

Roadsides as Habitat for Pollinators: Are Milkweeds Really Weeds?



Each year monarch butterflies east of the Rocky Mountains make a spectacular journey, traveling thousands of miles to overwinter in Mexico. Monarchs west of the Rockies make a shorter migration from the Great Basin, Pacific Northwest, and Intermountain West to coastal California. The migration of the monarch butterfly is a natural wonder, but one that is threatened by the loss of milkweeds (*Asclepius* spp.), the exclusive caterpillar host plants of the butterfly. Monarch caterpillars only eat milkweed leaves, and in doing so they acquire chemical protection from predation by incorporating the milkweed's cardenolide chemical compounds into their own bodies.

The winter of 2013–2014 saw the smallest monarch populations overwintering in Mexico ever documented, representing a 90% decline (Jepsen et al. 2015). Western monarchs have declined by over 50% since 1997 (Jepsen et al. 2015). Increasing milkweed populations in North America is critical to the recovery of the monarch butterfly, but one obstacle to widespread inclusion of milkweeds in new plantings is the perception that milkweeds are in fact weeds. Concerns include the potential for milkweed populations to expand their populations from the original planting site and encroach on adjacent land, and the chemical compounds present in milkweeds and their toxicity to livestock.

Although milkweed, the common name for plants in the genus *Asclepias*, implies that the plants are indeed weeds, milkweeds are a diverse group of native wildflowers that are not listed as noxious weeds in any state or at the federal level in the U.S. Milkweeds may be perceived as weeds because a few of the nearly 100 species in the U.S. will colonize disturbed areas. These species tend to reproduce vegetatively (in addition to reproduction by seed), sending up new shoots from roots that spread outward from the parent plant. This clonal reproduction allows their populations to expand over time, and plants may spread out of their original area. Common milkweed (*Asclepias syriaca*) exhibits the highest degree of clonal reproduction, and vegetative growth also occurs to a lesser degree in horsetail milkweed (*A. subverticillata*), narrowleaf milkweed (*A. fascicularis*), plains milkweed (*A. pumila*), prairie milkweed (*A. sullivantii*), showy milkweed (*A. speciosa*), and whorled milkweed (*A. verticillata*) (Borders and Lee-Mäder 2014). Despite the vegetative growth, many of these species are unlikely to create an ongoing and unmanageable weed problem for roadside managers (or for other land managers, homeowners, and others).

Another factor that contributes to the perception of milkweeds as weeds is that they



Milkweed is an attractive component of roadside plantings and supports a wide range of insects. Photograph by Kirk Henderson, University of Northern Iowa.

For more information

Literature review of pollinators in rights-of-way:
<http://www.xerces.org/pollinator-conservation-roadsides/>

Jennifer Hopwood
jennifer@xerces.org
(913) 579-5241

contain cardenolides, steroid plant compounds used as a defense against herbivores. This makes the plants potentially toxic to livestock (Burrows and Tyrl 2013). The amount of cardenolides present in plant tissue varies with the species of milkweed, and can also fluctuate seasonally (Burrows and Tyrl 2013). Ranchers and farmers are often concerned about the presence and proximity of milkweeds to their livestock.

Milkweed should pose no risk in properly managed rangeland and pasture. Milkweeds are toxic only when consumed in large quantities. They are highly unpalatable (Fulton 1972), and livestock, cattle in particular, will only consume milkweed in the absence of other forage; a pasture must be barren in order for milkweed to poison a cow.

Many animals eventually recover from milkweed poisoning, but because there is no established treatment, prevention of poisoning is the best option. Because milkweed is not preferred forage, maintaining a sustainable stocking rate is the key to preventing milkweed poisoning. Ensuring that hungry cattle or other animals are not confined in places with abundant milkweed should prevent most poisonings (Pfister et al. 2002).

It is also important to verify that sources of hay are milkweed-free because the plants retain their toxicity when dry—and may increase in palatability (Pfister et al. 2002). Some state transportation agencies permit adjacent landowners to annually cut and remove the roadside vegetation for animal fodder or grant emergency hay permits under drought conditions. To prevent milkweed poisonings due to contaminated hay, don't allow landowners to hay roadsides where milkweed is present.

Most eastern monarchs produce their first generation in Texas, Oklahoma, and eastern Kansas after flying north from Mexico, making the presence of milkweeds in the region absolutely critical. Western monarchs use milkweeds throughout the Intermountain and Pacific Coast states. Rangeland is abundant in these states, and outreach to ranchers can help them to prevent milkweed poisoning and understand the critical role they can play in helping to sustaining the monarch butterfly migration.

References

- Borders, B., and E. Lee-Mäder. 2014. *Milkweeds: A Conservation Practitioner's Guide*. 146 pp. Portland, OR: The Xerces Society for Invertebrate Conservation.
- Burrows, G. E., and R. J. Tyrl. 2013. "Table 9.2: Toxicity and cardenolide content of species of *Asclepias*." *Toxic Plants of North America*, 2nd edition. 1390 pp. Hoboken: Wiley-Blackwell.
- Fulton, D. H., ed. 1972. *Poisonous Plant Groups. Technical Note: Range No. 1*. USDA SCS: Boise, ID.
- Jepsen, S., D. F. Schweitzer, B. Young, N. Sears, M. Ormes, and S. H. Black. 2015. *Conservation Status and Ecology of Monarchs in the United States*. 36 pp. NatureServe, Arlington, Virginia, and the Xerces Society for Invertebrate Conservation, Portland, Oregon.
- Pfister, J. A., F. D. Provenza, K. E. Panter, B. L. Stegelmeier, and K. L. Launchbaugh. 2002. Risk management to reduce livestock losses from toxic plants. *Journal of Range Management* 55:291–300.



Milkweeds provide a rich source of nectar that supports a wide range of bees, butterflies, and other insects as well as being the essential host plant for monarch caterpillars.

Above: Black-and-gold bumblebee by Sarah Foltz Jordan, The Xerces Society.

Below: Monarch, a bumble bee, and a paper wasp, by USFWS Midwest.

