

Ten Points about Mountain Pine Beetle Management:

1. Keep your pines healthy. Water trees year-round. Do not cut the tree roots. Reduce or eliminate the use of weed killers near the tree. Do not compact the soil around the tree. Mulch the soil under the drip line with coarse organic mulch, such as dry wood chips or bark chips.
2. All pine trees over 5 inches in trunk diameter and smaller stressed pines are most susceptible to Mountain Pine Beetle attack.
3. By mid-June, thoroughly spray the trunks of pines greater than 5 inches in diameter, with an insecticide labeled for killing or repelling mountain pine beetle (some insecticides with these active ingredients Carbaryl, Permethrin, Bifenthrin). Spray only green, healthy, pines that have not been attacked by Mountain Pine Beetle.
4. Remove Mountain Pine Beetle attacked pines no later than the middle of June each year. Cheyenne residents: Take infested pine trunks and limbs to the City of Cheyenne Compost Facility at 3714 Windmill Road. Cut trunk sections to four to five feet in length. The infested pine trunk sections and limbs will be chipped within two days.
5. Tree Care companies can chip smaller diameter trunk sections and limbs. Trunks too large to chip must either have the bark stripped off, covered with heavy clear plastic, buried with eight or more inches of soil cover, or burned prior to the beetles emerging in July.

Keep your pines and spruce trees healthy, water them year-round.

6. Spraying the trunks of already infested pine trees will not kill many of the emerging beetles. Standing pine trees that are successfully attacked, but still have needles on the branches, will have many beetles emerge in July and August attacking the same pine or other nearby pines.
7. Mountain pine beetle carries blue stain fungus, which assists Mountain Pine Beetle in successfully attacking a pine tree by possibly clogging the water transport cells in the tree.
8. Do not bring into the Cheyenne area any firewood or store firewood from beetle killed forest trees or local trees during the growing season, April - October.
9. Burn all firewood from beetle killed trees before April.
10. Left over firewood or recently removed pine in or around the city can be securely covered with two layers of clear 6-mil UV resistant plastic during the growing season (April - October). Do allow beetles to escape the plastic covering. Cover only one layer of logs with the plastic.



Preventative Measures:

Strip bark off the trunk and / or limbs of up to 4 or 5 inches in diameter. (or)

Cover with two layers of clear 6-mil UV resistant plastic during the growing season. (or)

Take infested pine trunks and limbs to the City of Cheyenne Compost Facility at 3714 Windmill Road.

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Mountain Pine Beetle ..



Laramie County
Conservation District

11221 U.S. Hwy 30
Cheyenne, WY 82001
307-772-2600

Detailed Information on Mountain Pine Beetle

Mountain pine beetle (MPB) attacks any pine tree including Scotch or Scots pine, Lodgepole pine, Ponderosa pine, Limber pine, and Austrian pine. Initially trees are attacked by MPB that are under stress from drought, root or trunk damage, soil compaction, or herbicide damage. Healthier trees will be attacked as the insect population increases in the area. Beetles came into Cheyenne inside firewood from trees that had been killed by MPB, usually from mountain forest sources.

**Popcorn like globs of sap or pitch oozing out of entrance holes made by Mountain Pine Beetle (MPB) in Scotch Pine. MPB came into Cheyenne inside infested firewood.*



Adult beetles emerge from attacked trees in mid-June through mid-September. Mid-August on average is the peak emergence time for beetles in ponderosa pine. The adults fly to green pine trees and chew a hole into the bark. Sometimes the sap oozing out of the tree "itches-out" the beetle.

Trees under drought stress or in poor health may not ooze sap. If the attack is successful, a beetle pair mates and the female chews a vertical tunnel where up to 75 eggs are laid. The eggs hatch and the larvae feed horizontally away from the vertical egg gallery. The feeding of hundreds if not thousands of larvae will girdle the tree, cutting off the flow of food and water throughout the tree trunk. MPB adults typically carry spores of blue stain fungus on their bodies. The blue stain fungus helps weaken the tree by growing in tree cells that function in food and water transport. The growth of the fungus aids a successful beetle attack by possibly slowing or stopping the sap flow in the tree.

Heavily attacked pines will not die immediately. A dying tree can stay green for up to 8 to 12 months after a heavy MPB attack. MPB spends the winter protected under the bark in larval stage and sometimes in adult stage. In the spring the larvae begin to feed again. A few adult beetles survive the winter allowing them to continue to lay eggs in the spring or emerge from the trees and attack other trees. The larvae enter pupal stage in June and July. Adult beetles emerge from the pupal stage and chew their way out of the tree and fly to green pines. Several adult beetles may use the same exit hole. The MPB have one generation per year.

Spraying

Pine trees that have a diameter of 5 inches or larger should be sprayed **no later than mid-June** with carbaryl (Sevin® and others), permethrin (Astro®, Dagnet®, and others), or bifenthrin (Onyx®) labeled for pine beetles. Thoroughly coat the trunk with the insecticide formulation. Most of these insecticides should be applied by a professional spray applicator licensed by the State of Wyoming. A spray application no later than mid-June should provide protection for one adult flight period or one growing season. Susceptible pines should only need one spray application per year no later than mid-June.

Storing or Transporting Firewood

Ideally, pine tree trunks destined to be firewood should have stood in place for at least one year after the needles have fallen off of the tree (two years after bark beetle attack), or be well seasoned or dry. Otherwise, it should be assumed that any pine tree wood has a possible life stage of MPB inside under the bark.

Firewood should be securely covered with one or two layers of 6 mil thick clear plastic tarp treated with UV inhibitors to make the plastic resistant to sun damage.

MPB can sometimes chew through the plastic, but at least the number of beetles attacking

green pines will be reduced.

Pine trunks with the bark peeled off can be stored as firewood without being covered. Transporting uncovered firewood during the adult beetle flight period, mid-June through mid-September, could spread the beetle from the mountain forest to your yard. The best precaution is not to transport any wood that could contain Mountain pine beetle.



Take all necessary precautions from spraying your pine tree trunks to carefully selecting and storing your firewood, or next year's firewood may come from your own yard.

- Bark beetles are always present in the forest in low numbers. The beetles eat the trees inner bark, interrupting the transport of water and nutrients which eventually kills the tree.
- The use of commercial timber sales and tree harvests are effective and economical tools that suppress beetle epidemics on a small scale.
- Beetle epidemics are cyclic and have been occurring in forests for eons. The current lodgepole pine beetle epidemic was triggered by an extended drought which weakened trees, allowing beetles to successfully attack and kill large numbers of trees, and multiply rapidly across the Western United States.
- Under normal conditions the beetles cause periodic, low amounts of single tree and small group mortality of what are typically the unhealthiest trees in the stand. Endemic beetle populations are naturally regulated through cold winter temperatures and through predation by birds—such as woodpeckers, small mammals and other insects.

Beetle Facts . . .

Mountain Pine Beetle