

Milkweed and Rangelands

Monarch butterfly populations have **declined over 80%** since the 1980s. It is estimated that **over one billion milkweed plants**, the monarch's host plant, must be planted nationwide to conserve this species.¹ Rangelands can support high quality monarch habitat. However, rangeland managers may be reluctant to sustain milkweed due to **perceived risks of livestock poisoning**. However, new research has shown potential to manage rangeland to benefit both livestock and monarchs.

Milkweed Toxicity to Livestock

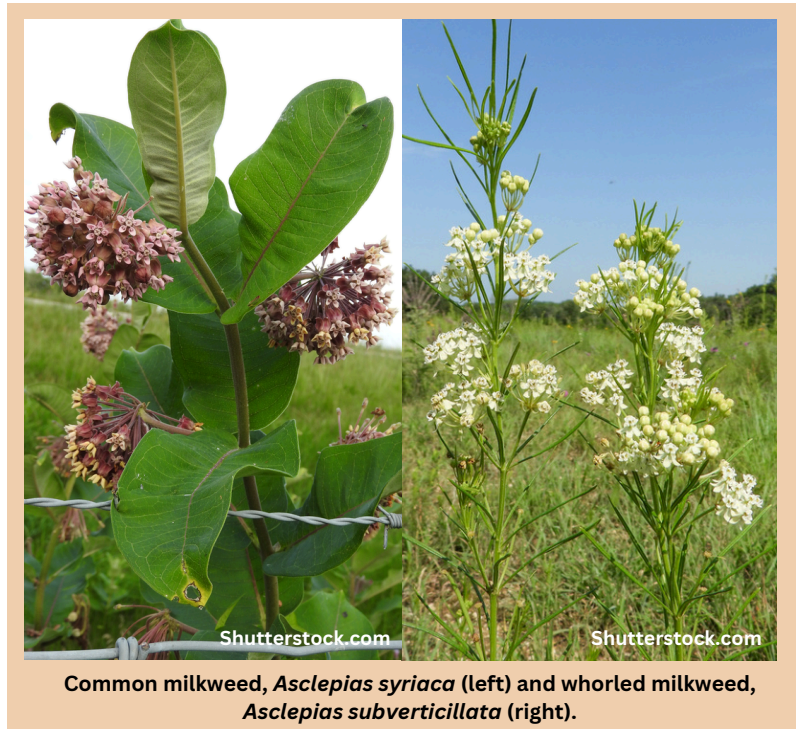
Milkweed species contain organic compounds known as **cardenolides**, which are steroids that affect cardiac activity. **Livestock can become poisoned by milkweed if they ingest large quantities of it.**

- Lethal doses of cardenolides occur at 2% of body weight with fresh milkweed and 0.05% with dried milkweed.
- Sheep and goats are the most susceptible to poisoning as they prefer to browse on weedy species.²
- Ingestion usually occurs with overgrazing or hay contamination.³

Toxicity of milkweed varies by species and region.

- Two widespread milkweed species, common milkweed (*Asclepias syriaca*) and swamp milkweed (*Asclepias incarnata*) have low to intermediate toxicity levels.⁴
- Milkweed toxicity is often higher in the eastern U.S. than the western U.S.⁴
- A recent study on rangelands in Nebraska found that **unless milkweed makes up more than 1% of forage, the impact on livestock is likely minimal.**⁴

For comparison, this square represents approximately 1% of the total area of this 8.5x11" handout.



Common milkweed, *Asclepias syriaca* (left) and whorled milkweed, *Asclepias subverticillata* (right).

Management Recommendations⁶

- Ensure that **<1% of available forage is milkweed.**
- Maintain milkweed in low-density grazed rangelands, or other areas with low risk of livestock foraging on milkweed.
- Keep confined areas, including paddocks and livestock driveways, free of milkweed.
- **Avoid planting more toxic species**, including whorled and narrowleaf milkweeds, in pastures.
- Keep haying fields free from milkweed.

Signs of milkweed poisoning may include loss of muscular control or muscle spasms, respiratory issues, bloating and digestive issues. Closely monitor animals when introducing them to an area with milkweed.⁵

Rights-of-Way as Habitat Working Group

Learn more about the Monarch CCAA and other best management practices at: <https://rightofway.erc.uic.edu/>



Best Management Practices for Rangelands

Benefits of Nectar Plants on Rangelands

Rangelands can provide large areas of pollinator habitat that support native wildflowers and pollinator species. Nectar plants contain critical nutrients which can support a healthy grazing diet while providing vital resources for pollinators.

- Cool and warm season wildflowers contain crude protein contents of 4 - 23%, comparable to cool and warm season grasses which have 2 - 25% crude protein contents.⁶
- Pollinators are essential for the reproduction of wildflowers on rangelands, and are themselves a food source for different animals.⁶
- Rangelands with many types of wildflowers that have overlapping bloom periods can support pollinators throughout the growing season.⁶
- Diverse wildflower communities provide nesting places, breeding, and overwintering habitat for pollinators.
- Some pollinators live only on rangelands because they need the particular habitat found there.⁶



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A regal fritillary, an endangered butterfly species native to the tallgrass and mixed-grass prairies of the east central US. The species relies on violet species (*Viola spp.*) as larvae and uses a variety of nectar plants, including milkweed, as adults.

References

1. Thogmartin et al, 2017
2. Nelson, M., & Alfuth, D. (2021, February 24). Milkweed (Ornamental Plants Toxic to Animals). Wisconsin Horticulture Division of Extension.
3. Hammon, R. W., & Pearson, C. H. (n.d.). Managing Western Whorled Milkweed. Colorado State University Extension.
4. Dickson et al, 2023.
5. USDA, 2011. "Plants Poisonous to Livestock in the Western States"
6. Xerces Society, 2024 "Rangeland Management and Pollinators."
7. Xerces Society, 2018. "Best Management Practices for Pollinators on Western Rangelands"

Management Strategies^{6,7}

Improve pollinator habitat on rangelands through practices such as prescribed burning and chemical or mechanical control of invasive species. Monitor vegetation and habitat quality, and reseed native species where depleted.

Consult with your local NRCS office for specific strategies for your property.

Stocking and Movement

- Use a stocking rate that balances cattle vitality with rangeland health and wildflower diversity.
- Utilize rest-rotation when possible.
- Use low-density stocking for grazing that exceeds 45 days in any single pasture.
- Maintain even grazing utilization across an allotment to prevent overgrazing and soil damage.

Timing

- When possible, defer sheep or goat grazing away from nectar plants during peak bloom times.
- Prevent grazing the same location at the same time each year.
- Limit mowing and haying to once or twice a year.
- Conduct haying after most flowers have finished blooming.

Keep it Idle!

- Ensure proper recovery for grassland vegetation after any grazing and intensive management.
- Set aside designated areas for habitat throughout the growing season to ensure pollinators have sufficient forage at any given time.



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