



Swan River Gardens

# Mountain Pine Beetles

*Facts You Should Know*

Mountain Pine Beetles are much in the news in Montana these days and without question deserve to be. In other parts of the state, large areas of forest acreage is under attack and huge swaths of pines are succumbing to this pest. Here in the Flathead valley we are certainly seeing our share of dead trees. Homeowners can and should take steps now to protect valuable pines on their property. At Swan River Gardens we emphasize common sense when dealing with Mountain Pine Beetle and recommend what we feel is a realistic approach to caring for your pines.

Mountain Pine Beetle (MPB) attacks pine trees. Our native Ponderosa, Lodgepole, Western White, Whitebark and Limber Pines are all susceptible to this pest. In addition, attacks have occurred on non-native ornamental pines such as Scotch, Austrian, Eastern White, and Red Pine trees plus pine shrubs such as the popular Mugo Pine. Rare attacks have been recorded on other natives such as Engelmann Spruce but it is believed that the beetles do not reproduce when these trees are used as hosts. Other types of conifers suffer with other types of pests including another kind of beetle that attacks Douglas Fir trees. The information in this handout deals only with pines and Mountain Pine Beetles.

The first and best defense against Mountain Pine Beetle (MPB) is a healthy tree. Research has shown that healthy trees are able to fight off small initial attacks. They do this by expelling the MPB from their trunk by pushing sap (and the MPB) out of the holes the MPB bore. Trees require good hydration to produce enough sap to do this. Our natural rainfall over the last decade or more has not been adequate and the drought conditions that have resulted have contributed to the spread of the infestation. The first line of defense for homeowners is providing supplemental water to all valuable pines. Remember that the amount of water that keeps your lawn happy is barely a sip for a mature pine. These trees need water applied specifically to their root zone on a regular basis during the summer season. A deep watering in fall before the ground freezes is also critical, especially in dry years.

In forest stands overcrowding can often lead to conditions that make MPB a happy camper. For homeowners, single valuable pines are likely to have more than enough space. It is also important to be sure that no mechanical damage occurs to the trunk or the roots. Construction equipment driven over root zones can cause stress that you might not see but MPB could key in on. As a general rule, be sure to keep heavy equipment well outside the drip line of any tree's canopy. In winter do not allow snow to be pushed or piled up against tree trunks.



Mountain Pine Beetle

It is important to learn to identify both the beetle itself and the signs of attack. *Dendroctonus ponderosae*, pictured at left, is typically 1/8<sup>th</sup> to 1/3<sup>rd</sup> inches long. It is native to the Western United States and is not an invader. The first sign that confirms an attack is the appearance of pitch tubes on the tree trunk. These are white to red-brown leaks of *pitch*, the sap of a pine tree. They can be anywhere from ¼ to ½ inch in size and are the entry holes of female MPB. Look for these holes in the crevices between the bark plates. Dry, reddish brown boring dust may also be found and indicates an attack in progress. It may be necessary to remove bark to confirm an attack. If there are only a few pitch tubes and they are widely spaced the tree may be able to survive the attack. MPB carry the spores of a blue staining fungus, *Ceratocystis*

*minor* in pouches in their heads. As MPB chews through the bark, fungus spores are dropped and begin to grow. It is this fungus combined with the chewing damage of MPB that kills the tree by damaging and blocking the circulatory system of the tree's inner bark and sapwood. Once this blockage occurs, the needles begin to fade, first to pale green, then to yellow and finally the dead brown of needles that are no longer living. It may take up to a year for a tree to completely die.



MPB initially attacks about midway up the trunk and typically attacks large trees (over 5" diameter) although in severe attacks smaller diameter pines may also be infested. **A tree that has already been severely attacked cannot be saved. The only treatment is removal.** Off-site disposal of infected wood is also important. Piling infected wood for firewood or leaving fallen trees on the ground can prolong the attack.

At the start of an attack, with few trees involved or when an attack has occurred on adjacent property, effective treatments include the use of pheromones and chemical sprays such as carbaryl or permethrin. **Note that you are trying to prevent further attacks; you cannot save a tree under severe attack.** The timing of pheromones and sprays is critical. These products are only effective when the MPB are moving. All products need to be reapplied each year. In Montana MPB treatment season usually begins in late June. It is important to not put the pouches out too early or they may dry up and not be as effective when MPB is in flight. Pheromone pouches are good for one season and must be replaced each year.

Swan River Gardens offers Contech's Pine Beetle Repellent Verbenone Pouches®, containing the pheromone 4,6,6,-tremethyl-bicyclo (3.1.1) hept-3en-2-one. Pheromone products work by convincing MPB that a tree is already under attack and that there is no food to be found there. In other words, move along, nothing to eat here! Pheromone treatment is appropriate for protecting only a limited number of trees and only when major attacks are not already occurring. The chemicals used to fight MPB can be highly toxic and homeowners should be cautious about applying and handling them. **We strongly urge you to read the entire label and instructions before opening the container.**

Because both of the chemical sprays, carbaryl and permethrin, must be applied with a drenching spray and at pressure, we do not carry these chemicals for MPB at Swan River Gardens. Correct application is simply not something most homeowners are able to do, especially on towering pines. The services of a licensed professional are necessary for treatment with carbaryl or permethrin. Swan River Gardens can provide the names of professional arborists and chemical applicators that we have experience with and confidence in.

The state of Montana Department of Natural Resources & Conservation has an excellent webpage at <http://beetles.mt.gov> with great information and further resources. We highly recommend it. But don't forget, your experts at Swan River Gardens can help you protect your valuable pines and other conifers. Stop by and visit us or give us a call.