Poplar-and-Willow Borer

Malcolm M. Furniss[1]

The poplar-and-willow borer [*Sternochetus* (=*Cryptorhyncus*) *lapathi* L.] is native to Europe and Asia. It was discovered in New York in 1882 and has since spread throughout southern Canada and the northern half of the United States. This weevil strongly prefers willow, occurs less commonly on poplar (except *Populus tremuloides* Michx.), and is rarely found on alder and birch. It has been a serious pest in nurseries of the Eastern United States and of willow and poplar used for landscape planting. In the Western States, the weevil infests much of the willow in extensive brush fields resulting from wildfires. These fields are important habitat for big game.

Damage

Stems of infested trees are killed either by mining or by breakage of the weakened part (fig. 1). Infestations occur more commonly near the ground and in stems 1 to 3 inches in diameter. During the spring, presence of infestation is indicated by wood fragments expelled by maturing larvae through holes bored in the stem. Later,

Figure 1.—Black cottonwood stem heavily mined by the poplar-and-willow borer, causing typical "break-over" injury. (Courtesy of Canadian Forestry Service).

[1] Forest entomologist, Intermountain Forest and Range Exp. Sta., USDA Forest Serv.

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Figure 2.—Emergence holes of the adult poplar-and-willow borer in willow stem.

adults emerge through these same holes (fig. 2). Infestations usually persist in the same stem or plant for several years. Though comprehensive surveys of damage have not been made, in one instance one-half of the stems in a brush field in Idaho were found to be infested and of those infested, two-thirds were dead. In some areas on some stems, the infested portion may heal over, causing a deformity.

Appearance and Habits

The eggs of the weevil are white and measure 1.1 by 0.8 mm. These eggs are laid singly or in groups of two to four in holes chewed in the bark by the female beetle. The larvae have six instars. The mature larva (fig. 1) is about 1 cm. long (about one-third of an inch), white, legless, and C-shaped; it has a shiny, reddish-brown head. Young larvae overwinter between the bark and the wood. In spring, they mine partly around the stem, then usually upward in the wood or pith for a distance of approximately 6 cm. (2⅓ inches) (fig. 2), expelling a considerable quantity of shredded wood from holes in the stem. Before pupating, the larva turns itself headfirst toward the mine entrance.

The adult weevil (fig. 3) is 7–10 mm. long, dark brown to black, and mottled with light brown and gray scales. The tips of the elytra, sides of the thorax, and parts of the legs usually have a pinkish cast but

Figure 3.—Mature larva of poplar-and-willow borer in willow stem.

may be whitish in the case of overwintered adults. The body surface is dull and rather rough in appearance. The curved beak is as long as the head and thorax and when at rest lies almost completely concealed in a groove on the underside of the thorax. The antennae are elbowed, with an unsegmented club at their distal end.

Figure 4.—Section of Scouler willow stem cut to show the poplar-and-willow borer larvae mine. (Courtesy of Canadian Forestry Service)

Adults are active in the evening and morning but become inactive during the day when temperatures exceed 79°F. Weevils have seldom been observed in flight. If alarmed, they feign death by dropping to the ground and remaining motionless with their legs and feet closely drawn against their bodies. When held, both sexes squeak by rubbing their abdomens against the inner surface of their wing covers.

Weevils mate 2 to 10 days or more after emergence. Their favor-

Figure 5.—Adult weevil feeding on willow bark. (Courtesy of Canadian Forestry Service)

ite places for egg laying are lenticels, scars, bases of branches, and injured areas of the bark. With her beak the female weevil eats into the bark, gradually deepening the round hole until her beak is buried up to her eyes. She deposits one to four eggs in the hole. She then packs the eggs with her beak and covers them with fine pieces of wood.

Life Cycle

Development to the adult stage takes about 1 year, but adults may live and continue to lay eggs for at

least another 2 years. In most areas, adults emerge during summer and early fall. Eggs are laid during two peak periods: 1. in March and April by adults that overwintered, and 2. from July through September by newly emerged adults. They take 18 to 25 days to hatch. Pupation occurs from mid-July through September after the larvae have overwintered.

Natural Control

Natural enemies of the weevil in this country have not been studied much. The larvae are parasitized by an ichneumon wasp, *Dolichomitus messor sparsus* Townes. Ants and birds occasionally feed on the weevil and its larvae. A great variety of associated organisms and insects coexist with the beetle in infested stems, but their relationships have not been studied. Most of these organisms and insects appear to occur in parts of the stems occupied by previous generations of weevils. In some locations, natural flooding during periods of snowmelt and runoff may effectively control infestations of the weevil in willow.

Applied Control

Adult poplar-and-willow borers may be controlled by a late-summer application of water emulsion containing either 0.2 percent dieldrin or 0.1 percent lindane. Fumigation with methyl bromide is also effective for control of adults.

Larvae are controlled with a water emulsion spray containing 0.5-percent lindane applied to the infested parts during the first warm weather. A low-pressure sprayer may be used to thoroughly wet the bark of the affected trees. The lindane treatment should not be allowed to drain down to the roots of the tree.

Caution: Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers under lock and key—out of the reach of children and animals—and away from food and feed.

Apply pesticides so that they do not endanger humans, livestock, crops, beneficial insects, fish, and wildlife. Do not apply pesticides when there is danger of drift, when honey bees or other pollinating insects are visiting plants, or when they may contaminate water or leave illegal residues.

Avoid prolonged inhalation of pesticide sprays or dusts; wear protective clothing and equipment if specified on the container.

If your hands become contaminated with a pesticide, do not eat or drink until you have washed. In case a pesticide is swallowed or gets in the eyes, follow the first-aid treatment given on the label and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Do not clean spray equipment or dump excess spray material near ponds, streams, or wells. Because it is difficult to remove all traces of herbicides from equipment, do not use the same equipment for in-

secticides or fungicides that you use for herbicides.

Dispose of empty pesticide containers promptly. Have them buried at a sanitary land-fill dump, or crush and bury them in a level, isolated place.

NOTE: Some States have restrictions on the use of certain pesticides. Check your State and local regulations. Also, because registrations of pesticides are under constant review by the U.S. Department of Agriculture, consult your county agricultural agent or State extension specialist to be sure the intended use is still registered.

References

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