The Plant Doctor's LANDSCAPE TIPS

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Photo 1: Pitch Mass Borer may cause top dieback and limb death on conifers, in this case spruce. Multiple leaders may also be an indication of PMB on trees.

Photo 2: It is not uncommon to see evidence of PMB near wounds such as previous branch removals.

PITCH MASS BORER

INTRODUCTION:

Pitch Mass Borer (*Synanthedon pini=Vespamima pini=PMB*) is an insect (or complex of insects) that attacks various conifers in the landscape and natural areas. PMB may attack a variety of conifers but is most commonly seen on eastern white, Scotts, and Austrian pines, and on white, Norway and Colorado Blue spruces. The PMB bores into the trunks of trees and disrupts the vascular system. It generally takes numerous attacks for the insect to instigate symptoms on trees (Photo 1). The adult PMB is a clear wing insect that resembles a yellow jacket.

SYMPTOMS AND INSECT CYCLE:

PMB possesses a relatively simple life cycle. Adults appear in the summer months when female adults lay eggs on the bark of conifers during June and July. Often, eggs are deposited near wounds such as branch collars (Photo 2) where branches have been pruned from trees and on other areas of the trunk. The eggs hatch and the tiny larvae bore through the bark to the inner bark and sap wood (cambial tissues) where they excavate tissues to make a feeding hole. Continuous flow of sap from these feeding areas eventually causes a mass of pitch on the bark of the tree; these globs of pitch (masses) may attain 3-4 inches diameter (Photo 3 and Insert). It may take 2-3 years for the insect to complete its life cycle.

The feeding by PMB larvae is not considered particularly serious by many experts, however, advanced infestations may result in the most obvious symptoms of PMB infestations, which are dead tops and branches (Photo 1). Infestations usually occur long before symptoms develop. Many trees may appear perfectly healthy but on close scrutiny of the trunk, copious resin secretions running down the trunks of trees are common (Photos 4).

PMB may be confused with Zimmerman Pine Moth (ZPM) on some conifers. The two borers may be present on the same trees in some landscapes. On some occasions, apparently because of high population levels, PMB and ZPM may cross-attack from their regular host trees. For more information on ZPM, review the article "Zimmerman Pine Moth" in the April 2009 issue of *The Landsculptor*. PMB may also be confused with other problems such as girdling injury (Photo 5) or other diseases; PMB on eastern white pine (Photo 6), for example, may be confused with Pitch Canker, caused by a *Fusarium* sp. fungus.

Photo 3 and Insert: Signs of PMB include copious sap secretions and globs of pitch on the trunks of affected trees. Depending on time of year, peeling back the pitch mass may reveal the larval culprit. Destroying the larvae is a biological control procedure-my condolences to "The Society for the Fair Treatment of Larval-Like Critters."

MANAGING PMB:

PMB is very difficult to manage. Although there are undoubtedly some natural predators, parasite and pathogens that attack PMB, many tree owners and arborists usually cannot rely on nature to correct PMB infestations on conifers. Following are some possible recommendations that may be considered in PMB management.

"Sanitation": Provided one doesn't mind contaminating knives and other utensils, physical removal of larvae might be practical where there are pitch masses on smaller trees or where pitch masses are easily accessible (Photo 3 and insert). By physical removal, it is suggested that the larvae be removed from the pitch masses and destroyed before they undergo metamorphosis into an adult. This technique might not be very practical for most arborists, but it may reduce somewhat the population of PMB in the immediate area or on a particularly valuable tree. Sanitation may also be described in very general terms, including tree removals, when their continued presence would cause PMB population buildup on less desirable or less important trees in the landscape.

Species Selection: This management tool may also be somewhat impractical but where new tree installations are going into landscape areas that have been "devastated" by PMB, it might be best to install trees that are not susceptible or as susceptible to the pest. As an example, arborvitae is not susceptible, whereas Colorado Blue Spruce is very susceptible. Also, for example, Norway spruce is susceptible but not nearly as susceptible as Blue Spruce.

Water and Nutrition: To the author's knowledge, little is known about nutrition and moisture effects on PMB, but if it behaves as many borers do, the borer is more likely attracted to trees that have either been wounded or under stress. If true, then it would be advisable to minimize stress as much as possible. Excess irrigation and crowding of trees are some examples of stresses.

Insecticides: As with Zimmerman Pine Moth, PMB is very difficult to manage with chemicals even though this may be one of the easiest and most effective (?) options. Undoubtedly, the reason why PMB is so difficult to manage is because the insect resides deep in resin masses where it is protected from exposure to chemicals. Insecticide applications are usually timed for mid-July when egg laying by adults or hatching of eggs and burrowing begins by larvae. Apply a registered insecticide for control of clear wing borers according to label directions. Imidacloprid products are often applied for managing many tree borers (boring beetles and weevils) but are largely ineffective for clear wing borers.

For more information, please feel free to email David Roberts at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.

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Photo 4: This spruce tree exhibited no outward sign of problems (no top or branch dieback); however, the Niagara Falls-like appearance of sap on the trunk indicates a rather advanced infestation by the PMB.

Photo 5: The girdling guy wire left in this tree may be confused with PMB attack.

Photo 6: On eastern white pine PMB attack may result in an almost white trunk due to abundant resin secretions. Despite the abundance of resin on its trunk, this tree shows very little outward symptoms of problems, except for some possible stress and slowing of annual growth.