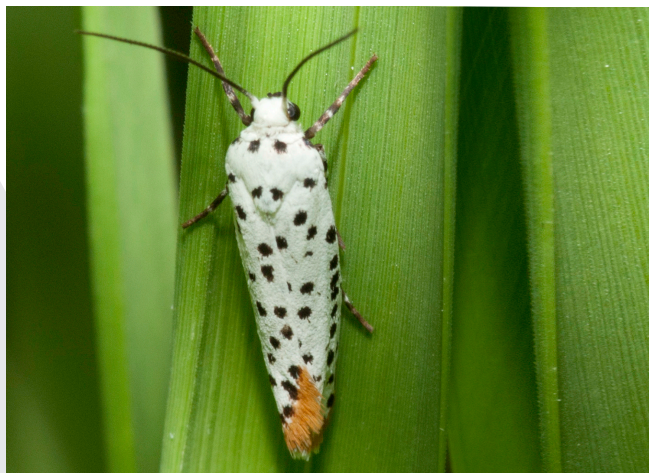




Hoptree Borer

Photo: © John & Jane Balaban



Scientific name
Prays atomocella

Taxon
Arthropods

COSEWIC Status
Endangered

Canadian range
Ontario

Reason for Designation

This species is dependent on its sole larval host plant, Common Hoptree, which is confined to a narrow swath of southwestern Ontario and currently assessed as Special Concern. This moth has an even more limited range than that of its host – it is known only from the western shore of Point Pelee, and from Pelee Island. Very few individuals have been detected. The most imminent threats include loss of shoreline habitat through erosion, vegetation succession, and invasive plant species.

Wildlife Species Description and Significance

The Hoptree Borer is a small moth (i.e., 17-20 mm wingspan), and the only species of the family Praydidae native to Canada. Despite its small size, the pattern and colour are distinctive, with a black-spotted, pure white forewing and a pinkish rust-brown hindwing and abdomen. Larvae are up to 20 mm long and pale green to yellowish with indistinct lateral lines.

The Hoptree Borer is one of three known insect herbivores that specialize on Common Hoptree, which is currently ranked as Special Concern at the provincial (Ontario) and federal level.

Distribution

Hoptree Borer occurs from the southern Great Lakes region through the Midwestern United States to south-central Texas. Its distribution is more restricted than that of its larval host plant, Common Hoptree. Hoptree Borer is apparently absent from a large portion of the range of Common Hoptree, which extends from the south Atlantic Coastal Plain to the Gulf coast in the southeastern US. In Canada, Hoptree Borer is known only from Point Pelee. It is also suspected to occur on Pelee Island based on the presence of distinctive larval feeding damage. This species ranges over an area of 148 km².



Map of showing the suspected distribution of Hoptree Borer (*Prays atomocella*). The suspected distribution is based on confirmed collections and probable evidence of the species in Point Pelee National Park, and potential sites recorded in 2009 and 2010 on Pelee Island.

Habitat

Hoptree Borer is dependent on its sole larval host plant, Common Hoptree, which occurs on shoreline habitats of Lake Erie. Common Hoptree often forms the outermost shoreline vegetation with an active natural disturbance regime, primarily wind and wave erosion. Hoptree Borer has been documented only in the largest subpopulations of Common Hoptree, and has not been found in the smaller, more isolated Common Hoptree subpopulations along Lake Erie northeast of Point Pelee.

Biology

The life cycle of the Hoptree Borer is incompletely known. In Ontario there is one generation per year and adults are active from mid- to late June, during which time eggs are laid on the leaves or shoots of Common Hoptree. Only current-year shoots appear to be suitable for larval feeding. The duration of the egg, larval and adult stage are not precisely known, nor has the egg and egg-laying behaviour been described.

Larval development probably starts in the summer months after egg hatch. The larva bores into a young shoot and creates a diagnostic cavity in the woody stem below the shoot. The excavated material is incorporated into a silken cover for the cavity, forming a short tube that probably serves as a shelter to avoid predators and parasites. Larvae probably overwinter in bored-out stems, as in other species of *Prays*. Larval feeding continues the following spring after initiation of plant growth. Larvae leave the stem for pupation, which occurs in a distinctive mesh-like cocoon, often among the host plant flower clusters. Adult feeding has not been documented.

Population Sizes and Trends

Population size is unknown for Hoptree Borer. In 2010, feeding evidence consisted of 84 damaged Common Hoptree shoots, 62 at Point Pelee and 22 at Pelee Island. Previous collection records consist of single individuals collected or observed between 1927 and 2013.

Population trends for Hoptree Borer are not known. There may have been an increasing population trend mirroring the increase in the number of Common Hoptrees at Point Pelee and Pelee Island between 2002 and 2014, as a result of comprehensive surveys, in contrast to apparent declines of this plant between 1982 and 2002. The increase in Common Hoptrees, is suspected to be offset by ongoing and future habitat loss. Common Hoptree is abundant on Point Pelee with over 10,000 mature individuals, constituting 80-90% of the total number of mature individuals known in Canada. Pelee Island is the second largest subpopulation of Common Hoptree, estimated at 1,000 individuals.

Threats and Limiting Factors

Threats to Hoptree Borer include most of those identified for Common Hoptree. The potential threat impact is, however, higher for Hoptree Borer

because it does not occur in all Common Hoptree subpopulations. The most imminent threats include shoreline erosion, vegetation succession, shoreline development, recreational activities and invasive plant species. Other potential threats include population outbreaks of the Hoptree Leaf-roller Moth, which can result in nearly complete defoliation of Common Hoptree and may adversely affect Hoptree Borer populations through direct competition and leaf and shoot dieback. Pesticide application for control of Gypsy Moth outbreaks is also known to adversely affect other moth species.

Protection, Status, and Ranks

Hoptree Borer is not legally protected or ranked in any of the jurisdictions where it occurs. Hoptree Borer habitat within Point Pelee National Park is protected under the *National Parks Act*. On Pelee Island, one suspected Hoptree Borer occurrence was on a shoreline next to a road right-of-way, under the jurisdiction of the Municipality of Pelee Island. Other Pelee Island occurrences were in Fish Point Nature Reserve, where habitat is protected under the *Provincial Parks and Conservation Reserves Act*.

Common Hoptree is a species of Special Concern in Canada and Ontario and the species and its habitat are protected by the *Species at Risk Act* and *Endangered Species Act* respectively. Common Hoptree is given a global rank of Secure (G5) by NatureServe, with subnational ranks ranging from Critically Imperilled (S1) to Vulnerable (S3) for New Jersey, New York, and Maryland, but Hoptree Borer has not been documented in these states. It is likely of conservation concern in Wisconsin, where Common Hoptree is ranked Imperilled (S2), with at least one historical occurrence of Hoptree Borer.

Source: COSEWIC. 2015. COSEWIC assessment and status report on the Hoptree Borer *Prays atomocella* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 41 pp.

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