



Bronze birch borer

Agrilus anxius

Order Coleoptera, Family Buprestidae;
metallic woodboring beetles, flatheaded borers

Native pest

Host plants: European and Asian species of birch (*Betula*)

Description: Emerging adult beetles make D-shaped exit holes in the bark. The adult is somewhat ventrally flattened with antennae one-quarter the body length. Adults are 6–11 mm long, slim-bodied, and metallic-bronze. Larvae are approximately 25 mm long, flatheaded and thin with two posterior spines.

Life history: Adults emerge from late May into June. They feed on leaves for two weeks, and then begin to deposit eggs. Young larvae bore through the bark and excavate galleries in the phloem. There is one generation a year.

Overwintering: Larvae in galleries.

Damage symptoms: The bronze birch borer prefers exotic birches and stressed or injured trees. Repeat infestations kill trees.

Monitoring: Look in June for 3 mm long, D-shaped exit holes in bark. Adults emerge when black locust and multiflora rose bloom in late May to early June (Herms). Look for terminal dieback on susceptible birches.

Physical control: Avoid planting birches in the sun.

Cultural control: Planting resistant birch species is a way to minimize damage by bronze birch borer. *Betula pendula* (European white birch) is highly susceptible. *Betula alleghaniensis* (yellow birch), *B. lenta* (cherry birch), *B. papyrifera* (paper birch), and *B. populifolia* (gray birch) are moderately resistant. *Betula nigra* (river birch) and its cultivar Heritage birch, are the most resistant. Improve tree vitality by watering and mulching roots. Grow herbaceous plants over the shallow roots to reduce heat stress. Do not plant birches in the full sun.

Chemical control: Spray bark within week of first adult emergence. Imidacloprid can be applied to the soil or injected in early spring to kill bronze birch borer larvae. Maudslayi with bidrin is also effective.

Biological control: Egg parasitism by *Thysanus* and *Coccidencyrtus* spp. was reported to be 50% in New Jersey (Barter 1957). It was lower (7%) in Pennsylvania on European white birches that were planted to reforest strip mines, and the parasitoids that were responsible were mostly the encyrtids *Avertianella* sp. and *Ooencyrtus* sp. (Loerch and Cameron 1983). Larval parasitism rates reached about 18% in New Jersey and Pennsylvania (Barter 1957). Important larval parasitoids in New Jersey include the chalcidid *Phasganophora sulcata*, the braconid *Atanycolus charus*, and the eulophid, *Tetrastichus* sp. in Pennsylvania.



Top dieback caused by bronze birch borer larvae. (27)
Photo: John Davidson



Tunneling damage under bark of birch tree caused by bronze birch borer larvae. (28)
Photo: unknown

Plant mortality risk: High

Biorational pesticides: None

Conventional pesticides: bidrin, chlorpyrifos (nursery only), imidacloprid, permethrin



Bronze birch borer (continued)



Exposed zig-zag galleries of bronze birch borer beneath the bark. (45)
Photo: Cliff Sadof



Bronze birch borer adult. (29)
Photo: David Laughlin



D-shaped exit hole caused by bronze birch borer. (31)
Photo: John Davidson



Bronze birch borer larva. (32)
Photo: Oregon State University Extension Service.



Bronze birch borer adult and D-shaped exit hole (47)
Photo: John Davidson