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Text: D.W. Langor
Illustration: D. Lee
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Natural Resources Canada
Canadian Forest Service
Northwest Region
Northern Forestry Centre
5320 - 122 Street
Edmonton, Alberta
T6H 3S5

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Satin moth



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Distribution and Hosts

The satin moth, *Leucoma salicis* (L.), was introduced into North America from Europe. It was first detected near Boston, Massachusetts, and British Columbia in 1920. In the eastern part of the continent, the species is currently distributed from Newfoundland through eastern Canada and the northeastern United States to Ontario. In the west, it is distributed from British Columbia to northern California. In 1994, an infestation of the satin moth was detected in Edmonton and St. Albert, Alberta. The species has likely been present in Edmonton since 1991 and is now well-established. Satin moth larvae feed on all species of poplar and willow, but prefer ornamental varieties of poplar. There are also a few reports of this species feeding on oaks, crabapple, and Saskatoon in British Columbia. Although it is mainly a pest of planted trees, the satin moth has also attacked natural stands of poplar and willow throughout Canada.

Symptoms and Damage

The first signs of damage become noticeable in mid- to late May when overwintered larvae commence feeding on leaves. As feeding progresses, larvae consume whole leaves except for the major veins. This causes the foliage on trees to look thin. Damage is most conspicuous after mid-June, when late-instar larvae consume large quantities of foliage. Larvae usually molt on the undersides of branches, leaving visible cast skins there. Feeding is completed by late June or early July, and larvae construct conspicuous loosely woven silken cocoons in rolled leaves, on twigs, or in bark crevices, in which they pupate. The next generation of larvae, which commences feeding in August, skeletonizes leaves but causes little damage. If it is too late in the season to observe live mature larvae and pupae, satin moth

infestations are apparent from the presence of rolled leaves containing pupal cases or empty larval skins, and silken webbing on boles and branches.

Satin moths are capable of completely defoliating trees. Severe defoliation in several consecutive years results in reduced radial growth of stems, branch mortality, and some tree mortality. The impact of defoliation can be more severe on trees already stressed by other factors such as drought, and trees weakened by defoliation can be attacked by other opportunistic insects and fungi. The aesthetic value of ornamental trees can also be seriously affected by this insect. The migration of larvae from completely defoliated trees in residential areas can cause a public nuisance.

Causal Agent

Adult satin moths appear in July and August. Their wings are satiny white and have no markings and the wingspan is 24–47 mm. The stout, black bodies show through the dense covering of white hairs. After mating, females lay eggs in batches of up to 400 on leaves and sometimes on branches and trunks. Eggs are light green, flat, and laid in oval masses of 150–200 eggs covered with a glistening, white secretion. When eggs hatch after about 2 weeks, young larvae move to the leaves, which they skeletonize as they develop through two instars. Second-instar larvae seek out hibernation sites on the trunk or branches of a host tree, and molt after spinning silken coverings (hibernacula) that are usually covered with bark particles, mosses, or lichens. After overwintering, these larvae emerge in mid-May and commence feeding on newly flushed leaves. Larval feeding continues until late June or early July. There are seven to eight larval instars. Larvae are 35–45 mm long when full grown. The basic body color is a grayish-brown, and

the head and back are dark. There is one row of large, oblong white or pale-yellow patches along the middle of the dorsal surface and two subdorsal yellowish lines. The two lateral and two subdorsal rows of orange tubercles have tufts of long brownish hairs attached to them. Mature larvae spin silken cocoons in the leaves, in which they pupate. Pupae are shiny black, 15–22 mm long, and have tufts of yellowish hairs. Moths emerge from pupae after about 10 days to complete the 1-year life cycle.

Prevention and Control

There is no practical way of preventing access of satin moths to trees. To help trees to better withstand defoliation, keep them healthy by watering the roots in the fall before frost sets in, applying a suitable fertilizer each spring, and watering them during prolonged dry periods in the summer.

In North America, the satin moth has many natural enemies, including parasitic wasps, flies, mites, predatory birds and beetles, and a polyhedrosis virus. Parasitism by flies and wasps often contributes to population collapse; however, preliminary observations indicate very low mortality by natural enemies in the Edmonton area. It is anticipated that natural enemies will be imported from British Columbia for release in Alberta to help control satin moths.

Chemicals have proven useful in controlling outbreaks in small groups of trees in urban areas, parks, and windbreaks. Sprays should be applied in the spring when leaves are fully developed and overwintered larvae have emerged from hibernation, or in early to mid-August when young larvae are skeletonizing leaves.

For the most recent information on chemicals available for control of this pest, call