

Be on the lookout for BRUCE SPANWORM

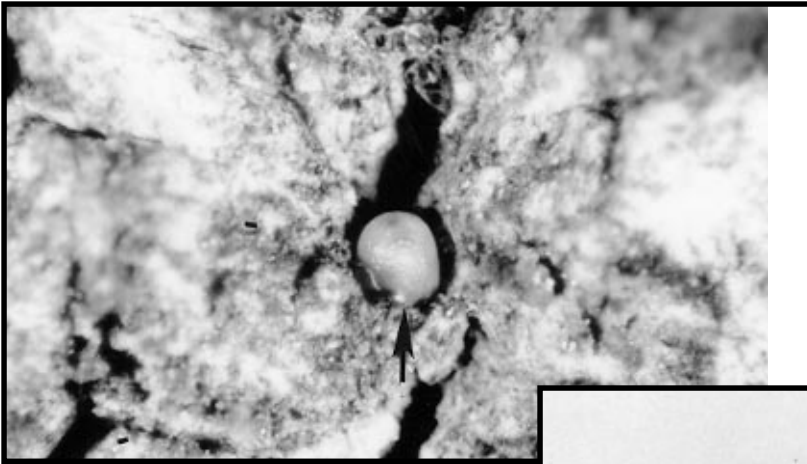


Fig. 1: Bruce spanworm egg.

By Douglas C. Allen

This is another one of those native defoliators in the inchworm or looper family that sporadically damages broadleaved trees. It is resident in northern forests from New Foundland and the Maritimes, west through the Great Lakes to Alaska.

In the east, widespread heavy defoliation has occurred in Vermont and Quebec periodically since the late 1950s. Outbreaks last from three to five years and may cover extensive areas. For example, in 1957 an infestation in Quebec encompassed 10,000 sq. miles! To the best of my knowledge Bruce spanworm has caused only minor defoliation in New York, but I bring it to your attention because in recent years scattered areas of defoliation have surfaced in our area.

About the Name

Entomologists often name an insect after a person who makes a significant contribution to the discovery of that species or materially adds to an understanding of its biology. Such is the case here. George Hulst, founder of the Brooklyn Entomological Society in 1872, described this insect as a new species in 1886 and gave it the specific name *bruceata* in honor of "a veteran and successful lepidopterist who ascertained its history" – a Mr. Bruce from Brockport, NY!

Hosts

Bruce spanworm has a wide range of hosts, as one would expect given its trans-continental distribution. In our region, preferred hosts are sugar maple and beech, but feeding may also occur on birches, cherries, quaking aspen, willow, and service-berry.

Past experience in the northeast indicates that sugar maple is a key host; that is, outbreaks typically center around this spe-



Fig. 2: Bruce spanworm caterpillar.

cies. The removal of beech from the over-story of many hardwood stands by beech bark disease and the dramatic increase in the abundance of sugar maple relative to other northern hardwoods as indicated in the most recent forest inventory (see NYFO, M/A 96) suggests to me that Bruce spanworm may become more prevalent.

Life Stages and Seasonal History

Eggs are green when first laid beneath bark scale, pieces of lichen, or in bark crevices on the tree trunk (Fig. 1), but they turn bright orange prior to overwintering. Usually egg hatch occurs at the time of budbreak; and larvae feed on expanding foliage. If tree growth is delayed by weather conditions, however, the caterpillars bore through bud scales and destroy foliage before it has an opportunity to expand.

Full grown **caterpillars** are approximately one inch long and usually bright green, though the ground color of some individuals may be very dark to almost black (Fig. 2). Regardless of color, the caterpillar has a set of three longitudinal white to yellowish-white stripes on each side. Caterpillars generally feed on the underside of leaves or are concealed between leaves that they fold and tie together with silk. Peak defoliation usually occurs during the first week of June but this, too, can vary with seasonal conditions.

When feeding is complete, usually by

late June, spanworms drop to the ground and pupate in the litter. **Adults** do not emerge until October or November, at which time, the wingless, brown white-spotted females crawl to a host and mate and deposit eggs on the lower tree trunk. These moths can be distinguished from the wingless females of other loopers, because their relatively large body scales give them a "roughened" appearance. Males have a wing span of an inch or so and, like most looper moths, are characterized by a thin

body and delicate looking wings. The front wings are semi-transparent and banded with grey or brown. The latter often appear as scalloped lines. Bruce spanworm males are one of several species of moths referred to as "hunter's moths" because they are active in late fall.

Significance

Experience in Quebec and Vermont indicates that because feeding occurs very early in the growing season, heavily defoliated trees usually refoliate. Maple mortality is unusual, but as is the case with any defoliation episode, if this stress occurs along with other disturbances such as drought, intensive concurrent silvicultural activities or late season defoliation, the probability of tree mortality increases. Extensive foliage loss and/or refoitation may lower sap production in sugar bushes.

Photos courtesy of Ron Kelley, Vermont Department of Forests, Parks and Recreation, Morrisville. ▲

Douglas C. Allen is Professor of Forest Entomology in the Faculty of Forestry at the State University of New York, College of Environmental Science and Forestry (SUNY/ESF); 146 Illick Hall, One Forestry Drive, Syracuse, NY 13210. All photos are by Professor Allen unless acknowledged otherwise.