European Pine Sawfly
Neodiprion sertifer (Geoffroy)
Hymenoptera: Diprionidae

Objective: To develop an efficient, accurate sampling method to estimate *Neodiprion sertifer* (Geoffroy) density in the field.

Abstract: The European pine sawfly was introduced into North America in 1925 and now occurs throughout the north-central and northeastern USA and Canada. The pest feeds on two- and three-needle pines, but often causes little damage as feeding occurs almost exclusively on old foliage. Eggs are laid in the fall in loose clusters, and are often used as a means to estimate population density. Lyons (1964) recommended the use of whole trees as sample units, which are rather costly to sample unless the trees are quite small.

The use of a vertical sampling pole that delineates known foliage volumes was used to count *N. sertifer* eggs and egg clusters. The sampling pole was a 2.5 cm diameter and 183 cm long hardwood pole intersected with wooden dowels at 30 cm intervals. This tool can be used to quantify the amount of foliage, estimate coverage, and to determine the distribution of damage. The number of eggs per cluster was found to range from 60-170, with a mean of 59.3 ± 6.28 eggs per cluster, using this method.

Sampling Procedure: The authors describe the sampling pole as a hardwood pole, 2.54 cm in diameter and 183 cm in length, intersected by 0.95 cm diameter wooden dowels at 30 cm intervals. Each dowel is at a right angle to the one below. Drill a 0.5 cm vertical hole near the end of each dowel (i.e., holes are 21 cm apart), and string a sighting wire from top to bottom of the pole through each hole (refer to Fig. 2 in the original publication). The dowels and sighting wires delineate a 7000 cm^3 volume.

Place the sampling pole as close as possible to the sample tree. Record the amount of current year's foliage, and number of eggs and egg clusters within each vertical sample unit. Divide the total number of eggs or egg clusters by the amount of current year's foliage to determine egg density per unit foliage.

Note: Variable sampling volumes can be created by simply changing the distance between dowels and sighting wires.

Reference:

Lyons, L. A. 1964. The spatial distribution of two pine sawflies and methods of sampling for the study of population dynamics. *Canadian Entomologist* 96: 1373-1407.