



Little BEETLES

By James Arnold

Have you noticed “red” trees invading green forests and home landscapes across Wyoming and the region? Land management professionals across the state and elsewhere are fielding many calls from concerned citizens asking “what’s happening to the trees?”

Several species of bark beetles are causing widespread tree death throughout Wyoming. Mountain pine beetle (MPB) is responsible for the death of thousands of acres in Wyoming and hundreds of thousands of acres in the West of lodgepole, ponderosa, and limber pine forests. These beetles have always been present in our forests with small epidemics occurring every 10-30 years; however, the magnitude of current tree deaths due to MPB has not been seen in recorded history in Wyoming. Several factors have made the problem worse. A lack of timber management including logging, thinning, and understory vegetation management and several decades of effective fire suppression have resulted in aging forests and overstocked conditions – too many trees competing for the same light, nutrients, and water. Add the multi-year drought, and the result is weakened, susceptible trees. Landscape trees are not immune. They may also become stressed by drought and activities such as construction, paving, and soil compaction.



Adult mountain pine beetle approximately 3/16 inches long

Reaction to the Beetle

Healthy trees often produce enough resin to “pitch out” (see photo page 17) their attackers, while weakened trees lack this ability and are more prone to a successful beetle attack. The MPB is only about the size of a grain of rice, and it has a one-year life cycle.

About mid-July, adult beetles leave the dead, brown- to red-needled trees in which they developed and seek living,

green trees. They attack by tunneling under the bark. Numerous beetles attack a single tree.

Popcorn-like masses of resin called “pitch tubes” can appear on the trunk and are clear indicators an attack has occurred. This is not always the case. Some trees simply lack the resin to produce a pitch tube (termed a dry hit); however, sawdust will most likely be evident in bark crevices and at the base of the tree.

If not pitched out, the beetles form a vertical tunnel under the bark and lay their eggs. The eggs hatch, become larva, and continue to eat the inner bark of the tree, destroying the tree’s ability to transport its food and water from roots to crown. The resulting desiccation of the tree’s needles mimics the reddish appearance of winterkill injury. (See “Ask Sam” page 20.) Larva overwinter under the bark and emerge as adult beetles that fly to infest surrounding trees. This flight generally occurs from July to August with the peak, in most areas, occurring mid-July. Each infested tree typically has enough beetles to infest three to five additional trees.

MPBs have another ally in their attack on live, green trees. The beetles carry the spores of bluestain fungus (see photo page 17) on their backs and legs. Once introduced into a tree, the fungus multiplies and spreads through the tree’s vascular system, reducing its ability to transport water and nutrients.

Typically, infested trees remain green up to 10 months after being attacked by beetles. Needles then turn red to brown and fall off after two to three years leaving nothing but a gray skeleton.

Unfortunately, once a successful attack occurs, there is only one recommended treatment – cut the tree down. Infested trees contain live eggs, larva, or beetles under the bark, depending upon the time of year. To prevent beetles from moving to live trees, the trunk must be cut into manageable segments and either burned, buried, or covered with two layers of heavy, clear plastic for a least one year (edges must be anchored securely). Complete whichever treatment selected prior to the next beetle flight. Shoot for June 15.

Live trees with trunks larger than 5 inches in diameter can be preventively sprayed prior to beetle flight to help



Big PROBLEMS

fend off attack. Due to the cost and the need for special equipment, this practice is only economical for high-value trees around homes, campgrounds, etc. All tree trunk surfaces must be completely wetted with the insecticide to a height where the trunk tapers to a diameter too small (generally 5 inches) to support the beetles. Spray susceptible trees in early June with carbaryl (Sevin and others), permethrin (Astro, Dragnet, and others), or bifenthrin (Onyx). Most of these insecticides should be



The presence of "pitch tubes" is the first indication of attack by MPB

applied by a professional applicator licensed by the state of Wyoming. Special equipment is needed to do this properly on a 50- to 80-foot tree, such as a high pressure sprayer and a cherry picker, also known as an elevated lift platform. A spray application in early June should provide protection for one year.

Entomologists point out adult beetles can fly 2 to 5 miles. This raises the question why communities relatively long distances from the mountains, such as Cheyenne, Rock Springs, and Torrington, are experiencing MPB problems. The answer most likely lies in firewood brought in from distant locations.

Considerations with Firewood

Green wood should not be harvested for firewood that is to be transported. Harvest trees that have already lost their needles and have small, pin-sized exit holes visible in the bark. Cut prior to that and you should assume some stage of MPB exists under the bark, and they will fly to infest trees in the area where the wood is delivered and stored.

If green wood is cut, securely cover with one or two layers of 6-mil thick clear plastic, although this will slow drying. MPB can sometimes chew through the plastic, but at least the number of beetles attacking green pines has

been reduced. Wood coming from trees that have been dead in excess of one year can be stored without being covered.

Protecting against the Beetle

The probability of MPB attacks can be reduced by keeping forested stands on small and large acreages thinned to recommended densities. Contact your local state forestry office for recommendations (see contact information below). Keeping landscape trees watered (deep root watering is recommended for conifers year-round while the ground is not frozen or snow covered) and healthy will help against MPB attacks.

Planting a variety of tree species will reduce the potential to lose an entire woody landscape. This is true for other insect and disease problems that may arise in addition to bark beetles.

Tips on how to care for trees are in the University of Wyoming Cooperative Extension Service (UW CES) bulletin B-1090, *Landscaping: Recommended Trees for Wyoming*, available at barnyardsandbackyards.com by clicking on Resources then Landscaping.

MPB is only one of a number of beetles infesting Wyoming's trees. Others include spruce beetle, Douglas-fir beetle, fir engraver beetle, western balsam bark beetle, and pinyon engraver beetle. Each beetle has individual characteristics and is specific to tree species.

To help in your fight against bark beetle, consult a local Wyoming State Forestry Division office or conservation district office. Online addresses are, respectively, <http://slf-web.state.wy.us/forestry.aspx> and www.conservewy.com/wacd/districts/index.html. Publications about bark beetles are available at http://barnyardstobackyards.com/informational_resources.htm under Insects.



Beetles introduce bluestain fungus, which hastens tree death

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