OREGON STATE UNIVERSITY EXTENSION SERVICE

GETTING TO KNOW

Pollinators in Pacific Northwest Rangelands

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Rangelands of the Pacific Northwest (PNW) are home to a great diversity of insect pollinators. Although these insects play key roles in contributing to rangeland health by pollinating many of the forbs that are important forage for livestock and wildlife, few of us are familiar with the vast majority of these pollinators. This factsheet provides a brief introduction to the major groups of insect pollinators in PNW rangelands and directs readers to sources for additional information.

Photo: R. McEwan

Bees: The European honey bee (*Apis mellifera*) is well-known and an important crop pollinator. But this species is not native to the US. However, there are well over 20,000 bee species globally, and more than 700 native bee species occur in Oregon. These native bees come in all different sizes, shapes, and colors. Bee diversity in PNW rangelands typically peaks earlier in the growing season (May-July), but some common generalist species, including many minute sweat bees, are very abundant, even later in the season.

A honey bee. Photo: S. Mitchell

A native bee – the urbane digger bee. Photo: S. Mitchell

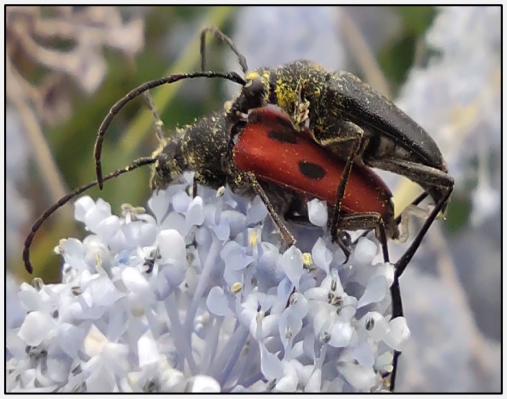
Bees visit flowers for food (nectar and pollen), and females bring pollen back to the nest for their offspring. Bee species vary in how picky they are about pollen. Some are generalists, while others are relative specialists. Because of this, bees visit a wide variety of rangeland flowering plants. Females of different species carry pollen in different ways. Some, like honey bees and bumble bees, carry pollen in baskets on their hind legs, while other bees, like leafcutting bees, carry pollen on hairs on the underside of their abdomens. Other species, like yellow-faced bees, actually eat pollen at the flower and regurgitate it at the nest site.

Moths and Butterflies: Butterflies and moths are common rangeland pollinators. Butterflies are particularly well-known because they are usually active in the day and are often showy and charismatic. Butterflies can be distinguished from moths by the knobs at the end of their antennae. Moths, which generally fly at dusk or evening, have no knobs at the end of their antennae, which are either straight or very hairy. While there are many species of butterflies (more than 800 species in North America), moths are even more specious (with over 12,000 species in North America).

A monarch butterfly. Photo: R. Sutherland

Because butterflies and moths visit flowers to feed on nectar, they are less likely to come into as close of contact with pollen and may be less efficient pollinators than other taxa. In contrast to bee larvae, caterpillars feed primarily on non-reproductive plant tissue, and caterpillars of some species (like the monarch pictured on the left) are narrow specialists.

A white-lined sphinx moth. Photo: S. Mitchell

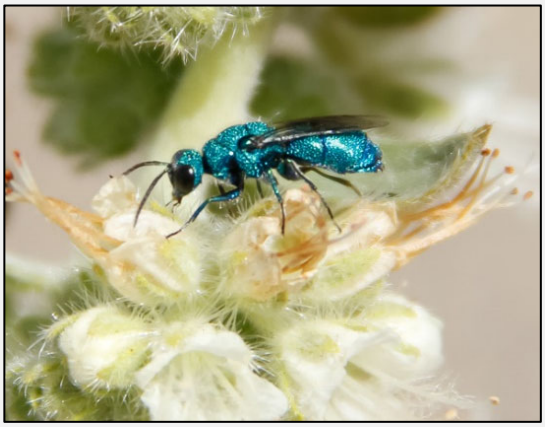


A mating pair of flower longhorn beetles; note the pollen clinging to their bodies. Photo: T. Hoffman

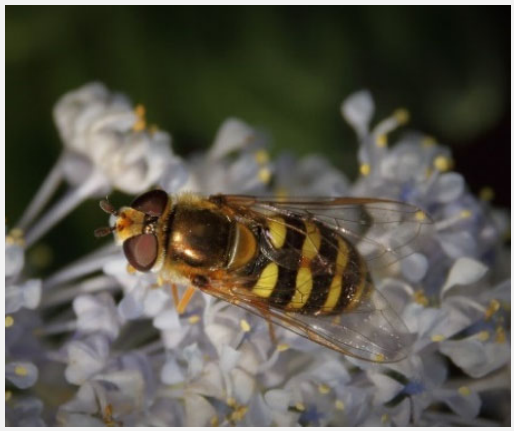
Beetles: Beetles, the most diverse group of insects, with more than 300,000 described species globally, are often overlooked as potential pollinators. But many species of beetles visit flowers. However, unlike butterflies and moths, beetles visit flowers primarily to feed on pollen or plant tissue. In the process, they often end up with pollen spread over their bodies.

Beetles are more likely to carry pollen of the same flower species compared to other pollinators, which enhances pollination efficiency. This may be partially due to the fact that flower-visiting beetles typically spend long periods of time on flowers and tend to visit the same species of flowers. Most beetles are easy to recognize by the two hardened forewings (called elytra) that cover the membranous hind wings they use for flying.

Wasps: Although wasps look similar to bees, most differ by having constricted "waists." Although closely related, wasps differ from bees because they are carnivores at some point in their lives – typically in the immature stage. Wasps often have a bad reputation because of just a few species that tend to be a nuisance (e.g., yellow jackets, paper wasps). However, most of the more than 100,000 species estimated to occur globally are highly beneficial to humans. These include minute parasitoid wasps, which often control agricultural pests by laying eggs of their offspring in the body of their host. Most adult wasps visit flowers to feed on nectar for a quick energy boost, and may come in contact with pollen, which they can then carry to another plant of the same species, thus aiding in pollination.



An emerald wasp visiting phacelia. Photo: S. Mitchell



Hover or flower flies, like this black-margined flower fly, are frequent flower visitors and help pollinate many rangeland plants. Photo credit: S. Mitchell

Flies: Like wasps, flies are often considered to be pests – whether it be the ubiquitous house fly or flies that attack livestock. But in fact, flies are another specious insect group, with over 100,000 described species globally. The vast majority of flies are not pests. In fact, many are beneficial, including species that visit flowers to feed on nectar and aid in pollination. These flower-visiting species often mimic bees and wasps in their coloration patterns, but unlike bees and wasps, which have four wings, flies have just two wings.

Like butterflies and moths who visit flowers for nectar, flies may carry less pollen than bees and beetles. Even so, flies can be key pollinators in rangeland systems. Many species are generalist flower visitors and can be very abundant and active at times of the season when bees and other insect pollinators are less active.

Additional Information: We hope you enjoyed this brief introduction to PNW rangeland pollinators. To learn more, explore the following resources on rangeland pollinators, sustainable grazing practices, and habitat enhancement:

- Vegetarians, Predators, and Parasitoids: Lesser-Known Wasps of Oregon (an OSU Extension publication)
- Megachilid Bees in the Pacific Northwest: An Introduction (a PNW Extension publication)
- Pollinator-Friendly Livestock Management (an OSU Extension factsheet)
- Habitat Enhancement for Pollinators of the Interior Pacific Northwest (an OSU Extension factsheet)
- Pacific Northwest Rangelands and Pollinators: Best Practices (an OSU Extension publication)
- Managing and Restoring Pollinator Habitat in Interior PNW Grasslands and Riparian Areas (an OSU technical report)
- Shrubs and Trees for Bees (an OSU Extension publication)
- Native Plant Picks for Bees (an OSU Extension publication)