

Management of the Cherry Bark Tortrix

Prepared by Lynell K. Tanigoshi, Entomologist, WSU Vancouver R&E Unit
and Todd A. Murray, Whatcom County Cooperative Extension

Cherry bark tortrix (CBT), *Enarmonia formosana* (Scopoli) was first reported in 1989 infesting cherry trees in Richmond, British Columbia. Internationally, CBT has been known to occur in Eurasia, Africa, and North America. The problem was first detected in 1991 by the Washington State Department of Agriculture in the Peace Arch State Park, near Blaine, Whatcom County. In a 1996 survey of randomly selected cherry trees in Bellingham, 75-80% of the trees were found to be infested with CBT. Currently, the Seattle area is experiencing these same infestation rates. CBT populations are well established in the humid, temperate, broadleaf forest regions of western lowland valleys in the Cascade Mountain Range along Puget Sound. Cherry bark tortrix has been moving southward and eastward in steady surges. The most southern trap site in 1998 was near Centralia, about 35 miles north of the Columbia River and Oregon State border. CBT has been found in North Bend near Snoqualmie Pass on its path eastward.

Life History and Description

CBT births one generation per year, and the adult flight period extends from May to September with two peak periods of flight activity. The forewing of an adult CBT measures between 0.6 and 0.7 inches, and appears cryptically ornate with a dark brown to black-purplish sheen coloration. It also exhibits yellow-orange markings and several white patches along the leading edge of the forewings. Black bars on the forewings are characteristic markings of CBT.



Fig. 1. Frass tube protruding from surface of the bark.
By T.A. Murray.

Females emerge about two weeks after male flight in May and begin laying eggs 1-4 days after emergence. Eggs measure 0.03 inches in diameter, appear slightly dome-shaped and turn from a milky-white to salmon-pink color. Eggs are commonly laid singly or in small patches near previously infested bark, which displays lesions, gummosis, and frass mixed with silken webbing. The color of the larva ranges from light brown to darkish-pink with a light brown head. Larvae mature through five separate instars and measure 0.3 or 0.4 inches in length. CBT overwinters in mixed stages of 2nd to 5th instar larvae. They will feed at temperatures above freezing throughout the winter months. Late instar larvae are fully grown by the following spring. They then pupate within their silken cocoon, which is commonly spun within the externally formed "frass tubes" (Fig. 1). The specific life stages of CBT have no synchronous pattern, thereby enabling a long flight period.

Damage

First instar larvae feed on the bark and outer sapwood while the 2nd through 5th instars make tunnels between the bark and cambium, but do not penetrate the hard wood. Infestations usually occur upward from the base of the tree. Infestations are easily recognized by reddish-orange colored frass accumulations or frass tubes near gallery entrances. Larvae damage trees by direct feeding which reduces or excludes transportation of nutrients to the roots. The feeding causes exudation of gum and deformation of bark growth on the main branches and trunk. Along infested sides of the tree, dieback of new and old growth can occur from the portion girdles. Indirect damage occurs through the formation of habitats for secondary pests such as bark beetles, fungi, and increasing susceptibility of infested trees to successive years of freezing damage, which can result in the death of the tree.

Chemical Management

Due to the asynchronous life cycle of Cherry Bark Tortrix (CBT), it is important to time chemical controls to target the whole population while it is in the same life stage. This occurs only in fall, winter, and early spring, when all CBT are in the larval stage. However, the larvae are protected inside the tree.

Discovering the weak-link of CBT's biology has provided a key to controlling the larvae with pesticides. The CBT larvae meticulously maintain their frass tubes two times in the season: early fall and spring. The most successful timing for pesticide applications have been in early fall. Although spring provides equally good control of larvae, pupation dates are hard to predict. CBT pupae are not susceptible to pesticide treatments. In early fall, all adult flight has ended, eggs have hatched, and all CBT exist as larvae. During this time, temperatures are still conducive for larval activity (frequent visitations to the frass tube).

Since adult flight usually ends from early- to mid-September, apply chemicals in late September and early October. Hand-held spray devices are sufficient for controlling CBT. If treating a single tree, use only a very small volume of product. One quart of mixed product is usually sufficient for treating even a large ornamental cherry with a high CBT infestation.

Using low pressure and large droplets, spray areas where frass tubes are observed until the product runs off. This will sufficiently soak the frass tube with the product. Only treat areas of infestation, such as the trunk, graft union, and large scaffold branches. Do not treat the canopy. Treat only ornamental trees, not fruit-bearing trees. Acephate and cyfluthrin are available to homeowners for controlling this pest on non-fruit-bearing trees. Longer persisting pesticides, such as synthetic pyrethroids, have given excellent control for at least 2 years. Applicators using lambda-cyhalothrin reduced CBT populations from 800 plus larvae to 3. This product is only available to commercial applicators. Effects of this application (lambda-cyhalothrin) are holding into the second year after treatment. To properly select a pesticide, please consult the most recent [PNW Insect Management Handbook](#), your local Cooperative Extension office, or the Hortsense website (<http://pep.wsu.edu/hortsense>) for the most current recommendations. Follow label directions carefully if insecticides are used. For a more detailed description of the biology and management of the Cherry Bark Tortrix, please see EB 1893: [Cherry Bark Tortrix: Biology and Population Management](#).