



**Natural Heritage
& Endangered Species
Program**

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Massachusetts Division of Fisheries & Wildlife

**Imperial Moth
*Eacles imperialis***

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

DESCRIPTION: The Imperial Moth (*Eacles imperialis*) is a large, colorful saturniid moth. The male has a forewing length of 47-59 mm, while the female is even larger, with a forewing length of 58-68 mm (Tuskes et al. 1996). Both the forewing and the hind wing are bright yellow, with purplish to reddish-brown postmedial lines and a variable amount of shading of the same color. As compared to the female, the male often has more shading at the outer wing margins and in the basal area of the wings. Both sexes have a variable amount of dark brown to black speckling on both the forewing and hind wing. Also, both sexes have round, purplish to reddish-brown reniform and subreniform spots on the forewing, the center of each spot filled with gray; as well as a similar discal spot on the hind wing. The head, thorax, and abdomen are the same bright yellow as the wings, with purplish to reddish-brown patches on the thorax and transverse bands on the abdomen.

HABITAT: In Massachusetts, the Imperial Moth inhabits pitch pine-scrub oak barrens, pitch pine woodland, and pitch pine-oak woodland.

LIFE HISTORY: In Massachusetts, adult Imperial Moths emerge in late June and July, with peak emergence



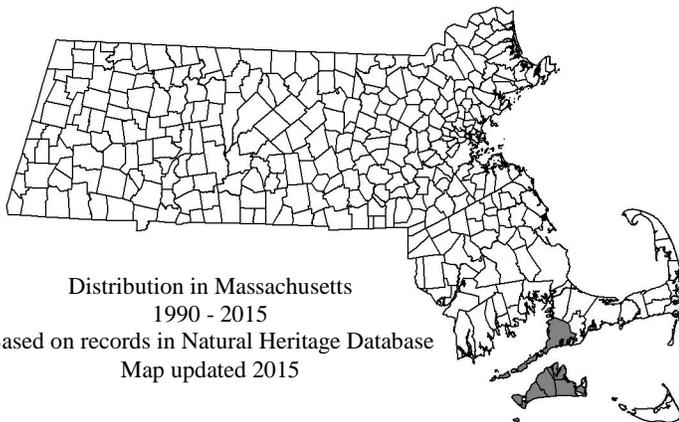
Eacles imperialis, female • From MA: Dukes Co., West Tisbury, adult female collected 18 Jul 2003 by P.Z. Goldstein, L. Raleigh, and T. Simmons, reared from egg, adult emerged 3 Aug 2004

Adult Flight Period in Massachusetts

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

in late July; the flight period ends in early August (Goldstein 2010). Larvae feed almost exclusively on pitch pine (*Pinus rigida*) (Goldstein 2010), although there have been occasional reports of late instar larvae on oaks (*Quercus*). Larvae are fully grown by September, at which time they burrow into the soil and pupate. The pupa overwinters.

GEOGRAPHIC RANGE: The Imperial Moth is widely distributed in eastern North America, from Massachusetts south to Florida, and west to Nebraska and Texas (Tuskes et al. 1996). It has declined dramatically in New England during the past 100 years, with the only surviving population in the region now restricted to Martha's Vineyard, Massachusetts (Goldstein 2010). Occasionally, individuals that presumably originated from Martha's Vineyard are found on the Elizabeth Islands or the nearby mainland.



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 Imperial Moth is threatened by habitat loss and fire suppression. Other potential threats include introduced generalist parasitoids, aerial insecticide spraying, clear-cut timber harvest, and light pollution.

Literature Cited

- Goldstein, P.Z. 2010. Life history of the Imperial Moth *Eacles imperialis* (Drury) (Saturniidae: Ceratocampinae) in New England, U.S.A.: distribution, decline, and nutritional ecology of a relictual islandic population. *Journal of Research on the Lepidoptera* 42: 34-49.
- Tuskes, P.M., J.P. Tuttle, and M.M. Collins. 1996. *The Wild Silk Moths of North America: A Natural History of the Saturniidae of the United States and Canada*. Cornell University Press, Ithaca, New York. 250 pp.

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

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