Insects and Milkweed

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Insects and milkweed plants have been a topic of much conversation lately. It is wonderful that monarchs and their corresponding host plants, milkweeds, are getting the attention and grant money they deserve. Yet there are a number of insects that utilize milkweeds and depend on them for various reason; many of these are less well known by the general public. By planting, encouraging and appreciating milkweeds, folks will be helping these insects, too.

Do you know how many types of milkweed are in your area? Can you name them? [Test yourself first then check the list at the bottom of this posting for milkweeds in The Driftless Area.]

There are some unique characteristics of milkweeds making it an intriguing plant. Milkweeds contain cardiac glycosides which are toxic to humans and mammals. Insects can sequester these in their systems, making them unpalatable to their predators. This chemical is usually in a low enough dose it does not kill the bird or mammal but it will make them vomit. Often it only takes once for these predators to learn not to do that again! Defensive systems are pretty remarkable. Do you think the plant or the insect evolved this defense first?

Another characteristic and plant defense is the white, milky sap that exudes when a leaf or stem is cut. Longhorn milkweed beetles are able to feed on milkweeds and dogbanes despite the latex secretion oozing from the leaves when they are cut. The beetles sever the midvein of the leaf, disconnecting its flow to the rest of the leaf. Once this is done, the beetles can freely nibble on the leaf tips without fear of having their mandibles glued shut with this sticky protective substance (Eisner, 2003:284).
Leaf nibbled by Tetraopes tetrophthalmus (Red milkweed beetle)

“The cerambycid genus Tetraopes is the most diverse of the new world milkweed herbivores and the species are generally host specific, being restricted to single, different species of Asclepias, more often than most other milkweed insects” (Farrell 2001). Tetropes produce one generation annually. Eggs are laid at the base of the stem or cut into the stem. Either way, the larvae migrate to the roots, boring into the plant stem if the eggs weren’t laid there. The adults feed on the leaves, flower buds, or blossoms.

Along with the Tetraopes tetrophthalmus, some of the other Tetraopes species you might find are, Tetraopes annulatus and Tetraopes femoratus.
Tetraopes annulatus
Another beetle whose larvae participate in the vein cutting prior to feeding is the Swamp Milkweed Leaf Beetle (*Labidomera clivicollis*). Common names can be misleading as this beetle is not host-specific to swamp milkweed.
Labidomera clivicollis (Swamp Milkweed Leaf Beetle) preparing to feed

The Milkweed Stem Weevil (*Rhyssomatus lineaticollis*) feeds on the stems of common milkweed (*Asclepias syriaca*) and oviposits there as well. An interesting comment I read on BugGuide is the scar length the female cuts for ovipositing is an “accurate predictor of the number of eggs laid by the adult female.” Can you imagine being able to measure the slit and count the eggs laid by a 6mm insect?
Milkweed leaf-miner fly (*Liriomyza asclepiadis*) larvae feed on the foliage of milkweed. As the name implies, they “mine” between the outer layers of a leaf, leaving colorless mines that often turn brown. Leaf-miners are interesting because one can usually tell who the insect is by the characteristics of the mine and the type of plant being mined; even the frass pattern is unique enough to offer an ID for leaf-mining insects. Charley Eiseman and Noah Charney have a great book, *Tracks and Sign of Insects*, which show pictures of various leaf-mining activity. More photos of the larvae and the blotchy leaf-mining pattern of the *Liriomyza asclepiadis* can be found on BugGuide.
Liriomyza asclepiadis larvae
Liriomyza asclepiadis adult

Some of the more commonly found insects are the milkweed bugs in the Lygaeidae family. The small milkweed bug (*Lygaeus kalmii*) and the large milkweed bug (*Oncopeltus fasciatus*). The following pictures show two stages of the nymph growth and highlight their clustering habit.
Large milkweed bug, *Oncopeltus fasciatus*, sucking on an *Asclepias tuberosa* stem
Lygaeus kalmi

Large milkweed bug nymphs, *Oncopeltus fasciatus*, inside and outside of the milkweed pod.
Large milkweed bug nymphs clustering, *Oncopeltus fasciatus*

In the Hemiptera order there is an aphid that uses milkweeds, the oleander aphid or milkweed aphid (*Aphis nerii*).
Milkweed aphid, Aphis nerii

Seems no matter what plant we pick, there’s a moth or two that use it! The moths sequester the secondary metabolite (compounds not directly related to primary functions) of the milkweeds making them unpalatable to bats. Dogbanes have this same chemical; the *Euchaetes egle* (Milkweed Tussock Moth) is munching a dogbane leaf in the photo. The bright colors of the caterpillars warn predators of their bad taste, but the adults warn with clicking sounds (Simmons and Conner 1996). Tussock moths are not to be handled without protection; they have urticating hairs between the soft ones which can irritate your skin. *Cycnia collaris* is a tiger moth who feeds on milkweeds; its caterpillar is a brilliant orange while the adult is white with a bright yellow edge.

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*Cycnia collaris* caterpillar
Euchaetes egle (Milkweed tussock moth) caterpillar munching on a dogbane (Apocynum sp) leaf.

Euchaetes egle caterpillars skeletonizing a milkweed. These are earlier instars (developmental stage) than the single one of the dogbane leaf.

Pollinators of milkweeds are diverse ranging from bees, wasps, flies, ants, to beetles. To ensure they are pollinated sufficiently, milkweeds have a mechanism in their flowers allowing them to capture and trap an insect for a period of time (Jolivet, 1998:189). This trapping is caused by a sticky substance and results in the pollinia sac attaching to the
insect. The larger insects can carry this sac to the next plant, completing pollination. Small insects can suffocate if they cannot get free from this. Many of these smaller insects are careful and only dip their tongues into the blossoms like the small sweat bee, an *Augochlora* species shown below. Have you found an insect caught inside a milkweed blossom?

![A geometrid moth stuck on a milkweed blossom](image-url)

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Augochlora species

We did not include the monarch (*Danaus plexipllus*) in this article because most of you are familiar with them. The Xerces Society has many good resources about this butterfly and its relationship to milkweeds; one in particular is an article in their 2011 newsletter, *Wings.* A [PDF](#) can be accessed via this link:

We’re hoping this kindles some excitement and you’ll enjoy exploring milkweeds in more detail.

**Resources:**


**Milkweeds:**