

Bee-neath Our Feet

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April 12, 2019



Ground-nesting bees abound

Our gardens will soon be buzzing and humming with life essential to our ecosystem. Did you know that of the 20,000 bee species in the world, seventy-percent are ground nesters? And of the 3,500 species in North America, Washington State has about 600 native bee species? That could be 420 ground nesting bee species living at our feet. We'll highlight a few here.

Bumblebees (Apidae) will fly in cooler, wetter weather and are important early pollinators. The over-wintering queen needs early spring flower nectar to help replace her energy store. When she decides the weather is warm enough, she will find a suitable place for her nest (like an abandoned mouse hole or an area under a thick dry clump of vegetation) where she can start building wax honey pots for her brood. She pulls wax, made from special glands on her abdomen and makes a pad on which to lay her eggs. The larvae feed on pollen and nectar she has stored.

The first brood of workers, all females, help their mother gather more pollen and nectar to increase the supply while the queen lays more eggs. While the queen and her helper offspring are a small colony, if the location is perfect and large enough, many queens may nest there. This is called an aggregation. There are about 40 species of bumblebees in our state.

The sweat bees and alkali bees (Halictidae) can be small and inconspicuous while others are vibrant and pearly opalescent. Sweat bees are attracted to the sweaty skin of people working in the area. It may be the moisture or salt in sweat that is the attractant. The females have stingers, as do other ground bees, but are reluctant to sting unless squeezed or restrained. As with most bees they are generally passive. The male bees do not have stingers. There are at least 60 species in the Pacific Northwest. These bees dig tunnels in soft soil and form a nest chamber. The conical pile of dirt has a hole that serves as an entrance or exit. The aggregation of many will each have their own holes, which look a bit like ant dirt piles, but with only one bee using each entrance.

"Hairy-tongued" sweat bees work from early spring to late fall. These are small black bees about 1/4-3/8 inch long. Another species is bright metallic green but is not as numerous as the hairy-tongued.

A black species with a red abdomen (*Sphecodes*) that is not commonly seen, is a cleptoparasite. This little bee (3/8-inch long), steals food from other ground nesters instead of gathering for itself. The other bees must work harder to feed their own brood and the *Sphecodes*.



Digger bees and their numerous holes, taking advantage of the remains of an uprooted tree lying on its side. *Photos courtesy of the Natural History Log.*

The alkali bees in Eastern Washington have stripes of pearly opalescence on their abdomens. This color comes from their exoskeleton not from hairs. The “*Nomia*” species are essentially “farmed” with areas of soil being managed for alkalinity and lack of vegetation that suits them for their burrows. This is because they are important pollinators of alfalfa that is grown for seed in central and southeast Washington.

Bee pollination is said to be responsible for every third bite of food—that means most fruits and vegetables. That number is probably more, as much of our meat and milk is produced from animals that are fed alfalfa. Halictidae are important pollinators of fruit, berries and seed crops for alfalfa, clover, carrots, marigolds, zinnias and more.

Our acute-tongued burrowing bees (Andrenidae), or mining bees, can dig tunnels up to ten feet long! They often nest in an undisturbed spot with no vegetation and are common in arid habitats. With Western Washington’s rainy weather, weeds soon overgrow these empty spots, so burrowing bees are not common here. If they do find a good spot, they can be seen in large numbers. Some specialize on one or very few flower species. They are tiny, gentle and many have lost the ability to sting! They are important pollinators of spring crops like apples, blueberries and cherries. There are about 200 species in our area.

About 33 species of yellow-faced bees (Colletidae) live in our area. Some are small and others medium sized, robust and fuzzy. They are sometimes referred to as plasterer bees (“collet”

means glued together) and masked bees. They use sticky nectar to glue soil particles to form walls of their egg chambers. Instead of carrying pollen on its body hair like most bees, they carry pollen mixed with nectar (bee bread) in their crops and regurgitate it for larvae in the nest. One species has a bi-lobed tongue used to paint the walls of its nest cells with anti-fungal, waterproof secretions. Because of this clear flexible lining, they are known as polyester bees.

The digger bees (Anthophoridae) are now considered to be a sub-tribe of the Apidae family. They are robust and hairy like a small bumble bee and nest in the ground or in banks. One species lines its nest cells with a thin waxy material. The other species is parasitic, as they lay their eggs in other bees' nests. It is more wasp-like in appearance with little body hair (since it doesn't carry any pollen) and reddish or yellowish in appearance.

Don't confuse subterranean yellow jackets/wasps with our burrowing bees. Wasps are aggressive and will defend their nests. One difference is that wasps have a larger entrance hole (one inch or more) to their nests with many using the entrance.

These ground bees do not reuse their nests, which reduces the chance of parasites and disease. Having an "unkempt" weedy, grassy or barren area in your landscape will help these bees to find a home. This will help them increase their numbers to do more work for us as pollinators.

Learn to tolerate imperfections in your landscape and keep it free of pesticides and herbicides, so bees have a healthy home. A wide range of blooming plants, from late winter to late fall will also help them find a continued source of nectar throughout the season. Just like us, they benefit from a varied diet!



Left: A blue eyed digger bee displaying its bumble bee like hair. **Right:** Carpenter bees can commonly be found in a typical yard. Photos courtesy of <https://greennature.com/bees>.

RESOURCES:

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