

Western Spruce Budworm

Choristoneura occidentalis Freeman

Lepidoptera: Tortricidae

Harris, J. W. E.; Dawson, A. F.; Brown, R. G. 1981. Selecting sampling points for larvae of western spruce budworm, *Choristoneura occidentalis* (Lepidoptera: Tortricidae), from survey records in British Columbia. *Journal of the Entomological Society of British Columbia* 78: 7-9.

Objective: To reduce sampling effort for populations of *C. occidentalis* by selecting sampling locations from survey records.

Abstract: Western spruce budworm, *Choristoneura. occidentalis* Freeman, is a periodically severe defoliating pest of Douglas-fir, *Pseudotsuga menziesii* (Mirb.) Franco, and true firs (*Abies* spp.) in northwestern North America. The Canadian Forestry Service conducts an annual survey of Douglas-firs for *C. occidentalis* larvae as part of its Forest Insect and Disease Survey (FIDS). The authors examined the historical database produced by FIDS and applied a set of criteria to the records in an attempt to reduce the number of locations sampled annually without altering the population trend estimated using the entire database. Data from 1949 to 1978 were analyzed and 17 sampling locations from the original dataset of 98 sites were identified that effectively predicted the population trend of *C. occidentalis*. Sampling a subset of the sites allows for a reduction in sampling effort with concomitant savings in labor and associated costs.

Sampling Procedure: Only sample *C. occidentalis* at sites that meet the following criteria:

1. Site has been sampled for 5 or more years.
2. *C. occidentalis* larvae were found in at least 30% of the years the site has been sampled.
3. Site had a larval population greater than the average of all locations sampled in at least 30% of the sample years.
4. Site has had noticeable defoliation within the sampled Universal Transverse Mercator map grid for 5 or more years.
5. Defoliation at the site was visible in the first year defoliation was detected within the surrounding drainage.

Sample 3 trees of each species of interest at each selected site by laying a 2.1 by 2.7 m white sheet under a tree and beating the branches with a 3.7 m pole for approximately 30 secs (Harris et al. 1972). Identify and count the larvae that fall onto the sheet. Sampling from locations that are easily accessible by roads or waterways, *i.e.* "roadside sampling", is convenient, economical, and statistically appropriate.

Reference:

Harris, J. W. E.; Collis, D. G.; Magar, K. M. 1972. Evaluation of the tree-beating method for sampling defoliating forest insects. *Canadian Entomologist* 104: 723-729.