobelia (*Lobelia siphilitica*)
Stiff goldenrod (*Oligoneuron rigidum*)
Narrowleaf mountain mint (*Pycnanthemum tenuifolium*)
Black-eyed Susan (*Rudbeckia hirta*)
Green-headed coneflower (*Rudbeckia laciniata*)
White heath aster (*Symphyotrichum pilosum*)
Blue vervain (*Verbena hastata*)
New York ironweed (*Vernonia noveboracensis*)
Culver's root (*Veronicastrum virginicum*)

WHERE DO BEES NEST?

Ground	Cavities, wood, stems
Agapostemon	Apis
Andrena	Ceratina
Augochlorella	Megachile
Lasioglossum	Osmia
Colletes	Xylocopa
Halictus	
Peponapis	

Ground-nesting entrance hole

Stem-nesting bee nest

Ground nesting bees require direct access to soil in disturbed, well drained, sunny areas. Look for piles of displaced dirt surrounding circular holes in the ground.

Wood nesting bees are found in pithy twigs, rotting wood or existing cavities. Only carpenter bees chew their own holes in wood to make nests.

REFERENCES

1. Ollerton, J., R. Winfree, and S. Tarrant. 2011. How many plant species are pollinated by animals? Oikos 120: 321-326
2. Neff, J.L., and B. B. Simpson. Bees, pollination systems and plant diversity. Chapter in LaSalle, ed. Hymenoptera and Biodiversity. 1993. C.A.B International, UK.
3. Winfree, R., 2010. The conservation and restoration of wild bees. Annals of the New York Academy of Sciences, 1195: 169–197

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