



IP-6 Bronze Birch Borer

Key Points

- Large, dead and dying European white birch are a common sight around the Reno area. They are marginally adapted to our high desert so drought stress is common.
- The lumpy-bumpy ridges on the bark, "D"-shaped holes, sparse foliage and dying tops are signs of the bronze birch borer.
- Maintaining a healthy tree and using a disease resistant birch will reduce the chance of beetle attack.

Damage Caused by Bronze Birch Borer

Chlorotic leaves, sparse foliage and dying upper branches of several birch species, especially European white birch (*Betula pendula*) have become a common sight around the Truckee Meadows. These symptoms are often the first visible symptoms of bronze birch borer damage. Drought conditions have contributed to the build-up of borers over the last few years. Subsequently, we have seen many large white birch die from this pest and many more are showing the beginning symptoms. Birch trees are water-loving trees that are marginally adapted to our high desert climate with hot winds, low humidity and dry winters. Birch can do quite well in certain years and locations as seen by the number of large, beautiful trees in our area. Birch, weakened by drought or in poor health for whatever reason, are prime targets for the bronze birch borer.

Initial symptoms of an infestation appear in the upper crown of the tree. Leaves on affected branches may show burning on the edges and appear unusually small. Later, leaves turn yellow and become sparse, then twigs and branches begin to die back. The dieback progresses downward each year. The limbs or trunk will show raised bumps or welts on the surface giving a lumpy effect as the tree finally dies.

Life Cycle

The bronze birch borer, *Agrilus anxius*, belongs to a group of beetles commonly referred to as the metallic wood boring beetles. The adult female is a slender, half-inch long, hard-shelled beetle. Its wings are olive-colored with a bronze green cast. Its head is a copper shade. The male is usually slightly smaller, exhibiting a green head. Full-grown larvae are about one inch long, white, elongated, slender and flattened with two forcep-like structures on the tail. The larva is the widest in the area just behind the head which is slightly flattened. This is the reason larvae in this family are often referred to as the flathead wood borer.

The adult beetle lays eggs in the cracks and crevices in early spring. Eggs will hatch within 10 to 14 days. The larvae (flathead borer) begin to enter the conductive tissues of the tree. As the larvae feed, they produce a series of sawdust filled tunnels which stop the flow of water and nutrients within the tree. Damage soon appears. The full-grown larvae overwinter in chambers constructed at the end of their tunnels. The following spring, May and June in the Truckee Meadows, the larvae pupate and emerge as adults through a "D" shaped hole. Two years are normally required to complete the life cycle. In the Truckee Meadows, the life cycle can often be completed in only one year.

Prevention: Maintaining Healthy Trees

Vigorously growing trees are less inclined to be attacked and damaged by borers. The drought in recent winter and summer months has weakened trees in our area. Birch prefer cool temperatures and locations, moist soil and regular watering. Mulch to keep soil more moist and cool. To prevent drought situations, avoid planting in the hotter southwest exposures and other dry sites. Also avoid windy sites and plan on winter watering once or twice per month. Birch are relatively short lived. Old age and adverse weather can contribute to weaker trees. Birch planted in lawns can be severely stressed by the lawn competition for water and shallow lawn watering practice.

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The bronze birch borer will attack several birch varieties including western paper birch, the common European white birch and its cultivars. This pest will also attack some non-birch species such as aspen, cottonwood, poplar and willows. Cutleaf varieties of birch are especially susceptible.

Varieties resistant to bronze birch borer attacks include river birch, especially 'Heritage' and 'Whitespire' cultivars. Red birch is also quite resistant. It appears the birch with a dark colored bark is more resistant. To prevent injury from these pests, use the resistant varieties suggested earlier if birch must be used. Remember they are only marginally adapted and require a lot of water.

If Trees Become Infested, Follow These Guidelines:

Sanitation: Remove dying trees and branches before adults emerge in early May. Dispose of pruning materials in a landfill immediately to prevent larvae from emerging.

Insect Sprays: Between mid May and mid June, homeowner can spray infested trees with a contact spray to kill emerging adults and larvae that are hatching from newly laid eggs. It is wise to have a commercial pest control company spray the larger trees. A homeowner can use a foliar insecticide with acephate chlorpyrifos or rotonome. Sprays should be repeated as complete cover sprays three times at two week intervals.

Systemic Insecticides: A soil drench of a systemic insecticide between mid May and mid June can kill adults as they try to enter or leave the tree. Soil drench applications in late June to mid August can kill larvae that are already boring inside the tree. Homeowners may use **Bonide Annual Tree & Shrub Insect Control** as a soil drench, applied at the base of the tree. Early winter drenches (November and December) are taken up by the tree and will be effective by early spring. It can be used anytime, though it takes three to four weeks to be taken up by the tree. Be sure to follow all label instructions.

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