Pollinator Resources (2025)

By: Paige Embry author of Our Native Bees/Master Gardener/WA Bee Atlas Volunteer

Websites

Gardening for Pollinators

- OSU <u>EM 9289</u> Enhancing Urban and Suburban Landscapes to Protect Pollinators
- American Bird Conservancy, Create a Feeder-Free Hummingbird Paradise in 8 Steps. April 2020. <u>https://abcbirds.org/blog20/hummingbird-paradise/</u>
- Pollinator Partnership, Selecting Plants for Pollinators, Pacific Lowland Mixed Forest Province, provides info and a list that includes bloom time, flower color and type of pollinator visitor. This and the Xerces list would be my go-to choices. <u>https://pollinator.org/PDFs/PacificLowlandrx8.pdf</u>

Plant Lists

- OSU 12 plants to entice pollinators to your garden, <u>https://extension.oregonstate.edu/news/twelve-plants-entice-pollinators-your-garden</u>
- See Pollinator Partnership document above
- Xerces Native Plants for Pollinators and Beneficial Insects: Maritime NW Region, <u>https://xerces.org/publications/plant-lists/native-plants-for-pollinators-and-beneficial-insects-maritime-northwest</u>
- UC Berkeley Urban Bee Lab Best Bee Plants for CA (some of these work for us too and they list what types of bees they've seen on each) <u>http://www.helpabee.org/best-bee-plants-for-california.html</u>

Pollinators

(In my experience, OSU is doing more work with native bees than WSU whereas WSU has a really great honey bee program)

- Oregon State University Bees and Pollinators <u>page</u> with links to myriad articles. <u>https://extension.oregonstate.edu/topic/gardening/pollinators/resources</u>
- OSU <u>Master Melittology Program</u>, online class to become a volunteer bee scientist. This class is a pre-requisite to volunteer for the <u>WA Bee Atlas</u>, an WA Department of Agriculture Citizen Science project to assess the bees living in Washington State.
- WA Native Bee Society <u>https://www.wanativebeesociety.org/</u>
- Sustainable Agriculture Network, USDA ARS, <u>How to Manage the Blue Orchard Bee as an</u> <u>Orchard Pollinator</u>. Bosch and Kemp. Extensive info and photos of parasites. OSU Orchard Mason Bee
 - https://extension.oregonstate.edu/sites/extd8/files/documents/12281/masonbee.pdf
- OSU Blog, <u>A New Pest of Mason Bees: The "Houdini" Fly</u>, with links to various resources.
- USGS Bee lab Flickr page, totally wow-some photos all public domain
- An Annotated Checklist of the bees of WA State, Bartholomew etal., J. of Hymenoptera Reserach, 2024. Pdf available online
- WWU Moth ID Guide, this looks like a great website with lots of info https://pnwmoths.biol.wwu.edu/

- The Bees and Moths of North America (BAMONA) previously supported by the USGS. The purpose is to serve as a one-stop database of butterfly and moth data that scientists can use to form or to address research questions. https://www.butterfliesandmoths.org/species_search
- WA Butterfly Association <u>https://wabutterflyassoc.org/identification/</u>
- OSU Wasps are Pollinators Too https://extension.oregonstate.edu/catalog/pub/em-9426-vegetarians-predators-parasitoids-lesser-known-wasps-oregon
- WSU Hortsense, under pollinators, has Meet the Bees and Meet the Wasps. <u>https://hortsense.cahnrs.wsu.edu/pollinators/</u>
- WSU Syrphid Flies (hover flies, flower flies) <u>https://treefruit.wsu.edu/crop-protection/opm/syrphid-flies-hover-flies-flower-flies/</u>
- OSU Pollination Podcast, lots of shows to choose from. https://extension.oregonstate.edu/podcast/pollination-podcast
- OSU Getting to Know Oregon Bats, <u>https://extension.oregonstate.edu/catalog/pub/em-9384-getting-know-oregons-bats</u>
- Bats NW, WA Bats, https://www.batsnorthwest.org/meet-washingtons-bats

BOOKS

- GUIDEBOOKS: The Bees in Your Backyard: A Guide to North America's Bees. Wilson and Carril. 2015; Common Bees of Western North America, Carril and Wilson, 2023; California Bees and Blooms: A Guide for Gardeners and Naturalists. Frankie et. al. 2014; Field Guide to the Common Bees of CA: Including Bees of the Western U.S. LeBuhn and Pugh. 2013. The Bee-Friendly Garden: Design an Abundant Flower-filled Yard that Nurtures Bees and Supports Biodiversity. Frey and LeBuhn. 2016; Attracting Native Pollinators: The Xerces Guide, Protecting North America's Bees and Butterflies, The Xerces Society and Marla Spivak. 2011
- NARRATIVE NONFICTION: My book, Our Native Bees, Paige Embry, A Sting in the Tale: My Adventures with Bumblebees by Dave Goulson, 2014

RANDOM BEE INFO

What to look for-bee vs wasp vs fly

Bee—hairy, carrying pollen in a deliberate way, wasp waist, large, oval eyes on side of head and long antennae, 4 wings often folded over back at rest.

Guide to fly families: <u>https://sites.google.com/view/flyguide/guide-to-families/introduction-and-outline</u>

Wasp—not usually hairy, wasp waist—sometimes excessive, colorful exoskeleton, large, oval eyes on side of head and long antennae, legs may dangle when flying Nice primer <u>here</u>.

Fly—May or may not be hairy, stout, two wings often holds at an angle at rest (think house fly), eyes large, round and toward top of head. Antennae short, legs often frail. Two common polls: bee flies (bombyliids, mouth tube always out, of the fat, fuzzy bumble bee like) and syrphid flies (flower flies, hover flies) which are bee and wasp mimics often with narrow bodies and/or back and yellow markings on abdomen. Info <u>here</u>.

Quick Guide to Some of Our Bees-- Seattle-area bees almost 100 species found in 22 genera.

Andrena—mining bees—spring to early summer, darkish, nest in the ground, sometimes in large groups (aggregations) and areas may be re-used for decades. Pollen carrying hairs high up on the hind leg. (May be confused with honey bees (check hind legs) Colletes, Lasioglossum or Halictus.)

Osmia—mason bees—nest in aboveground holes like beetle burrows, reeds, or paper tubes. Spring to early summer. Bodies often with a metallic sheen and females carry pollen on the underside of the abdomen. Commonly bought species *O. lignaria* (BOB) needs mud to make the nest cells for their babes—sandy soils don't cut it.

Lasioglossum and *Halictus*—nondescript dark sweat bees of varying sizes. Very common especially as summer progresses and easy to miss. Most nest in the ground. Some *Lasioglossum* may nest in large aggregations with 100 nests in a square yard. Some *Halictus* may nest in the same area for decades so if you get some nesting in your area, try not to mess with it. There is often a little hill like an ant hill at the entrance to the nest. (These bees may be confused with each other, *Andrena* or *Colletes*.)

Agapostemon—green sweat bees—glorious. Nest in the ground but not usually in large groups. **Melissodes**—stoutish bees, tending to the hairy. Females have very hairy lower hind legs—it looks like they are wearing leg warmers. Ground nesters that may nest in aggregations. Summer into fall bees. One of the group referred to as "long horned" bees because the males have very long antennae. (May be confused with *Bombus* (look to the hind legs), Anthophora and Habropoda. The latter two uncommon or haven't been found in recent Seattle bee survey.) **Bombus**—bumble bees, big, fat and hairy. The queens come out in spring and the you'll see bumble bees around until the cold weather hits. Often with colorful hair bands and patches. Females carry pollen in wetted down wads on shiny patches on their hind legs. Around here, there aren't many bees that look like a bumble bee once you start paying attention. Maybe some *Melissodes, Diadasia, or Anthophora* might throw you off since they tend to be stout and hairy but they all carry pollen dry on their hind legs.

Megachile—leafcutting bees, summer. The females carry pollen, dry, on the underside of their abdomen. Lengths vary but tend to look stout with noticeably striped abdomens. The heads are often big and strong and the mandibles (part of their mouthparts) large. Most nest in pre-existing aboveground holes and use leaf or petal parts in their nest making.

Cleptoparasites of various genera—These bees DON'T collect pollen, they sneak into other bee's nests and lay their eggs. Their babies kill the other bee's babies and eat the pollen their mother has provided for them. About 15% of bee species are cleptoparasites. Female cleptoparasites have no pollen-carrying hairs because they don't need them. Often look waspy.

Quick and dirty bee id around Seattle without talking about wing venation one little bit.

Dark bee, hair on the underside of the abdomen—spring likely Osmia, summer likely *Megachile. Osmia* tends to have very rounded body parts—think three BBs lined up, and a gunmetal gleam. *Megachile* are stout but the most notable thing about their appearance to me is strong white stripes on their abdomen.

Big, hairy bee with wide flat spots on their hind legs, spring to fall—bumble bee (Bombus)

Honey bee-sized, bare abdomen, a flat spot on the hind leg for carrying pollen, hairy eyes = honey bee

Dark, nondescript bee, varying size, pollen in hair on hind legs—*Andrena, Lasioglossum, Halictus, Colletes*. You really need some time and magnification for these. If it's early in the year and pretty hairy, think *Andrena*. Later in the year and hairy, maybe *Colletes*. Less hairy lean toward *Halictus* or *Lasioglossum*.

Bee with looong antennae (male) or leg warmer-like hairs on hind legs (female)—Melissodes. **Tiny bees**, *Hylaeus, Ceratina, Lasioglossum, Halictus*. Without a microscope they are all just tiny bees.

Gardening for Bees

- 1) No insecticides and be wary of all pesticides of all sorts. For example, some solitary baby bees need the fungus and bacteria found in the pollen they eat so fungicides can cause problems.
- 2) Plants—Many lists exist; most are fairly generic. To find what works well in your area, take a walk and look for plants with lots of pollinators that aren't just honey bees. If you can't id it snap a picture and take it to a nursery. Variety over the season is key. Unlike some other insects, many bees don't need native plants. Over 50 bee species on *Lavandula x intermedia* 'Provence' in CA. Think about trees. There are way more flowers available than with the herbaceous plants that get most of the attention. *Acer macrophyllum* (big leaf maple) is favored by *Osmia lignaria* (BOBs). See above options for lists to look at
- 3) Provide nest sites! Leave some ground un-mulched—often sunny, dry patches (sorry about that) but Although, many hover fly larvae pupate and overwinter in the litter and mulch surrounding plants. Don't compost pithy stems. They are common nest sites. If you need to cut them down stash them somewhere so the bees can survive until it is time to emerge.