8-2014

Oh No! Something Is Eating My Coral Honeysuckle!

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August 2014

Vol. 33, No. 4
ISSN 1085-9632

Bulletin

A publication of the VIRGINIA NATIVE PLANT SOCIETY
Conserving wild flowers and wild places

http://www.vnps.org

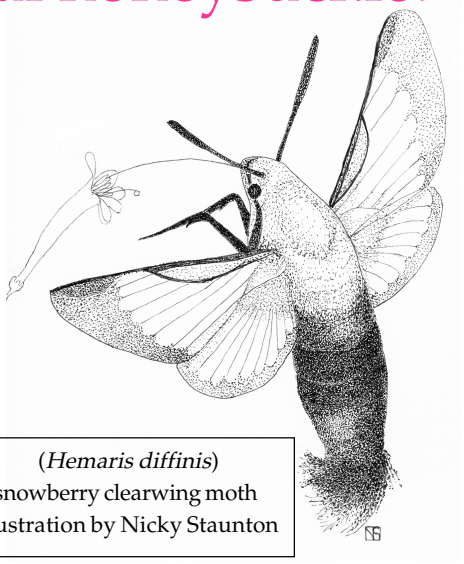
Oh no! Something is eating my coral honeysuckle!

Let's imagine a situation that could happen in your own backyard. Suppose you have a healthy specimen of 2014's Virginia Native Plant Society Wildflower of the Year, coral honeysuckle (*Lonicera sempervirens*). Suppose further that this plant rewards you every spring with a flush of flashy red flowers that you treasure all the more because they consistently bring hummingbirds to your yard. Now imagine that one fine morning you notice some little green caterpillars voraciously eating the leaves of your beloved coral honeysuckle. What do you do?

You could run to a garden center and choose from among a host of insecticides, ranging from synthetic pet-rochemicals to the organic gardener's old standby, Bt, well known as an effective control for pesky caterpillars. Or you could opt for another "organic" option, carefully applied pressure between thumb and forefinger—but not everyone has the stomach for this approach. Or, you could do nothing and see what happens.

I don't want to suggest that there is a single correct or best answer to this scenario. But I do think each possible response reveals something about how we connect with the natural world. Some VNPS members, I'm sure, are dyed-in-the-wool plant enthusiasts, so

(See Caterpillars, page 4)



(*Hemaris diffinis*)
snowberry clearwing moth
Illustration by Nicky Staunton

•Caterpillars

(Continued from page 1)

the motivation to protect a fine specimen of coral honeysuckle is perfectly understandable. But other people, including many VNPS members (I am also sure), have a broader perspective; they can see beyond the plant itself as a specimen and appreciate that plants have vital roles in ecological communities. This is, after all, the essence of Doug Tallamy's message: native plants host herbivorous insects, which, in turn, serve as food for other forms of wildlife. If we value orioles and tanagers, etc., we should also value native plants, not just for the beauty of the plants themselves, but for their various functions in ecological communities. Yes, the honeysuckle is being eaten, but maybe a bird will make a meal of that darned caterpillar …

For a moment, however, let's consider that hungry caterpillar, that link between plant and bird. Every caterpillar is more than just bird food, more than one ratchetlike step up the food chain. Let's consider the biology of that particular caterpillar in its own right: little green caterpillars feeding on coral honeysuckles are likely to be the larval stages of the snowberry clearwing moths (*Hemaris diffinis*)—and these are no ordinary moths!

Snowberry clearwings belong to a genus of moths commonly known as hummingbird moths and to a family, Sphingidae, that also includes hawk moths and sphinx moths. Whereas most moths are nocturnal, these moths are active in the daylight and, like hummingbirds, they visit flowers and can be important pollinators. Further, the snowberry clearwing and some of its closest relatives mimic bumblebees; the hairy abdomen has a bumblebee-like pattern of black and yellow, and portions of their wings lack scales, rendering them transparent, like bumblebee wings. Further, these moths are swift fliers, they obviously search purposefully for flowers, and they sip nectar, so the bumblebee resemblance spans both appearance and behavior. There is, however, no stinger on the moth. And, as anyone who has watched them in action will attest, these moths working a patch of nectariferous flowers are every bit as engaging as hummingbirds.

Why mimic a bumblebee? This appears to be a straightforward case of what ecologists call Batesian mimicry, in which a harmless or edible species gains protection from predators by resembling another species that has an effective means of protection (like a stinger) or is distasteful, or toxic and thus inedible (see sidebar).

The life cycle of a snowberry clearwing moth is fairly straightforward. Females lay eggs on plants that serve as appropriate food for the caterpillars. Coral honeysuckle is not the only larval host; others include snowberry (*Symphoricarpos alba*), species of bush honeysuckle (*Diervilla*), *Viburnum*, hawthorn (*Crataegus*), cherry (*Prunus*), and plum (also *Prunus*). These caterpillars are green with a horn at the rear end; they look like small versions of the related hornworms found on tobacco and tomato. When the caterpillars are fully grown they drop to the ground, spin a cocoon, and pupate amid leaf litter near the soil surface. *Hemaris diffinis* is widespread in North America, occurring throughout the range of coral honeysuckle, so finding its little green caterpillars on your coral honeysuckle is more than a remote hypothetical possibility.

So, back to the dilemma: What do you do if you find snowberry clearwing caterpillars munching on your prized coral honeysuckle? The answer, I think, depends on what you know. If that caterpillar is known to you as nothing more than an anonymous agent of destruction, the inclination to kill it is likely to prevail. But if you recognize it as a larval snowberry clearwing and have fond memories of watching these moths cavort among flowers—or can imagine that scene after reading this article—perhaps you will do nothing and let it live. The famous quotation by conservationist Baba Dioum applies: "In the end we will conserve only what we love. We will love only what we understand. We will understand only what we are taught."

—W. John Hayden, VNPS Botany Chair

Other mimics with native plant connections

Milkweeds (*Asclepias* spp.) are highly prized native plants. Not only do they sport beautiful flowers, but many species serve as larval hosts for monarchs, those beloved and colorful butterflies that, sadly, appear to be in decline. The connection between monarchs and milkweeds is well known; while consuming milkweed leaves, caterpillars assimilate but do not digest toxic cardiac glycosides; these sequestered toxins persist in adult butterflies, rendering them foul-tasting and potentially deadly to birds. Bright (aposematic) colors of monarch butterflies are a clear signal: "I'm bad, leave me alone!" Viceroy butterflies have long been thought to be mimics of monarchs, their similar (but not identical) pattern of black and orange wings sending the same message, presumably in the absence of any genuine protection. In the past, I have used the monarch–viceroy species pair as a classic example of Batesian mimicry, much like that of clearwing moths and bumblebees (see main article). But it is now known that viceroy larvae, feeding on willows (*Salix*) and poplars (*Populus*), sequester salicylic acid from their host plants, rendering the adult butterflies unpalatable to birds. So, the situation is better characterized as Muellerian (not Batesian!) mimicry, the mutual resemblance of monarchs and viceroys reinforcing *for each other* the same vital message to potential predators. *—W. John Hayden*