The View From Heifer Hill—June 2023

Caterpillars Welcome

THESE DAYS of late May and early June, as the Earth's north pole tilts toward the sun, longer days and intense sunlight push forth a burst of life the tropics would envy. Leaves unfurl and shoots elongate. From Hispaniola and the Pampas of Argentina, birds wing their way to their breeding grounds. Meanwhile, in countless cocoons and chrysalides, former caterpillars emerge to sail the air, sip nectar, and lay eggs. These events are building toward a crescendo of productivity.

Soon, tiny caterpillars will hatch from their eggs. These hungry, hungry caterpillars will munch on still-tender leaves, growing large and plump, just in time for the arrival of the progeny of those winged migrants. From nests in every tree and shrub, naked hatchlings will wave their gaping mouths and beg. What will their parents bring them? Caterpillars.

Plants have no interest in feeding caterpillars. Their goal is to grow large enough to produce seeds or spores, their DNA's shot at immortality. Plants have been waging battle with browsers over the eons, crafting chemicals to make themselves inedible. Each plant species brews its own toxic cocktail. Caterpillars that seek plants' nutrients have evolved apace, building enzymes to dismantle the toxins. This arms race has created specialists—caterpillars that eat just a select group of plants. The plants invest just enough in deterrence to keep most caterpillars at bay, but some will still grow fat on their leaves.

Caterpillars have no interest in feeding baby birds. Their goal is to become airborne, lay eggs, and send forth a next generation of plant eaters. The strategies they have developed to thwart their predators are jaw-dropping. Take the caterpillar of the spicebush swallowtail. Like all caterpillars, they must shed their skin several times to accommodate growth. These stages are called instars. For the first three instars of this caterpillar's life, it looks like bird poop. Not just a bit like bird poop; these caterpillars look like dark shiny blobs dipped in whitewash. When they shed their skin for the third time, the caterpillar that emerges is bright green and has an enlarged thorax. Printed upon this prominence are two black eyespots with yellow eyelids. Over eons, evolution has even seen fit to add a spot of white to make these false eyes look shiny. The caterpillar, thus attired, resembles a green snake. If discovered and attacked, out pops the caterpillar's osmeterium, a false forked tongue that secretes a brew of noxious chemicals. As an added protective strategy, belt and suspenders, the spicebush swallowtail caterpillar hides itself in a leaf tube stuck together with silk.

Birds have every interest in finding caterpillars. They are the perfect food for most baby birds. They are rich in fats and proteins and lack the exoskele-

tons of mature insects. Baby birds grow from helpless, naked hatchlings to feathered, fluttering fledglings in two weeks. They are made of caterpillars. Birds have evolved their own ways to outsmart the defenses of the caterpillars. Despite the interests of plants and caterpillars, a colorful cast of birds will successfully raise their broods over the next few weeks.

I have a new appreciation for this inter-relationship after hearing Doug Tallamy speak. Tallamy is a professor at the University of Delaware who's has written best-selling books based upon his caterpillar research. In a study of Carolina chickadees, Tallamy and his research partners found that it takes about 9,000 caterpillars to fledge a brood. That's just one family of chickadees.

Here's the problem: According to Tallamy, 54% of the lower 48 states is now covered by cities, suburbs, roads, shopping malls, parking lots, and other human infrastructure. Another 41% is in agricultural use. That's 95% of the lower 48 states coopted for a single species. Fortunately, there are still plants growing in many of these landscapes. Unfortunately, many of them are ornamental plants from distant lands. Native caterpillars can't eat them. In his book, Nature's Best Hope, Tallamy proposes the creation of a "Homegrown National Park"—corridors of native plants and enriched habitats throughout human-dominated landscapes and agricultural areas.

This is something we can all help to create. Tallamy proposes a goal of reducing lawns by 50% nationwide. Could yours be half as big? Could it become a wildflower meadow? If you prefer something more formal, there are plenty of beautiful native plants that will support butterflies and birds. How about the landscapes where you work or recreate? Can managers be persuaded to join the movement? Native plants and meadows require less water and less maintenance.

There are many resources available online to help you. You can start at the Homegrown National Park website, which has links galore. At BEEC, we have just seeded a wildflower meadow to replace our front lawn. The seed mixes, one of native grasses and one of native wildflowers, come from New England Wetland Plants, a nursery that specializes in native plants for wetland and forest restoration. Stop by BEEC later this summer to see how the meadow is coming along. In the meantime, I hope you enjoy every minute of the colorful, musical, avian spectacle fueled by emerging leaves and hungry, hungry caterpillars.