

THE GREAT OUTDOORS



The Ailanthus Webworm Moth spreads one wing, allowing the hindwing to be seen. In flight the moth often looks similar to a wasp. Photo: J. Morton Galetto

Beauty and the Beast

Our columnist discusses ailanthus webworm moth and not-so-heavenly tree.

By J. Morton Galetto, CU Maurice River

In late summer and early fall, a really lovely moth can be found feeding on the nectar of goldenrod (solidago). Its common name is the ailanthus webworm moth, while its scientific name is *Atteva aurea*. In the larva stage it is called ailanthus webworm and as an adult it is grouped among the ermine moths, of which there are about 30 different species in North America.

You may recognize "ailanthus" in the moth's common name as referring to the Tree of Heaven, an exotic invasive plant originating in Asia and a primary host for the ailanthus webworm moth. But the moth is native to North America, so you may be asking yourself, "What is its original host species?" Trees in the Simaroubaceae group are native to parts of Central America, the Paradise tree is a relative and native to Texas and Florida,

and ailanthus is also a member of this family. The larvae of *Atteva aurea* made the leap to our region because of the availability of ailanthus. Prior to its spread the insect was restricted to Southern Florida and southward to Costa Rica.



The native host plant of the ailanthus webworm moth is the Paradise tree of Florida. It is in the Simaroubaceae family.

In 1784 the Tree of Heaven was introduced to a garden in Philadelphia and today it is found in most of the United States and southern Canada. A few hundred years later the tree is unpopular due to its displacement of native trees, in even the most difficult environs.

The insect's presence was first recorded by a well-known assistant at the Academy of Natural Sciences in Philadelphia, Carl Ilg. In 1911 he noted the discovery of an *Atteva aurea* larva in an ailanthus bush that appeared in the Academy of Natural Sciences of Philadelphia. Carl described the larva he collected to be about one and a quarter-inch-long and entangled in a webbing, "with a distinct brown stripe all along its back, while the sides are dotted with fine white spots." He found no prior records of the food plant or life history, discovering it to be a moth only by allowing the larva to mature.

Today the Tree of Heaven is only absent in seven of the lower 48 states (USDA plant data base mapping), and the occurrences of *Ailanthus altissima* track closely with its presence in nearly all of those states as well.



iNaturalist Elliot Greiner took this picture of the Tree of Heaven not far from the Betsy Ross House in Philadelphia. The Tree of Heaven was introduced in a Philadelphia garden, and now plagues our American landscape. When the ailanthus tree's leaves are crushed they smell like putrid peanut butter. The conservation community see invasive exotic species are one of the primary threats to global biodiversity, ecosystem health and native species survival.

In Betty Smith's book "A Tree Grows in Brooklyn," the ailanthus serves as a metaphor for its main character, Francie Nolan – a young girl challenged by poverty and a chaotic family life, but showing resilience of spirit through inner strength, education, and hope. Her life story parallels the growth of the ailanthus that persists through a crack in the neighborhood concrete.

Both she and the tree rise up despite hardship. However, from a naturalists' perspective the tree's persistence has been at the expense of native flora that supports native species, and it is regarded with disfavor.

Although the ailanthus webworm feeds on the leaves of Tree of Heaven, it sadly can't kill or weaken it. In addition to the ermine moth's larva, the invasive spotted lanternfly also robs vital nutrients from the Tree of Heaven. The adult ermine moth, *Atteva aurea*, expands its range northward to our area in the fall where it can nectar on goldenrod and lay its eggs on the ailanthus/Tree of Heaven, while the vagabond favors warmer climes.



*The spotted lantern fly is attracted to ailanthus as well. Both the tree and the lanternfly are introduced invasive species.
Photo by iNaturalist Annika Lindqvist.*

The adult's cylindrical half-inch form is the first thing that catches one's eye as it feeds on goldenrod. It has an orange tubular body with a patchy mosaic pattern of creamy white circles encircled by bold black outlines. Charcoal-black antennae curve outward like a downward-turned Dali mustache and its body is perched upon delicate, segmented legs. The real thrill is when it spreads its one-inch wings: the forewing almost appears like an elytron (wing cover) on a beetle, and the hindwing is translucent with a framework of black veins. It is a very fashionable insect.

Unlike most moths these are daytime flyers. In flight they can be confused with wasps, and when perched they are often mistaken for slender beetles. In their larval stage they live in communal silken webs. In their adult stage they have scales; they are indeed true moths.



With both wings closed Atteva aurea resembles a beetle more than a moth. Photo by iNaturalist Tohmi Barrett.

It is thought—much like the monarch butterfly—that their bright orange forewings denote, "I taste foul." Aposematism is the

term used when an insect's coloring signals unpalatable qualities. However they do not sting or carry venom, making them entirely harmless to humans.

While the invasive Tree of Heaven is disliked by ecologists for crowding out native North American flora, the native *Ailanthus* webworm moth uses it as a primary food source. While neither the moth nor the invasive spotted lanternfly manages to kill off the resilient tree, in the end the story is one of beauty and the beast – the fashionably-colored insect and the persistence of an introduced species both interfacing to survive.

Sources

Ailanthus Webworm Moth, University of Milwaukee, uwm.edu.

Bugs in Orange and Black, Part I: An Ermine Moth, *Ailanthus* Webworm, *Atteva Aurea*, Bug of the Week Michael Raupp.

AILANTHUS WEBWORM MOTH (*Atteva aurea*). Frank, Kenneth (2015)