



**Natural Heritage
& Endangered Species
Program**

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Massachusetts Division of Fisheries & Wildlife

**Chain-fern Borer
*Papaipema stenocelis***

State Status: **Threatened**
Federal Status: **None**

DESCRIPTION: The Chain-fern Borer (*Papaipema stenocelis*) is a noctuid moth with a wingspan of 35-40 mm (Covell 1984). The forewing is bright orange in color, with darker, brownish-orange shading between the reniform and orbicular spots and in the basal area, and pink shading distal to the postmedial line. The postmedial line is double, the distal line thicker than the proximal, largely straight but curving smoothly inward near the costa. The median line and antemedial lines are thick, diffuse, and relatively straight; all lines are dark, brownish-orange in color. The reniform spot is solid white and vertically elongate; the orbicular and claviform spots are also solid white, both smaller than the reniform, with either or both vertically elongate. The hind wing is a uniform tan, tinged with a shade of pink or orange; a faint discal spot may be present. The head and thorax are concolorous with the orange of the forewing, and the abdomen is concolorous with the pink or orange-tinged tan of the hind wing. The Osmunda Borer (*Papaipema speciosissima*) is similar, but larger and typically lighter, yellowish-orange in color, with a sharp bend in the median line and the postmedial line more sharply curved as compared to the Chain-fern Borer.

HABITAT: In Massachusetts, the Chain-fern Borer



Papaipema stenocelis ▪ Specimen from MA: Plymouth Co., West Bridgewater, collected 8 Sep 2002 by M.W. Nelson

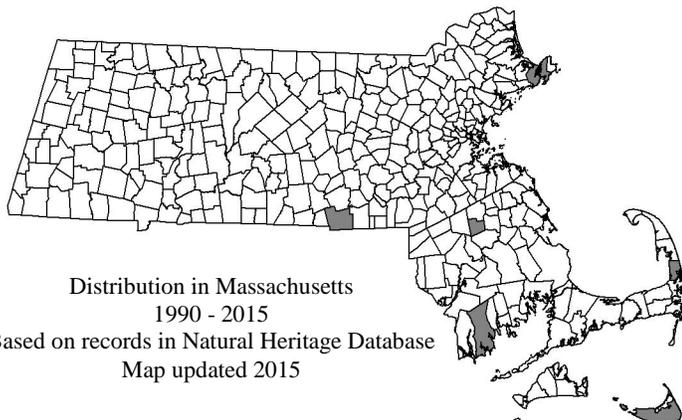
Adult Flight Period in Massachusetts

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

inhabits acidic wetlands with Virginia chain-fern (*Woodwardia virginica*), including wooded swamps, shrub swamps, and shrubby bogs.

LIFE HISTORY: In Massachusetts, adult Chain-fern Borer moths fly in September and early October. Eggs overwinter, and larvae hatch in the spring. The larvae bore into and feed on the stems and roots of Virginia chain-fern (*Woodwardia virginica*), becoming fully grown and pupating by late August or early September.

GEOGRAPHIC RANGE: The Chain-fern Borer is endemic to the coastal plain of eastern North America, ranging from Massachusetts south to Florida, and west along the Gulf Coast to Louisiana (Covell 1984). In Massachusetts, this species is found in suitable habitat on the coastal plain in the eastern part of the state.



Distribution in Massachusetts
1990 - 2015

Based on records in Natural Heritage Database
Map updated 2015

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

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STATUS AND THREATS: The Chain-fern Borer is threatened by habitat loss and hydrologic alteration that disrupts the natural seasonal flooding of its habitat. Other potential threats include invasion by exotic plants, eutrophication or other water pollution, aerial insecticide spraying, non-target herbiciding, off-road vehicles, and light pollution.

Literature Cited

Covell, C.V. 1984. *A Field Guide to Moths of Eastern North America*. Peterson Field Guide Series. Houghton Mifflin, Boston, Massachusetts. 496 pp.

Authored by M.W. Nelson, NHESP Invertebrate Zoologist, March 2015

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