

# Forest Pest Bulletin



SOUTH DAKOTA  
DEPARTMENT OF AGRICULTURE  
DIVISION OF RESOURCE  
CONSERVATION & FORESTRY



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## BRONZE BIRCH BORER

### CAUSAL AGENT

*Agrilus anxius*

### HOSTS

All native and introduced Birch (*Betula*) species are susceptible to attack except River birch (*Betula nigra*).

### SYMPTOMS

Dead and dying branches near the top of the tree are usually the first symptoms of an infestation. Cutting beneath the bark of these dying branches will reveal sawdust-packed galleries (Fig. 1). These small serpentine galleries often cut across the grain of the wood. Adult borers emerge in summer leaving 1/5-inch-wide D-shaped holes in the bark. Trees exhibiting several or more D-shaped emergence holes along the lower trunk are generally too infested to warrant treatments.

### LIFE CYCLE

The Bronze birch borer overwinters as larvae beneath the bark. Adult Bronze birch borers begin emerging in late May or early June and continue to emerge through July. The time and length of emergence depends upon seasonal temperature.

Adult beetles are olive or green-bronze in color and about ¼ - ½ inch long (6-12 mm) (Fig.2). There are metallic-copper colored areas just behind the head. The front of the head is greenish on males and copper-bronze on females. They bear a close resemblance to the Emerald ash borer (*A. planipennis*). The Emerald ash borer is slightly larger, in length and width, and is more of a coppery green, though the two can still be easily confused.



Figure 1. Larva and characteristic zig-zag galleries.  
David G. Nielsen, Ohio State University,  
[www.forestryimages.org](http://www.forestryimages.org)

Adult Bronze birch borers feed on foliage for several weeks though this feeding is minor and does not result in noticeable defoliation of the tree. The female beetles lay eggs in small groups in bark crevices, under bark flaps and in other protected sites on the stems. After two weeks the eggs hatch and the young larvae bore into the wood. Mature larvae are somewhat flattened, slender, and pearly white. The head is light brown, and at the tip of the abdomen are two short, brown, spine-like structures. Larvae are 1 ½ inches long (38 mm) at maturity. They feed upon the inner bark and carve shallow chambers into the wood to pupate the following spring. The complete life cycle may take 1 to 2 years depending on the date of egg laying, host condition, and climate.

### MANAGEMENT

The most important control measure is to maintain healthy trees. Birch trees should not be planted on drought-prone sites or in poor soils. Ornamental Birch trees should be watered during drought periods. Birch trees have relatively shallow root systems. Mulch around the tree to a depth of 3 or 4 inches with bark mulch extending out at least 2 feet from the trunk.

Trees already exhibiting minor dieback from borer infestation should have the dead and dying branches removed and destroyed. However, this is not an effective means of eliminating the borer as infestations are often found throughout the tree by the time the dieback is visible.

Insecticides used to kill attacking Bronze birch borers are Permethrin or Bifenthrin applied in late May. In addition, Imidacloprid can be injected into the soil to help manage a Bronze birch borer infestation but is only available at concentrations that are obtainable by commercial applicators. This should be done in the autumn and is limited to trees exhibiting only minor dieback. Trees exhibiting significant dieback, more than a third of the canopy dead or dying, usually cannot be saved and these trees should be removed, and the wood destroyed.

Due to numerous pesticide labels and/or label changes, be sure the product label includes the intended use prior to purchase or use. Please read and follow all pesticide label instructions and wear the protective equipment required. Spraying pesticides overhead increases the risk of exposure to the applicator and increases the likelihood of drift to non-target areas. Consider the use of a commercial applicator when spraying large trees due to the added risk of exposure and equipment needs. The mention of a specific product name does not constitute endorsement of that product by the South Dakota Department of Agriculture.

For further information contact your nearest South Dakota Division of Resource Conservation and Forestry office. Hot Springs 605-745-5820; Lead 605-584-2300; Mitchell 605-995-8189; Pierre 605-773-3623; Rapid City 605-394-2395; Sioux Falls 605-362-2830; Watertown 605-882-5367.

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Figure 2. Bronze birch borer and D-shaped exit hole.

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