School Pest Solutions

Browntail Moth

The browntail moth was accidentally introduced into Somerville, Massachusetts from Europe in 1897. By 1913, the insect had spread to all of the New England states, New Brunswick, and Nova Scotia. Since that time, populations of this pest slowly decreased due to natural controls until the 1960's, when browntail moth was limited to Cape Cod and a few islands off the Maine coast in Casco Bay.

Browntail Moth larvae

Browntail Moth adults

Nest structure

Damage

The larval stage (caterpillar) of this insect feeds on the foliage of hardwood trees and shrubs including: oak, shadbush, apple, cherry, beach plum, and rugosa rose. Larval feeding causes reduction of growth and occasional mortality of valued trees and shrubs. While feeding damage may cause some concern, the primary human impact from the browntail moth is the result of contact with poisonous hairs found on the caterpillars. Contact of these hairs with human skin causes a rash similar to poison ivy that can be severe on some individuals.

Life History

The browntail moth produces one generation a year. It has four life stages; egg, larval, pupal, and adult. The larval stage lasts for nine months, from August through June. In the fall, colonies of larvae build nests in trees constructed from a single leaf wrapped tightly with large amounts of white silk. A colony consists of 25 to 400 or more larvae. The larvae overwinter within webbed nests that are two to four inches long and are situated on branch tips. Fall webworm nests, often confused with the browntail moth winter webs, are loose, further in on the branches and more often found in ash trees then oak or apple. Eastern tent caterpillar tents are found in crotches and forks of apple and cherry tree branches during the spring.

In the spring, as soon as the earliest leaf buds open, the larvae become active and crawl out of their nests to feed on the tender foliage. They may devour the foliage as fast as it develops. For a time the larvae crawl back into the web at night, but as they become larger they remain out on the leaves. By late June, larvae are full grown. Large larvae, about 1 1/2 inches long, are dark brown and have a broken white stripe on each side of the body and conspicuous, unpaired, reddish spots on the posterior end of the back. These should not be confused with

larvae of the eastern tent caterpillar which has a single, solid, white stripe down its back or the gypsy moth which has paired blue and red spots on its back.

In late June, the larvae spin rough cocoons in which to pupate. Pupal cocoons are full of toxic hairs and should be removed from buildings or trees only with great caution. The pupae develop into moths which emerge from the cocoons in July. The moths have a wingspread of about 1 1/2 inches. Wings and midsection are pure white. The abdomen (rear part of the body) is brown with a conspicuous tuft of brown hairs at the tip.

After emerging, the females lay eggs in masses on the underside of leaves and cover the eggs with brown hairs from their bodies. Each female lays 200 to 400 eggs. The eggs hatch during August or early in September and the young larvae feed for a short time on the leaves before building their winter webs. This fall feeding does little damage to the trees.

Precautions

The browntail moth caterpillar has tiny (0.15 mm) poisonous hairs (setae) that cause dermatitis (skin rash) similar to poison ivy on sensitive individuals. People may develop dermatitis from direct contact with the caterpillar or indirectly from contact with airborne hairs. The hairs become airborne from either being dislodged from the living or dead caterpillar or they come from cast skins when the caterpillar molts. Most people affected by the hairs develop a localized rash that will last for a few hours up to several days but on some sensitive individuals the rash can be severe and last for several weeks. The rash results from both a chemical reaction to a toxin in the setae and a physical irritation as the barbed setae become embedded in the skin. Respiratory distress from inhaling the hairs has been reported (11% of the population in one health survey) and can be serious.

The following precautions may help people living or visiting browntail moth infested areas during June through August:

- Avoid places heavily infested by caterpillars. Campers should plan their stays on un-infested islands. Take a cool shower and change clothes after any activity that might involve contact with browntail moth hairs.
- Dry laundry inside during June and July to avoid having the hairs become impregnated in clothing. Wear respirator, goggles and coveralls tightly closed at neck, wrists and ankles when performing activities that stir up caterpillar hairs such as:
    - mowing
    - raking
    - weed whacking
    - removing pupal webbing from eaves and boats.
- Perform the above tasks above on damp days or wet down material with a hose as moisture helps keep the hairs from becoming airborne, thereby minimizing contact.
- Use caution cleaning debris left by caterpillars because the toxin is extremely stable and remains a hazard for a number of years. Summer residents should bear this in mind when opening cottages that have been closed all winter as the hairs frequently settle over the winter and may be contacted when spring cleaning. Wet mopping prior to vacuuming or dusting is advised.
- Consult your physician if you develop a severe reaction to the browntail moth.
- Be aware that the chances of contacting browntail hairs increases during dry windy conditions.

Control

Non-chemical: Control of browntail moth populations in isolated areas may be obtained by clipping the overwintering webs and destroying these webs by soaking in water or burning them. This control should be undertaken in the winter and very early spring - September to mid-April.

Chemical: Undertake control measures as early as possible to reduce the exposure to the irritating caterpillar hairs. Pesticides should be applied when caterpillars are present and feeding, from early May through the end of June. Webs and larvae that are high up in trees are difficult for a home owner to effectively control, seek professional help from an arborist who is a licensed pesticide applicator. Note: There are special regulations regarding control of browntail larvae within 250 feet of marine waters. A licensed pesticide applicator should perform control work in these areas.*

In other locations where larvae are within reach, Pyrenone or Sevin (these chemicals are not allowed within 250 feet of marine waters) should provide acceptable control results. Only registered fruit tree formulations should be used on apple and other fruit trees.

*Note: These recommendations are not a substitute for pesticide labeling. Read the label before applying any pesticide. Pesticide recommendations are contingent on continued EPA and Maine Board of Pesticides Control registration and are subject to change. Caution: For your own protection and that of the environment, apply the pesticide only in strict accordance with label directions and precautions.

Forecast: At this time it is not possible to accurately predict the future populations of this pest in Maine. The insect is likely to remain a coastal problem. Although not limited to this area, persons within five miles of Casco Bay, and those on the islands in the Bay should be especially aware of the problem and avoid handling the caterpillars if they are encountered.

Anyone making pesticide applications on school property must be licensed by the Board of Pesticides Control. See "Standards for Pesticide Applications and Public Notifications in Schools".

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