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1994

## G94-1210 Borers of Shade Trees and Ornamental Plants

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Baxendale, Frederick P.; Keith, David L.; and Jones, J. Ackland, "G94-1210 Borers of Shade Trees and Ornamental Plants" (1994). *Historical Materials from University of Nebraska-Lincoln Extension*. 1139.  
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## Borers of Shade Trees and Ornamental Plants

This publication describes the important shade tree and ornamental borers in Nebraska and discusses their management.

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Nearly all shade trees are subject to borer attack. If damage is severe, young trees are likely to decline or die.

The important borers are worm-like when immature and beetles or moths in the adult stage. Roundheaded and flatheaded borers are grubs of beetles. Lilac borers, ash borers, and carpenterworms are caterpillars of moths. Life cycles and habits vary with the type of borer.

Borer damage must be prevented because once borers gain access to the cambium, sapwood, or heartwood, little can be done to control them. Several cultural practices will help reduce borer infestations.

Trees in vigorous growing condition are not especially attractive to borer attack. Trees should be properly watered, fertilized, and protected from pests, particularly during the first two or three years of growth following planting and during drought periods that cause extreme stress.

Plant trees that are adapted to local conditions and are resistant to borer attack, such as oaks, lindens, crabapples, and conifers. Ash, birch, lilac, cottonwood, locust, and flowering stone fruits are more susceptible.

### Roundheaded Borers

**Redheaded Ash Borer:** This roundheaded borer attacks several species of shade trees, but causes the most serious damage to green ash. The adult is a long-horned beetle that is 1/2 to 1 inch long and reddish brown to black with transverse white or yellow stripes on the wing covers. The beetles are attracted to weakened trees where they deposit eggs in cracks in the bark. The newly hatched larvae (caterpillars) initially feed under the bark and later tunnel into the sapwood. The redheaded ash borer generally has a one year life cycle. The larvae feed during the summer and pupate in the fall. Adult beetles emerge in the spring and deposit eggs from May until August. For this reason ash trees must be protected from early spring until autumn.

**Cottonwood Borer:** This borer infests the bases of cottonwood and willow trees. The adults of this long-horned beetle are 1 to 1 3/8 inch long and black with numerous patches and transverse white stripes. Adult beetles emerge in late spring and early summer and feed on tender new shoots of young trees. They deposit eggs in openings chewed into the bark at the bases of trees below the soil line. The larvae burrow into the bases and roots of trees, pushing out frass, a sawdust-like excrement, at the entry points. Severely infested young trees may be badly damaged. Larger trees tolerate light to moderate infestations without apparent serious effects. They have a two-year life cycle.

**Poplar Borer:** This roundheaded borer is a long-horned beetle that attacks cottonwood, poplar, and willow trees. The adults are approximately 1 inch long and are dark grey with small orange spots on the wing covers. They emerge in summer and lay eggs in slits cut in bark, usually near the middle portion of trees. Larvae, which are white and about 1 1/4 inch long, bore into the heartwood. The larvae take three years to mature. Damage appears as swollen areas on trunks and larger branches. Holes where larval excrement is pushed out and where adults have emerged are also signs of an infestation.

### Flatheaded Borers

**Bronze Birch Borer:** This flatheaded borer occurs in most species of birch grown in Nebraska. Adult beetles are about 3/8 inch long, slender, and metallic bronze. Adult beetles emerge from infested trees in late May and are present until July. They feed on birch leaves for several days before laying eggs. Eggs are deposited under bark and in cracks in the bark. The larvae burrow directly through the bark into the cambium layer. Heavy infestations cause raised burrows that can be detected on the bark surface.

Adults prefer weakened trees for egg laying. Healthy, vigorous trees usually are less likely to be infested. Cultural practices are very important in the prevention of bronze birch borer injury. Birches should be planted where they are shaded in the afternoon -- avoid southern or western exposures. They are best suited for shaded, damp situations and should be watered regularly. Plant a ground cover over the root area to keep roots cool and moist. If ground covers are not feasible, do not mow grass over the root area during summer. Most birches are not well adapted to Nebraska and are a relatively poor choice for an ornamental.

### Caterpillars

**Lilac and Privet Borers:** Adults are day-flying, clear-winged moths that resemble wasps. They emerge from infested stems in May and June. After mating, the adult females deposit eggs on the lower portions of the main stems of lilac or privet. The caterpillars bore into and feed within stems. Feeding may cause the leaves to yellow and wilt. Frass is produced by borers and pushed out from their burrows. Infested canes are scarred, unsightly, and may eventually die. Severely infested stems should be cut at the soil level and destroyed in early spring. The borer spends winter in the pupa stage and there is only one generation each year.

**Ash Borer:** The ash borer is similar in appearance to the lilac borer. The adult is also a day-flying clear-winged moth that resembles a wasp. Adults emerge in August or September and deposit eggs on the bark on the lower trunks of ash trees. The caterpillars that hatch from the eggs then bore through the bark and feed within the branches and trunks of the trees. There is one generation each year.

**Carpenterworm:** Cottonwood and ash are the preferred hosts, but this insect will attack many of other shade and fruit trees, and shrubs. Adult moths are active from June through July. Female moths deposit their eggs on the bark of trees, usually on the lower trunk. After hatching from the eggs, young carpenterworms tunnel directly into the inner bark and later bore into the heartwood. Heavily infested trees are structurally weakened and may be broken during high winds. The caterpillars require more than one year to complete their feeding and may be up to 2 inches long at maturity.

The following recommendations should help reduce borer damage.

### Shade Tree and Ornamental Plant Borers Insecticide Recommendations

<b>Redheaded Ash Borer</b>	Spray trunks and large branches with lindane 20% EC or chlorpyrifos (Dursban 2E). Apply the first spray in late April and respray every three to four weeks until early August. It is not necessary to spray small branches and leaves.
<b>Cottonwood Borer</b>	Spray lower trunk with lindane 20% EC in late May and late June. Borers inside trees may sometimes be killed by injecting special borer control pastes containing malathion or lindane into burrow openings where frass is evident.
<b>Poplar Borer</b>	Spray lower trunk of cottonwood trees with lindane 20% EC in late May and again in late June.
<b>Bronze Birch Borer</b>	Spray entire tree with lindane 20% EC in late May and repeat in two to three weeks.
<b>Lilac and Privet Borers</b>	Spray with lindane 20% EC or chlorpyrifos (Dursban 2E) in early May and repeat twice in mid-May and early June. Wet lower portions of stems to point of run-off. Borers inside canes sometimes may be killed by injecting special borer pastes containing malathion or lindane, by plugging the openings, or by probing the openings with a stiff wire.
<b>Ash Borer</b>	Spray lower trunks with lindane 20% EC or chlorpyrifos (Dursban 2E), with the first application in early August and the second in early September. It is unnecessary to spray branches and leaves. Borers inside trees may sometimes be killed by injecting special borer pastes containing malathion or lindane, by plugging the openings, or by probing the openings with a stiff wire.
<b>Carpenterworm</b>	Spray the lower ten feet of trunk with lindane 20% EC in late May and late June. Borers inside trees may sometimes be killed by injecting special borer pastes containing malathion or lindane, by plugging the openings, or by probing the openings with a stiff wire.

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#### ***File G1210 under: INSECTS AND PESTS***

#### ***A-12, Ornamentals and Trees***

*Issued July 1994; 5,000 printed.*

*Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Elbert C. Dickey, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.*

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