

## Pollinator-Friendly Livestock Management in the Interior Pacific Northwest

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### Rangelands and Pollinators

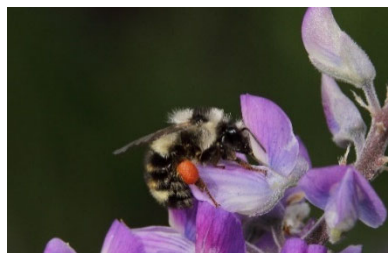
Productive rangelands provide high quality forage, which includes not only grasses, but also a diversity of forbs, which form an important component of livestock diets. Many insects, including bees, butterflies, moths, wasps, beetles, and even some flies are important contributors to rangeland health because they pollinate many of these forbs. Rangelands in the interior Pacific Northwest (PNW) also benefit pollinators by providing large tracts of undeveloped lands with pollen- and nectar-rich flowers and nesting habitat, including bunchgrass tussocks, bare ground, plant stems, and abandoned rodent burrows.



Photo: L. Ketchum

Although livestock can negatively impact pollinators if they forage on plants that are important sources of food for pollinators, some relatively small changes can make grazing more pollinator-friendly. These include being aware of general patterns of pollinator activity and forb blooming in your rangelands and considering how varied your pastures may appear from the “eye” of a pollinator. By taking these into account, you can make small adjustments in the timing and rotation of your livestock that may result in big benefits for pollinators.

### Getting to Know Your Pollinators and Their Needs



A female bumble bee foraging on lupine. Photo: S. Mitchell



A gossamer-winged butterfly visiting goldenrod. Photo: S. Mitchell

Becoming familiar with common pollinators in your area and when they are most active is a good first step to incorporating pollinator goals in your grazing plans. In particular, pay close attention to bumble bees and butterflies and note when they are active and which flowers they visit. Not only are bumble bees and butterflies large and easy to see, but they are also sensitive to livestock grazing in interior PNW grasslands.

As you become more familiar with insect pollinators, you’ll begin noticing the multitude of other pollinators that visit flowers on your land. Keep your eye out for small bees, moths, beetles, wasps, and flies visiting flowers! You can learn more about rangeland pollinators in Oregon using the resources listed at the end of this factsheet.

### Incorporating Pollinator Health in Grazing Management Plans

There are several actions you can take to incorporate pollinators in your grazing plans. These include:

- Manage livestock so that blooms of at least three forb species are abundant at any one time throughout the season.
- When possible, decrease stocking rates in high quality habitats (those with diverse and abundant native plants) and aim for utilization <40%. Increases in forage utilization have been found to decrease bumble bee and butterfly abundance and diversity in the region, so any decrease in utilization is likely to benefit pollinators.
- Consider how the type of livestock may influence pollinators. Cattle may be more compatible than sheep for meeting pollinator goals. For example, multiple studies have found that sheep feed heavily on forbs and can quickly reduce floral resources, resulting in lower bumble bee abundance.
- Use grazing strategies that increase habitat variability (i.e., result in small patches of different types of habitats). Examples include high-density short-duration approaches or rest and rotation systems.
- Take advantage of virtual fencing, electric fence, range riding, and/or mineral supplements to help keep livestock where they are wanted and protect sensitive areas.
- Consider using “phenologically targeted grazing,” a type of targeted grazing that’s tailored to minimize negative effects of grazing on pollinators (see box on the next page).

## Phenologically Targeted Grazing – A Pollinator-Friendly Approach

One increasingly popular way to manage rangelands for multiple goals is targeted grazing. Targeted grazing is the practice of choosing the timing, location, frequency, and/or intensity of grazing to achieve specific vegetation goals (e.g., reducing invasive plant species, increasing the diversity of native plants). This approach can also be applied to improving habitat for pollinators as well. Some pollinators in the region, such as certain types of native bees, are particularly vulnerable to livestock grazing early in the growing season. This is because livestock can eat or trample flowers, which provide pollen and nectar for pollinating insects during this critical time of year.

The beginning of the growing season is a difficult time for many insects, including pollinators. The weather is often unpredictable and food sources can be limited. Large, social insects, like bumble bees (our largest insect pollinators) may be particularly sensitive during this period because queens of many species emerge from overwintering, and search for nesting sites to start their colonies. Queens need to find enough food (especially pollen) for starting and growing their colonies, and previous research shows worker size and number can be limited by a lack of sufficient nutrition. Also, there are many more specialist bee species active early in the season compared to later in the season. These specialist species rely on a limited number of flowering plant species. If blooms of these species aren't available because they've been removed by grazing, these specialist bees may not be able to reproduce. Past studies in the region have shown that early season grazing, even at moderate levels, can decrease the abundance and diversity of bumble bees and butterflies. One way to minimize these effects is to delay



Photo: A. Zharkikh

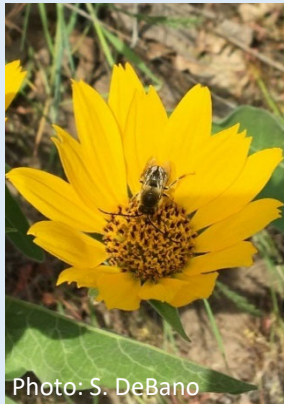


Photo: S. DeBano



Photo: R. Droker



Photo: L. Johnson



Photo: A. Zharkikh



Photo: M. Lavin

onset of grazing in high quality pollinator habitat – perhaps by just a week or two. If alternative sites with fewer flowers (e.g., old fields, grasslands with low forb diversity) are available, livestock can be grazed in these areas instead.

The common forbs shown on the left can serve as general guides to help time grazing onset. When these species are blooming, avoiding or delaying grazing may benefit sensitive pollinators.

[Clockwise from top left: [larkspur](#) (*Delphinium* spp.), [balsamroot](#) (*Balsamorhiza* spp.), [small flowered blue eyed Mary](#) (*Collinsia parviflora*), [giant frasera](#) (*Frasera speciosa*), woodland-star (*Lithophragma* spp.), and [biscuitroot](#) (*Lomatium* spp.)]. Consider grazing high quality sites a few weeks later, after these species have largely stopped blooming. As you get to know the specific pollinators and flowers in your area better, you may identify other common plant species that are more closely tied to sensitive pollinators and that can be used as guides to time grazing to minimize effects on sensitive pollinators.

**Additional Information:** Interested in reading more? Explore more detailed information about rangeland pollinators and sustainable livestock grazing practices in the following resources:

- [Pollinators of Oregon Grasslands and Riparian Meadows](#) (an OWEB story map)
- [Getting to Know Pollinators in Pacific Northwest Rangelands](#) (an OSU Extension factsheet)
- [Megachilid Bees in the Pacific Northwest: An Introduction](#) (a PNW Extension publication)
- [Vegetarians, Predators, and Parasitoids: Lesser-Known Wasps of Oregon](#) (an OSU Extension publication)
- [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)
- [Best Management Practices for Pollinators on Western Rangelands](#) (a Xerces Society publication)