



## Native Bees, Solitary Bees, and Wild Bees: What are they?



WHEN I EXPLAINED TO MY GRANDFATHER that I was studying native bees, he immediately connected them to Native Americans. “So you’re studying Indian bees?” he said. He was joking, of course, but he actually hit close to the mark. Just like the Native American people lived in America long before the first European settlers arrived, native American bees lived here for millions of years before those settlers brought over the European honey bee. (Before I go further, it should be noted that “native” is a relative term. The honey bee is not native in America, but it *is* a native bee in Europe, Asia, and Africa, where it originated.)

“Solitary bees” is another term you might see used in place of “native”. Solitary bees live on their own, not in colonies with a queen and workers like honey bees and bumble bees. It could be said that each solitary bee is her own queen. She builds her own nest, collects her own pollen and nectar, and lays her own eggs without any help from other bees. Some solitary bees may nest in large groups, but they do not actively help each other.

Most solitary bees are also native, though there are a few exceptions. The European wool carder bee, *Anthidium manicatum*, is an invasive solitary bee that may be detrimental to native bees due to the aggressive, highly territorial males. Likewise, native bees are usually, but not necessarily solitary. Bumble bees are a prime example of a social native bee. Some native sweat bees and carpenter bees are also social.

To avoid confusion due to these slight (but important) differences, the term “wild bees” or “pollen bees” can be used as a general catch-all for basically any bee that is not *Apis mellifera*.

### How many are there?

If you are one of the many people who divide “bees” into “honey bees” and “bumble bees”, you might be surprised to learn there are almost 20,000 known species of bees in the world. About 3,500 live in the United States, and in Minnesota, there are probably close to 400. Not even 2% of these are honey bees and bumble bees. The other 98% are those other wild bees we’ve been talking about.

### Why are they important?

Aside from being just plain gorgeous?



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except where  
indicated

Pollination.

Honey bees may pollinate most of our crops, but it's up to our wild bees to make sure garden plants, ornamentals, and wildflowers get adequate pollination. We are just now discovering that wild bees are actually better at pollinating a lot of plants than honey bees are. Bumble bees make great tomato and pepper pollinators thanks to their habit of buzzing the flower to shake pollen loose. There are even some wildflowers like the bottle gentian, which can only be pollinated by large bumble bees strong enough to force the petals apart. The solitary blue orchard bee, *Osmia lignaria*, flies early in the spring when it might still be too cold for honey bees, pollinating willows and fruit trees such as apples and cherries. And the squash bee *Peponapis pruinosa* will seek out pumpkins, squash, and other cucurbits to the exclusion of all else, making it a superior pollinator for those plants. The world of native bees is full of examples like this.



## Attracting Wild Bees to your Yard or Garden: How can I do it?



Bees have two basic necessities: food and shelter. Flowers provide food for bees in the form of nectar and pollen. Ideally, you should have many different kinds of flowers that bloom at different times of the year, so there is always something available to the bees on any given day. A greater diversity of flowers will naturally attract a greater diversity of bees, and also provide a greater diversity of nectar and pollen. Not all nectar and pollen is equally nutritious, so a variety is important for a healthy bee diet. The more flowers you can plant yourself, the better: wild bees generally have a much shorter foraging range than honey bees, so don't assume they can nest in your yard and get their pollen and nectar "somewhere else".

The second necessity, shelter, refers to places where bees can nest. Most non-parasitic bees (between 60 and 70%) dig burrows in the ground. These bees prefer dry, sandy soil bare of vegetation, often on hillsides. The main burrow will have several branching tunnels, each containing a lump of pollen and an egg, which usually takes one year to develop into an adult bee and the cycle can begin anew. You can attract ground-nesting bees simply by making sure to leave some spots of exposed, undisturbed soil in your yard. Bumble bees nest underground, but use abandoned rodent burrows instead of digging their own.

The other 30-40%, the cavity-nesting bees, require a bit more effort to draw in. These bees use hollow plant stems or holes in wood left by wood-boring beetles, instead of digging a tunnel in the ground. A nesting bee will use mud, leaves, or another material to build walls and divide the tunnel into a linear series of small, sealed cells. Each cell contains a lump of pollen and an egg, like the burrows of ground-nesting bees, and the complete life cycle usually takes one year.

You can attract cavity-nesting bees by providing tunnels in a man-made structure called a bee house—like a bird house for bees.



Open nest of a carpenter bee (*Xylocopa*) showing series of divided cells and development from larva to pupa. Carpenter bees carve their own tunnels out of wood with their powerful jaws, but otherwise have similar nesting habits to other cavity-nesting bees.