Fall Cankerworm

Alsophila pometaria (Harris)
Lepidoptera: Geometridae

Hébert, C.; St. Antoine, L. 1999. Oviposition trap to sample eggs of *Operophtera bruceata* (Lepidoptera: Geometridae) and other wingless geometrid species. Canadian Entomologist 131: 557-565.

Objective: To develop an oviposition trap for *A. pometaria* that could be used in large scale population monitoring.

Abstract: Fall cankerworm, *Alsophila pometaria* (Harris), is a significant defoliator of northern red oak, *Quercus rubra* L., and white oaks (*Quercus* spp.), maples (*Acer* spp.), elms (*Ulmus* spp.), hickories (*Carya* spp.), ashes (*Fraxinus* spp.) and *Prunus* spp. in Canada and the northern U.S. Fall cankerworm can cause a reduction in growth, mast production, and even tree mortality. In public areas, defoliation reduces the aesthetic value of infested trees.

A new egg sampling method for wingless geometrid moths that uses an oviposition trap has been refined from earlier work (Hébert & St. Antoine 1998), where females lay eggs on a polyurethane foam band covered by a Multi-Pher® plate. This trap was initially devised for monitoring populations of the Bruce spanworm, *Operophtera bruceata* (Hulst), but was also useful for surveying populations of *A. pometaria*. Density of *A. pometaria* eggs on oviposition traps was higher than adult females on sticky traps, and the oviposition traps were more effective in detecting low populations of *A. pometaria*. Moreover, oviposition traps did not become saturated at high population densities of *A. pometaria*, a phenomenon that occurred regularly with sticky bands used to trap adult females. Sub-sampling eggs on the polyurethane foam band is recommended when egg densities on the traps are high. This trap is also useful for monitoring populations of winter moth, *Operophtera brumata* (Linnaeus).

Sampling Procedure: The standard trap is a 1.2 m post of black ABS (acrylonitrile butadiene styrene) pipe, with a 10 x 31 cm band of polyurethane foam attached lengthwise around the top of the post. Each trap has a model I Multi Pher trap with a closed funnel placed on top of the post. Posts are sandblasted to ensure that the wingless females can climb to the oviposition strip. Trap placement and density will depend on the objective(s) of the sampling effort. Traps should be installed before the oviposition period of *A. pometaria* and collected after oviposition has ceased. Examine collected foam strips and count the number of eggs laid on them with the aid of a light table. Sub-sampling the foam strips is often necessary to reduce effort when moth populations are high. Divide the foam strip into 30 pieces measuring 1 x 10 cm each. Randomly select and count the eggs on three pieces, which is the recommended sub-sample size.

Notes: Several wingless geometrids could lay eggs on the foam strips, causing a bias in estimation of the population of the targeted insect pest. An insecticidal strip in the Multi-Pher trap to trap adult females might help determine the relative contribution of eggs by species. The eggs of *A. pometaria* are black while those of *Operophtera bruceata* are orange.

Reference:

* Hébert, C.; St-Antoine, L. 1998. The oviposition trap: a new technique for sampling eggs of the Bruce spanworm and similar species. Res. Notes 5. Canadian Forest Service, Laurentian Forestry Centre; 4 p.