

Habitat Enhancement for Pollinators in the Interior Pacific Northwest

Sandy DeBano, Mary Rowland, Scott Mitchell, Josephine Antwi, Pete Schreder, Jeff Fields, and Cameron Duquette

Pollinators come in all shapes, colors, and sizes, and can range from familiar vertebrates, like hummingbirds and bats, to a myriad of insect species. Most people are aware of the role insects like bees and butterflies play in pollination, but fewer people know that flies, wasps, and beetles can also be significant pollinators. Humans depend on the pollinating services of these animals, not only for food (with about one in every three bites of food relying on animal pollination), but also for maintaining flowering plant diversity in their gardens and natural areas and ensuring productive rangeland systems for livestock production.

Unfortunately, many species of pollinators are declining. The plight of European honey bees in the US in the last several decades have received widespread attention, but other pollinators that are native to the US are also struggling. One example of a species in trouble in the Pacific Northwest (PNW) is the western bumble bee. Historically, this species was common throughout the PNW and beyond. However, in the late 1990s, it experienced steep declines across much of its range that was most likely caused by an introduced pathogen. Other species, like the Fender's blue butterfly in western Oregon, have also declined precipitously because of the loss of prairie habitat that supported the host on which the caterpillars specialize – the Kincaid lupine. Given the precarious position of some pollinator species, many landowners, gardeners, agricultural producers, and natural resource managers are interested in enhancing pollinator habitat. This factsheet provides some simple tips for beginning that process in the interior Pacific Northwest, with a focus on native bees.



A western bumble bee visiting lupine. Photo: S. Mitchell

What Pollinators Need: Providing food for pollinators is one of the easiest and most satisfying ways for people to enhance pollinator habitat. Most common pollinating insects undergo complete metamorphosis, with four stages of development (egg, larva, pupa, adult) and all depend on flowers for at least one stage. For bees, both adult and larval stages feed on nectar and pollen. Likewise, moth and butterfly adults and caterpillars are vegetarians. Adult moths and butterflies drink nectar from flowers, while caterpillars chew on plant tissue. In contrast, although many adult beetles feed on pollen, and some on nectar, beetle larvae diets vary widely depending on the species, and can range from vegetarian to carnivorous. Like beetles, many adult wasps feed on nectar. However, most wasp larvae feed on animal tissue provided by their mothers (with the exception of pollen wasps, who feed their young pollen). See the second page of this factsheet for suggestions of plants that may be particularly well-suited for providing food for interior PNW pollinators.



A flower-visiting beetle.
Photo: S. Mitchell

Another way to help pollinators is to provide a safe place for their young to develop. Many pollinators, such as bees and wasps, make nests for their offspring and supply them with food. Numerous species nest in the ground, and a simple way to help these pollinators is to provide patches of bare ground (which is particularly favored by ground-nesting solitary bees). Social bees, like bumble bees, often build nests in the bases of bunchgrasses, or in abandoned rodent holes. Still other bees and wasps nest in stems, wood cavities, and other nooks and crannies.

In addition to food and nesting, high quality pollinator habitat will also be conducive to finding mates, sheltering from inclement weather, and overwintering. In general, promoting habitat variability (e.g., patches with grasses, shrubs, and trees, mixed in with bare ground, litter, and woody debris) will be most likely to provide mating, nesting, and overwintering habitat for the widest variety of pollinators.

8 Rules of Thumb for Selecting Plants for Pollinators in the Interior PNW

#1: Don't forget plants provide both food and nesting sites! Bees, like the small mason bee on the right, often build nests for their young in stems and twigs. Leave dead flower stalks and twigs uncut over the winter. In spring, you can trim back dead stalks to a variety of lengths so they can be used by the next generation of bees for nesting. And consider planting bunchgrasses, which provide excellent nesting habitat for our native bumble bees!



A small mason bee provisioning her nest. Photo: M. Jacobson



Thistles are a favorite of bumble bees. Photo: S. DeBano

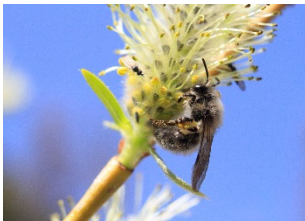
#2: Select “work horse” plants that support many different types of pollinators as well as “ice cream” plants that many species love. Examples of interior PNW “workhorse” species include cinquefoils, buttercups, yarrow, penstemon, buckwheat, ragwort, vetches, milkweed, and mint. Some common “ice-cream” plants include thistles, scorpionweed, asters, dandelions, clovers, goldenrod, monkeyflower, vetch, gumweed, and mallows.

#3: Provide food for your specialist pollinators! Some pollinators depend on just a few species of plants. One well-known example is the monarch butterfly, whose caterpillars feed exclusively on milkweed. Another example in the PNW are chimney bees (*Diadasia*), which forage on mallows, like the Oregon checkerbloom shown on the right.



A chimney bee foraging on Oregon checkerbloom. Photo: S. Mitchell

#4: Ensure season-long blooming. Adult pollinators of one type or another are active throughout the growing season. Make sure they have something to eat by having at least three plant species that bloom abundantly at any one time.



A mining bee collecting pollen from a willow. Photo: S. Mitchell

#5: Plant early blooming shrubs and trees. Many shrub species in the PNW bloom early and research has shown these shrubs are important food sources for early-season bees (many of which are specialists) at a time when weather is unpredictable. Top selections include willows, black elderberry, redosier dogwood, mallow ninebark, roses, currants, and hawthorn. Some shrubs, like wax currant, are key food source for particular pollinators (e.g., Pacific digger bees) and others, like black hawthorn, not only support a very diverse bee community, but are also resistant to ungulate grazing.

#6: Diversify your flower types. Research suggests that having flowers with different colors, shapes, and sizes are most likely to support the most diverse pollinator community.

#7: Buy native plants when possible. The jury is still out about how important it is to plant native plant species for pollinators in general, but native plants provide excellent food for many native pollinators and planting them helps maintain diverse plant communities.

#8: Use pesticides judiciously. Insecticides can be particularly harmful to pollinators, if improperly applied. Avoid applying when pollinators are active and read the label for important information on residual times and toxicity to bees. Also, attempt to purchase plants that have not been treated with systemic pesticides. You don't want to attract pollinators with high quality food and nesting habitat and then inadvertently kill or harm them.

Additional Information: Interested in reading more? Explore more detailed information about the pollinators on your land and how to enhance habitat for them in the following resources:

- [Shrubs and Trees for Bees](#) (an OSU Extension publication)
- [Nesting and Overwintering Habitat for Pollinators and Other Beneficial Insects](#) (A Xerces Society Publication)
- [Native Plant Picks for Bees](#) (an OSU Extension publication)
- [Enhancing Urban and Suburban Landscapes to Protect Pollinators](#) (an OSU Extension publication)
- [Pollinators of Oregon Grasslands and Riparian Meadows](#) (an OWEB story map)
- Getting to Know Pollinators in Pacific Northwest Rangelands (an OSU Extension factsheet)
- Pacific Northwest Rangelands and Pollinators: Best Practices (an OSU Extension publication)
- Managing & Restoring Pollinator Habitat in Interior PNW Grasslands & Riparian Areas (an OSU technical report)