

Douglas-Fir Tussock Moth

Orgyia pseudotsugata (McDonnough)

Lepidoptera: Lymantriidae

Shepherd, R. F.; Otvos, I. S. 1986. Pest management of Douglas-fir tussock moth: procedures for insect monitoring, problem evaluation and control actions. Research Rpt. BC-X-270. Victoria, B.C.: Canadian Forestry Service, Pacific Forestry Centre; 14 p.

Objective: To review the integrated pest management practices for *O. pseudotsugata* populations in British Columbia.

Abstract: Douglas-fir tussock moth, *Orgyia pseudotsugata* (McDonnough), is a periodic defoliator of Douglas-fir, *Pseudotsuga menziesii* (Mirb.), and true firs, *Abies* spp., in western North America. Outbreaks occur quite unexpectedly every 7-10 years and usually persist for 3-4 years. Defoliation by *O. pseudotsugata* can be severe and cause widespread tree mortality during the first year of an outbreak. Surviving trees may exhibit growth loss, top-kill, and tree deformity.

Sampling Procedure: Much of the information included in this thorough guide has been presented as individual research articles in *Sampling Methods for Forest and Shade Tree Insects of North America*, Vol. 1, or the current volume. However, those unfamiliar with *O. pseudotsugata* may find this publication to be an informative source of management practices in British Columbia. The authors have described the identification of susceptible and infested stands; the detection and monitoring of *O. pseudotsugata* populations at low and increasing densities; the evaluation of the need for control measures; and available control options. The timeline, presented below, is particularly useful in summarizing the steps in the pest management process for *O. pseudotsugata* over the year.

Schedule of Procedures

The essential steps and procedures of the pest management system for the Douglas-fir tussock moth in British Columbia are listed with the approximate time of initiation relative to the first year of defoliation.

1. Planning stage before problems arise

Identify stands susceptible to outbreaks by comparing overlay maps of historical outbreaks, forest types, plant communities and climatic zones.
2. July to September annually

Within susceptible stands, establish and maintain monitoring sites to determine year-to-year trends in number of moths caught in pheromone traps.
3. October annually

Check pheromone traps and if catches at the permanent monitoring sites have increased for at least 2 years and moth density has reached 8-10 moths/trap, an outbreak is probably only 2 years away; initiate step 4.
4. July of each year until the outbreak subsides

Deploy a network of auxiliary pheromone traps to help locate infested stands.
5. October of each year until the outbreak subsides

If moth counts in pheromone traps at the permanent monitoring sites have increased for 2-3 years and average moth density has reached 25 moths/trap, an outbreak may be expected the following year; initiate step 6.
6. October of each year until the outbreak subsides

Search for egg masses in stands close to permanent or auxiliary traps that caught an average of 25 or more moths/trap. When a pocket of egg masses is found, determine the density through a lower-branch sequential egg-mass survey and predict the level of defoliation for next year (Shepherd et al. 1984); initiate step 7.
7. November of each year until the outbreak subsides

If egg masses are present, consider all available options for managing the insect problem. If insecticide or virus treatment or harvesting is chosen, conduct surveys to map infestation boundaries, determine areas, timber volumes, etc. as necessary and plan the operation.
8. May or June in year when defoliation is expected

If the harvest option is chosen, completely cut the infested stands and burn the residual slash by May prior to larval hatch. If insecticide or virus control is chosen, carry out application immediately after larval hatch and dispersal.

Reference:

- * Shepherd, R. F; Otvos, I. S.; Chorney, R. J. 1984. Pest management of Douglas-fir tussock moth (Lepidoptera: Lymantriidae): a sequential sampling method to determine egg mass density. Canadian Entomologist 116: 1041-1049.

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