PEACH BARK BEETLE and Black Cherry

By Douglas C. Allen

Peach bark beetle has been a recurrent pest of peach and cherry orchards throughout the northeast since the mid-1800s. My first encounter with this insect in New York occurred on the heels of a major defoliation of black cherry by cherry scalloped shell moth (NYFO Nov./Dec. 1993) in the late '60s and early '70s.

Bob Jordan, a consulting forester in Sinclairville, NY, noticed a severe bark beetle outbreak in a young cherry stand this spring and called it to our attention. Because black cherry is so valuable and many stands in western New York are recovering from a recent bout with the scalloped shell moth, it seemed like a good time to alert forest owners about this bark beetle.

Most bark beetles are considered "secondary" insects, because they require a weakened or stressed host for successful colonization and development. For example, heavy defoliation or drought may impair a conifer's ability to produce resin or the capability of cherry and peach to manufacture gum. Both substances are important for the host to successfully defend against bark beetles and other invaders. Many outbreaks are initiated when beetle populations build up in freshly cut slash and numbers increase to the point where the beetle is able to "mass attack" vigorous trees and overcome the latters' natural defenses. These pests have evolved incredibly sophisticated mechanisms to locate mates, to isolate susceptible hosts and to regulate the degree to which other members of the species are attracted to a suitable breeding site. This behavior assures successful reproduction and survival.

Figure 1 *Light colored mass of gum on cherry bark.*

Figure 2 *Multiple attacks by peach bark beetle indicated by dark masses of gum.*

Peach Bark Beetle

The oblong, cylindrical adults are 1.0 to 1.5 mm (.04 to .06 inches) long and light to dark brown. In short, very hard to see when resting on or buried in the bark! The most obvious evidence of attack is black cherry's attempt to "pitch out" or flush the invaders from their entrance holes by manufacturing prodigious amounts of gum. When first produced, the gum is clear **(Fig. 1)** but it darkens with age **(Fig. 2)**. Eventually, either because of its own weight or the pressure of a heavy rain, gum deposits will dislodge and a residue accumulates at the base of the tree.

Another sign of attack is the appearance of small piles of dark reddish-brown wood chips on the bark. Each beetle produces this fine, woody frass as it bores an entrance hole and penetrates the bark to excavate a brood gallery in the inner bark or phloem **(Fig. 3)**. Often the tiny entrance holes are hidden beneath bark flaps or in bark crevices, making them difficult to

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Figure 3 *Entrance galleries of peach bark beetle in inner bark of cherry.*

detect. The brood or egg gallery is horizontal (at right angles) to the grain of the wood and 1.0 to 2.5 inches long. The end of the brood gallery and the short entrance gallery often form a **Y**. The female deposits eggs along the side of the brood gallery, and eventually larval galleries appear in the inner bark above and below it parallel to the wood grain **(Fig. 4).**

Host Susceptibility

Experience in New York and Pennsylvania indicates that black cherry stressed from heavy and repeated defoliation by cherry scallop shell moth or forest tent caterpillar (NYFO Sept./ Oct. 1992) may be especially prone to attack by peach bark beetle. Outbreaks have also occurred when excessive amounts of black cherry slash and defective cherry logs are left in a stand. Both can serve as suitable breeding sites immediately following a cut. The beetle population builds up in this downed material and then by shear numbers is able to quickly overcome the defenses of adjacent trees.

Management

Preventing episodes of heavy (e.g., >75%), repeated defoliation in high value cherry stands is one way history suggests we can prevent a build up of peach bark beetle. When monitoring indicates defoliation will be heavy for a second consecutive year, it would be wise to consider applying an appropriate insecticide to save foliage the second growing season. When thinning a stand or implementing a selection cut, be sure all cherry debris is removed (say for firewood), or at least it should be cut into small enough pieces to facilitate rapid drying. It is very unlikely the beetle will successfully complete a brood when the inner bark is dry.

After cherry has been heavily attacked by the beetle, the only option is one of salvage/sanitation. Infested trees should be harvested as soon as possible to recover economic values before degrade associated with gummosis occurs (salvage). When this is done early in the growing season, the localized beetle population is significantly reduced because much of the infested material is removed from the stand (sanitation).

Economic Impact

When large numbers of peach bark beetle attack black cherry **(Fig. 5)**, gallery construction girdles the host, killing it in one or two growing seasons.

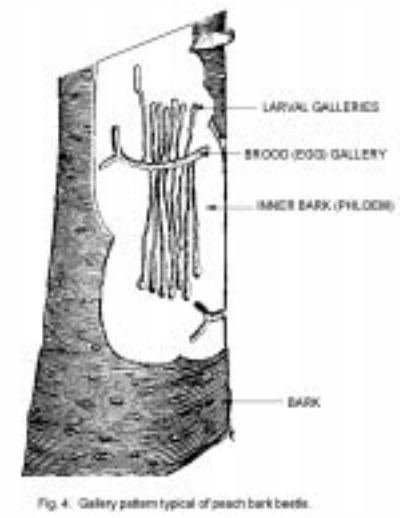

Fig. 4. Gallery pattern typical of peach bark beetle.

Figure 4 *Gallery pattern typical of peach bark beetle.*

Trees may recover from light infestations, but the valuable wood can be significantly degraded when pockets of gum are overgrown by sound wood in succeeding years, creating gum spots. After a few years, gum defects are completely hidden and cannot be detected until logs are processed.

This is the 45th in the series of articles contributed by Dr. Allen, Professor of Entomology at SUNY-ESF. Reprints of this and the complete series are available from NYFOA. It is also possible to download this collection from the DEC Web page at: http:// www.dec.state.ny.us/website/dlf/privland/ linkspag.htm.

Figure 5 *Stand of black cherry heavily infested with peach bark beetle. Note white gum spots on the bark. (photo R. Jordan).*