

Lilac-ash
borer
(*Podosesia
syringae*)



STRONG ARM THESE PESTS SO THEY DON'T GET THE UPPER HAND

Steven Valley, Oregon Department of Agriculture, Bugwood.org



Mountain pine beetle (*Dendroctonus ponderosae*)

Steven Valley, Oregon Department of Agriculture, Bugwood.org



Douglas-fir beetle (*Dendroctonus pseudotsugae*)

Steven Valley, Oregon Department of Agriculture, Bugwood.org



Spruce beetle (*Dendroctonus rufipennis*) photos

Pest and Diseases Image Library, Bugwood.org



Banded elm bark beetle, *Scolytus schevyrewi* photo

Scott Schell

Healthy trees are invaluable in Wyoming, and keeping them that way requires constant vigilance.

Pests are always lurking and waiting to take down your beloved trees. Through prevention, early detection, and treatment, insect pests won't get the upper hand.

Bark Beetles

Bark beetles (Scolytidae) are the most likely to kill a tree in a single growing season. The genus name of the three most important bark beetle pests of conifer trees in Wyoming is *Dendroctonus*, which translates to "tree killer." The mountain pine beetle, Douglas fir beetle, and spruce beetle are all capable of killing an otherwise healthy and unstressed tree. They do this through mass attack and introduction of symbiotic fungi the adult beetles carry in special structures on their bodies. Beetles gnaw through the bark to the cambium (the delicate tissue between the inner bark and wood), and the tree's defensive response is to secrete resinous pitch to push out the beetle. However, the fungi rapidly clog the transport of pitch and water throughout the tree.

Other popular trees, like junipers, green ash, white ash, various elm species, plums, cherries, and mountain ash, all have species of

bark beetle that can be damaging or rapidly fatal. The relatively recent introduction of the banded elm bark beetle from the Old World has resulted in the death of many Siberian elms in Wyoming.

The best preventative management strategies for high-value trees are the use of insecticides with long residuals and, for some species, the use of pheromones to disrupt bark beetle behavior. Pheromones are chemicals released that affect behavior or physiology of the same species. Insecticides are applied to a tree's trunk to prevent bark beetles from chewing their way into the tree.

Borers

Three major families of insects bore into the trunks and branches of trees in Wyoming. The common names are: round headed borers, the adults are known as longhorned beetles; flat headed borers, the adults are known as metallic wood borers; and clearwing moth borers, many species in this family mimic the appearance of wasps as adults and don't look like typical moths.

Damage from these pests often goes undetected until a windstorm breaks tree trunks and limbs weakened by boring activity. Treatment of the bark with insecticides that prevent entry of borer larvae show the best, most consistent results.



Poplar borer (*Saperda calcarata*)

Whitney Cranshaw, Colorado State University, Bugwood.org



Lilac-ash borer (*Podosesia syringae*)



Bronze birch borer (*Agrilus anxius*)

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Scale Insects

The adult females of both hard and soft scale species lack the physical features such as six legs and wings people associate with insects. Only the mobile first stages out of the eggs, called crawlers, resemble typical insects. Scales are sometimes mistaken for being a part of the plant they are feeding upon. They are so firmly attached that scraping them off can actually damage the soft bark of trees such as aspens. Pine needle scale and oystershell scale are common pests of spruce and aspen, respectively, in Wyoming.

Sprays made of water combined with low concentrations of a light oil, from either petroleum or vegetable sources, and an emulsifier can smother the scales. These products are usually called dormant oils, because they can be used when the trees are dormant, or horticultural oils. They have low toxicity and, except for the risk of leaf burn to new tender foliage, have few negatives if you have the ability to spray the entire tree.

Topical applications of broad spectrum insecticides, such as the pyrethroids, when the scales are in the crawler stage can be effective. However, the timing of the application is critical, and these treatments can have impacts on non-target insects that also use the tree.

Applications of appropriate systemic insecticides can provide good control of many scale pests. This type of insecticide can be applied to the root zone, bark, or foliage or even be injected into the trunks of trees. These insecticides move into the plant and its sap and kill insects that feed on the tree. Use special care to follow the labels on systemic insecticides to avoid exposing pollinators to trees that may later flower and produce contaminated nectar.

General information and specific fact sheets

http://wiki.bugwood.org/HPIPM:Scale_Insects

James B. Hanson, USDA Forest Service, Bugwood.org



Pine needle scale (*Chionaspis pinifoliae*)



Oystershell scale (*Lepidosaphes ulmi*)



Poplar leaf aphids (*Chaitophorus populicola*)



Strawberry root weevil (*Otiorhynchus ovatus*)

WORLD OF ENTOMOLOGY

Information about home, garden, and farm insects is available at the UW Extension entomology page at

<http://bit.ly/uwinsects>.

Sap Feeders

Aphids are frequent pests on cottonwoods – our most common city tree. Depending on weather conditions, tremendous populations of this pest build in the canopy of trees. Aphids feed on sugar produced by the leaves to feed the tree. The aphids don't completely digest all of the sugars and secrete this "honey dew" in a fine mist that coats everything under the tree in a sweet glaze. Aphids can be found on most trees and, at low populations, seem to cause little harm – unless they are a vector of a plant disease or the tree is drought stressed.

Treatments with topical insecticides are not usually advised for healthy trees as the aphid population can often rebound quicker than their predators, and you may actually worsen the problem. If they are a severe nuisance, systemic insecticides, applied as drenches or granules and watered into the soil, can be successful against aphids. However, widespread, consistent use of insecticides with the same mode of action may create resistance in surviving aphids due to their type of reproduction and its rapidity.

Root Feeders

The hidden attacks of insects that feed on roots can be difficult to

diagnose. The symptoms of damage often imitate drought stress because the root feeding can disrupt the uptake of water – even if there is adequate water present in the soil. Root feeding is especially harmful for recently transplanted trees that have limited root systems. The other difficult thing with root damage is there is no way to examine the roots except by digging, which damages them further.

I have a personal example of dealing with a root pest. I was planting a 5-foot-tall willow tree and I found upon removing the container the roots were covered by woolly root aphids. I thought, "No problem, I am a professional entomologist, I can deal with aphids." Four years later, the tree has failed to thrive. To determine if my treatments were unsuccessful and the root feeders are the cause would require digging the tree up. I have decided to let it live out its life as part of my collection of unintentional "Laramie Bonsai" trees.

Systemic insecticides and some soil applied insect parasitic nematodes are available to help control root feeding pests. Keeping trees, especially transplants, properly watered will help them compensate for the root damage.

How can you help your trees defend themselves?

Either tree pest insects instinctively select weakened, stressed plants or their attacks are only successful on the weakened plants in a landscape. The obvious exception is during mountain pine beetle outbreaks where attacks by many beetles at once overwhelm even a healthy tree's defenses. The best pest protection comes out of a garden hose for most of Wyoming. Lack of water is the most frequent cause of tree distress. Even in situations where a lawn is green and lush under trees, looks can be deceiving. A lawn will out compete a tree's roots for shallow soil water and is protected from intense sunshine and wind desiccation that the tree's canopy provides.

Keeping trees as unstressed as possible and frequently examining them for the most common pests to catch problems early will help them shade us on hot days and shelter us from wind for years to come.



Strawberry root weevil
Anyi Mazo-Vargas, University of Puerto Rico, Bugwood.org

Scott Schell is ever-vigilant for insect pests that want to make a comfortable home in Wyoming. He is the assistant entomologist with University of Wyoming Extension and can be contacted at (307) 766-2508 or sschell@uwyo.edu.