It Takes A Plant to Raise An Insect Community...

LOST PINES NATURE NOTES
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This past week one of those "this is something you know but didn't know that you know" moments happened to me…I glanced down at a green milkweed (*Asclepias viridis*) as I was sauntering past it and was instantly struck by the microcosm of an entire community that I could see in that single glance.

Plant and animal communities are made up of groups of organisms that have different purposes in the community. Plants are the "producers" and form the base of a "food pyramid" that consists of the things that feed on the plant, the things that feed on the things that feed on the plant, etc. The first group above producers are consumers (they derive their nourishment directly from the producer) and above that are predators and predators of predators up through to the "top" predator for that community.

The interesting thing about this milkweed was that I could see three different kinds of consumers, all of which will not feed on anything else except milkweeds (or their close relatives), and two different predators. The first thing that caught my eye was the young Monarch butterfly caterpillar (*Danaus plexippus*) feeding inside one of the large flowers.

Next my mind registered the bright orange nymphs and protective parent of the Large Milkweed Bug (*Oncopeltus fasciatus*). Tuning in to orange, I then noticed the brilliant orange Milkweed (sometimes called Oleander) Aphids, *Aphis nerii*, and below them an aphid predator, a Ladybird Beetle. Finally, I saw a little crab spider waiting patiently in a flower for some hapless pollinator to stop by.

You might think that insect communities revolve around plants anyway so why was this interesting? What intrigues me most is that some plants harbor specific communities while others do not. The difference is usually chemical defenses that some plants have against being chewed up by insects—some insects get past the defense and become specialists on plants that are otherwise protected.

In this case, milkweeds contain cardenolides, or cardiac glycosides, as well as a rubber-like latex, that are pretty powerful deterrents against casual dining insects that feed willy-nilly on just about anything green. But the insects that have beaten the milkweed at its own game, like the Monarch butterfly, milkweed tiger moth, milkweed bugs and beetles, aphids and others, go so far as to enlist the milkweed chemistry as their own defense, so most of them are warningly colored in some variation of black and orange or black and red.

The gist of this is that only some specific plants, like milkweeds and passion vines (which contain compounds that release cyanide), have these plant-specific communities of insects that assemble on them. To learn more about milkweed villages, see if you can find a copy of the little book "Milkweed, Monarchs and More" by Ba Rea, Karen Oberhauser and Mike Quinn (2003, ISBN 0-965-7472-2-0).

A "Milkweed Village." Look close and you'll see a Monarch caterpillar (center), a Large Milkweed Bug and its young (right and upper right), a crab spider (lower left) waiting for a flower visitor, and Milkweed or Oleander Aphids (lower center). Not visible in this photo is the Ladybird Beetle that was feeding on the aphids!

To paraphrase an old gem of wisdom, it takes a good plant to raise an insect village!

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