

Cavity Nesting

Cavity nesting bees make up a portion of the approximately 30% of our North American native bee species which use pre-existing tunnels or cavities, rather than digging their nests in the ground. To use the term cavity-nester may be a somewhat artificial distinction from tunnel-nester, since a wood tunnel is really just a long tubular cavity. While wood- and tunnel-nesting bees are in fact sometimes included under the general rubric of cavity-nester, here the term applies to those species which use either irregular or more cavernous pre-existing cavities.

While many of their species prefer wood tunnels or other tubular cavities, there are a number of resourceful [mason bees](#) that will nest in irregular cavities such as rock fissures, hollows under stones, abandoned wasp nests and snail shells. Like their wood-nesting relatives, these mason bees also use materials gathered from their environment, such as mud, chewed leaves or resin to construct their nests; however, they must use more of these materials than they would for a tunnel nest, because they must build entire cells within the irregular cavity, and not just the partitions between cells. Like abandoned beetle tunnels though, these alternative surface cavities offer a protected, ready-made, and so labor-saving, space in which to construct nests for their offspring.

[Carder bees](#), which use the downy hairs of certain plants to create both the linings of their nests and the partitions between brood cells, will also sometimes use irregular cavities for nest sites. Because they customarily construct both the walls and partitions of the brood cells with these cottony plant fibers, it isn't too challenging to adapt to an irregular enclosure rather than the preferred tubular cavity. Carder bee nests have been discovered in the crumbling mortar of old walls, planters, lead pipes and garden hoses.



As cavity nesters, bumble bees are opportunistic and will often use man-made structures, such as this abandoned birdhouse. Photo by Rollin Coville.

[Bumble bees](#), which are annually social species, nest in irregular and often capacious cavities such as abandoned rodent burrows, tree cavities, and the space under grass tussocks. In true cavity-nester tradition, these bees are most opportunistic and so are often found nesting in a variety of man-made structures such as empty bird houses, walls and even old mattresses. The founding bumble bee queen often makes use of previously-stocked, suitably soft nesting material that she finds in rodent burrows or other cavities in preparing her nest. The feathers and straw left behind in empty birdhouses makes an ideal nest lining.

The bumble bee nest, which is typically founded in early spring and active through early fall, supports the development of several generations of offspring. The founding queen secretes wax from glands in her abdomen, which she uses to create pots in which to lay her eggs and to hold food stores. By the end of the nesting season the queen and her female workers have created, re-purposed and re-assembled many more wax cells for developing offspring and food storage, until the nest consists of a highly jumbled array of irregular-sized wax pots. Some bumble bee species that nest above ground will cover the wax cells with a pile of dry grass or moss.



*Inside of a bumble bee nest (*Bombus impatiens*) showing jumbled array of wax pots used as brood cells and to store nectar and pollen. The queen is in the center. Photo by Elaine Evans.*