Tussockosis

Tussock moth caterpillars are covered in thousands of tiny hairs. Tussockosis is an allergic reaction, which results from contact with these hairs including airborne hairs that have been shed. Rashes, watery eyes and sneezing are common symptoms. Intense itchiness may also follow. Nearly one in five persons is allergic to this insect. Avoid handling the caterpillar and wash after exposure. If tussockosis symptoms are severe, seek the advice of a physician.

Tussock moth control and management

When tussock moth populations are not in outbreak mode, then natural controls such as predators and parasites control population levels. Birds prey on newly hatched larvae; and eggs, larvae and pupae are parasitized. As tussock moth populations build to outbreak levels, a nuclear polyhedrosis virus (NPV) appears later in the infestation and frequently will cause the collapse of the outbreak population. NPV has been isolated and is now registered for use by government agencies such as the BC Ministry of Forests and Range and the Canadian Forest Service.

Before a control program is considered however, an integrated pest management system involving monitoring with pheromone traps and ground surveys for egg masses is implemented. This helps identify and delineate incipient populations prior to the onset of an outbreak.

pheromone trap with captured male tussock moths

Applying NPV to small, localized populations will cause them to collapse and large-scale tree mortality should be averted. Application of NPV is done just once after the spring hatch, when caterpillars are small and feeding on new foliage. The virus is spread throughout the population via insect-to-insect contact. The caterpillars continue to feed through the summer, although at a reduced rate, and die as they reach the end of the caterpillar stage. The registered name of NPV is Virtuss. The Pest Control Product (P.C.P.) Registration Number for Virtuss is PCP-17786.

tussock moth larvae killed by NPV

Other methods of control include a well-timed spray of approved insecticides such as Orthene® and Sevin® which are best applied in late May (when caterpillars have begun feeding) and then again in late June or early July (if caterpillars and feeding are still noticeable). Wear protective clothing and follow the label instructions carefully.

current year defoliation by Douglas-fir tussock moth

For more information

Further information on the tussock moth and its control is available from BC Ministry of Forests and Range regional office.

Southern Interior Region (250) 828-4179

THE DOUGLAS-FIR TUSSOCK MOTH

(*Orgyia pseudotsugata*)

male Douglas-fir tussock moth

Insects of the Southern Interior Region

Ministry of Forests, Lands &
Natural Resource Operations
Thompson Okanagan Region, Kamloops

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The Douglas-fir tussock moth

The Douglas-fir tussock moth is a native insect in the low-lying, dry-belt Douglas-fir regions of southern British Columbia. Its distribution ranges from the lower mainland to Cache Creek, areas of the north and south Thompson Valley and into the Okanagan and Similkameen valleys. Outbreaks of tussock moth occur every eight to twelve years, causing significant damage and mortality to Douglas-fir stands in these areas. The last outbreak occurred between 1990 and 1993, with small, localized population flare-up in 2000-2001.

During epidemics, tussock moth caterpillars devastate trees on both Crown and private lands. These outbreaks usually persist about three to four years before natural controls such as predators, pathogens and starvation cause populations to collapse.

Host trees

Primarily Douglas-fir, occasionally ponderosa pine and western larch.

Ornamental spruce and pine may also be affected in urban situations.

Understanding the Life Cycle

The tussock moth has a one-year life cycle and overwinters as eggs. Adults appear from late July to early September. The adult female is grey to dark brown, stout bodied, wingless and sedentary, usually remaining camouflaged on her cocoon.

wingless female tussock moth on cocoon

Males have wings and slender bodies with about a 30 mm wingspan. Males emerge before the females and fly in search of them. Females attract males by emitting a sex pheromone and mating occurs on the cocoon, typically, on the same day that the female emerges.

Each female lays approximately 200 round, white eggs in a single mass on her empty cocoon. The eggs are embedded in a frothy cement covered with abdominal hairs.

female and male moths with eggs on cocoon

Larvae (caterpillars) hatch in late spring and feed voraciously on the current year's foliage. The young larvae disperse by silken threads on light winds. As they mature, they feed on both old and new foliage. Mature caterpillars are easily identified by three, long, black tufts; one located on the rear of the insect and two on the head.

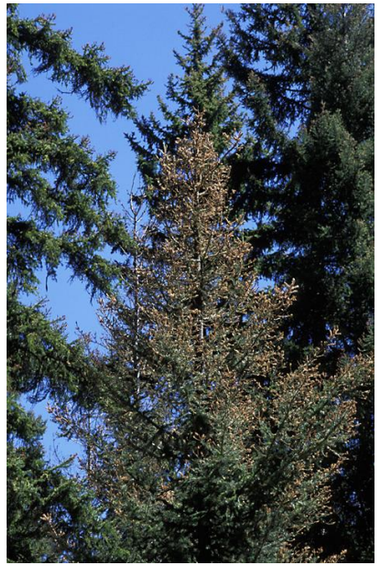
mature tussock moth larva on Douglas-fir branch

In late July, the larvae pupate in cocoons, which are made of silk and larval hairs. Cocoons are found on the underside of branches. During infestations, they may also be found on tree trunks, fences and buildings. Adults emerge from the cocoons two weeks later to begin the cycle again.

tussock moth cocoon

Tree damage and detection

Tree damage caused by tussock moth caterpillars ranges from the loss of new needles on branch tips to complete defoliation. Trees appear reddish in colour as a result of this feeding. The upper part of the crown and the branch tips are defoliated first. The remainder of the foliage can be destroyed as the larvae migrate down the crown. By July, defoliated trees appear scorched. Trees can be killed very quickly, often after only one or two years of repeated attack. Douglas-fir trees that have been weakened by tussock moth defoliation may become susceptible to Douglas-fir beetle, which is most often fatal.



Fresh defoliation by tussock moth