



## PEST WATCH: CHERRY BARK TORTRIX

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## Introduction

Cherry bark tortrix, *Enarmonia formosana* (CBT), is an invasive pest of many shrubs and trees, especially those in the Rosaceae family. The larvae of this broad-winged moth are bark borers that can damage plants severely enough to kill them.

Although CBT occurs in areas of Eurasia, Africa, and North America, the current distribution of CBT in the Pacific Northwest is limited to coastal western Washington, northwestern Oregon, and British Columbia. The Washington State Department of Agriculture first detected CBT in 1991 in the Peace Arch State Park, near Blaine, Washington.

## Host plants

All woody shrubs and trees in the Rosaceae family are susceptible to attack by CBT, especially species of *Prunus*, including cherry, plum, peach, apricot, apple, crabapple, pear, and Portuguese laurel, as well as species of *Pyracantha* (firethorn) and *Photinia*, plus quince, hawthorn, and mountain ash. Tree variety selection, maintaining optimum tree health, and good horticultural practices will decrease host susceptibility to CBT infestation.

## Identification

The adult CBT is a coppery-colored moth with subtle markings including black and orange markings and several white patches along the leading edge of its wings (Figure 1). The forewing measures 0.6–0.7 inches in length.

## Life Cycle

CBT produces one prolonged generation per year, and the adult flight period extends from May to September often with two flight periods. CBT survives the winter as larvae feeding beneath the bark until spring. Severe infestations can collectively girdle and eventually kill rosaceous, woody shrubs and cherry trees, either outright or secondarily by weakening the plants until they are susceptible to other insects, diseases, or freezing damage.

## Management

Successful management of this pest requires inspecting possible host trees regularly. On infested trees, use registered insecticides as carefully targeted bark treatments and physically destroy (by chipping or burning, for instance) dying or dead trees to prevent spread of the pest.



Figure 1. Adult cherry bark tortrix moth. (Photo courtesy of T. Murray.)

A variety of horticultural practices in each season (as described below) can help decrease susceptibility to CBT and manage minor infestations.

## Early Spring

Overwintering larvae damage trees by tunneling beneath the bark in the cambium layer, interrupting and preventing movement of nutrients to the roots and water solutes to emerging buds and shoots. Larval feeding also causes a discharge of plant sap or gum (gummosis) and bark deformation (Figure 2).

- No chemical controls are effective at this stage because larvae are protected inside the tree.
- Postpone insecticide applications until fall.



Figure 2. Cherry tree trunk showing frass tube formation and sap flow. (Photo courtesy of L. Tanigoshi.)

## Late Spring

The flight period of adult moths begins in late spring.

- Watch for CBT pupae projecting from frass tubes made from their fecal pellets and silk webbing as adults begin to emerge and flight is imminent (Figure 3). The flight period of adult moths begins in late spring.
- Scout for adult moths on the trunk and scaffold (main) limbs of infested host plants. Check visually or use a three-side sticky trap charged with a synthetic pheromone lure that is specifically attractive to CBT males (Figure 4).
- Monitor other susceptible host plants in your home landscape for infestation. Although cherry is its preferred host, CBT will move to other nearby hosts.

## Summer

Individually laid eggs (milky white to salmon pink in color) are scattered on the tree trunk, often near the graft union (Figure 5).

- Monitor population levels to prepare for fall treatments.
- Remove tall grass at the base of trees and direct sprinklers away from susceptible tree trunks to reduce humidity and discourage CBT infestation.



Figure 4. Sticky-sided diamond trap showing CBT lure. (Photo courtesy of B. Gerdeman.)



Figure 3. Pupal skin of an emerged CBT adult protruding from a frass tube. (Photo courtesy of T. Murray.)



Figure 5. Maturing dome-shaped eggs showing developing CBT larvae. (Photo courtesy of B. Gerdeman.)



Figure 6. *Trichogramma cacoeciae* parasitizing flour moth eggs. (Photo courtesy of K. Breedvelt.)

- Refrain from treating tree trunks for CBT during the summer to protect beneficial insects that are actively hunting CBT at this time. For example, *Trichogramma cacoeciae* is a native parasitic wasp that attacks CBT eggs (Figure 6), while larger wasps parasitize larvae and pupae. **Parasitized eggs are black rather than white or pink.** None of these natural enemies will eradicate CBT but it is important to conserve them so they can help with control.
- Avoid pruning during the active flight period of adult CBT, from May through September. Females are attracted to wound secretions as favorable egg-laying sites.

## Fall

The most successful timing for pesticide applications has been in early fall, when all adult flight has ended, eggs have hatched, and all CBT exist as larvae within the tree. During this time, temperatures are still conducive for larval feeding activity and frequent visits to construct and elongate the frass tube.

- Inspect the trunk and main branches of cherry, apple, and pear trees (both fruiting and ornamental trees) in September and October. Look for reddish-orange frass tubes because larvae are actively tunneling under the bark at this time (Figure 7).
- In October, treat infested trees with a carefully targeted bark treatment of an insecticide labeled for use on CBT. Apply the insecticide to frass tubes to control overwintering populations (Figure 8).
- For assistance in selecting the appropriate insecticide, consult [www.hortsense.wsu.edu](http://www.hortsense.wsu.edu) or the [PNW Insect Management Handbook](#).



Figure 7. CBT larval “gallery” in bark cambium of a cherry tree. (Photo courtesy of T. Murray.)

- To evaluate your treatment, remove frass tubes by brushing them off the selected area to be treated (Figure 9).
- Treat specific areas of infestation (for example, tree trunks, graft unions, large scaffold branches). Do NOT treat the canopy (leaves and upper branches).
- One week later, look for reemergence of frass tubes in the areas that had been swept clean.
- Absence of frass tubes indicate a successful treatment. Presence of numerous new frass tubes suggests a need for retreatment.



Figure 8. Spot treatment of insecticide for CBT damage to a sweet cherry tree. (Photo courtesy of B. Gerdeman.)

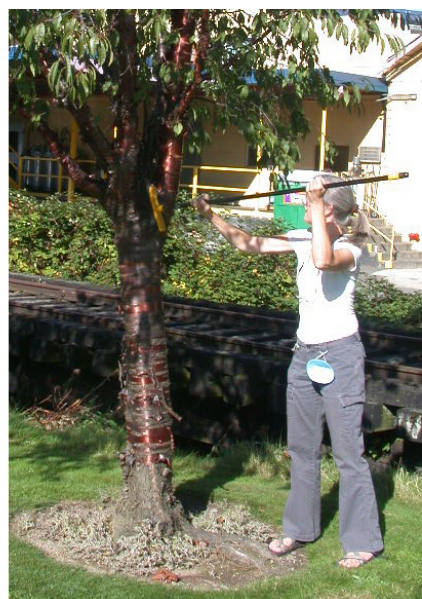


Figure 9. Sweeping a cherry tree trunk to remove frass and evaluate insecticide effectiveness. (Photo courtesy of L. Tanigoshi).

## Further Reading

Beers, E. H. and J. F. Brunner (Editors). 1993. [Orchard Pest Management Online](#). Washington State University Tree Fruit Research & Extension Center.

Tanigoshi, L. K. and T. A. Murray. 2000. Cherry Bark Tortrix: Biology and Population Management. Washington State University Extension Bulletin 1893. (Out of print.)

Tanigoshi, L. K. and T. A. Murray. 2002. [Management of the Cherry Bark Tortrix](#). WSU PLS-67. Puyallup: Washington State University Research & Extension Center.

WSU Extension. 2014. [Hortsense: Home Gardener Fact Sheets for Managing Plant Problems with IPM or Integrated Pest Management](#). Washington State University.

*Cover photo by Beverly S. Gerdeman, Washington State University.*



Use pesticides with care. Apply them only to plants, animals, or sites as listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

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