



Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

Pine Barrens *Speranza* *Speranza exonerata*

State Status: **Special Concern**
Federal Status: **None**

DESCRIPTION: The Pine Barrens *Speranza* (*Speranza exonerata*) is a geometrid moth with a forewing length of 11-13 mm (Ferguson 2008). The forewing is pale grayish-brown in color, peppered with dark brown to black scales, and with faint brown postmedial, median, and antemedial lines, all of which may be obscure in some (particularly worn) individuals. The postmedial, median, and antemedial lines tend to be slightly darker and more pronounced in the female as compared to the male. The hind wing is pale yellow, speckled with brown; in some individuals (particularly females), the brown speckling may be more pronounced, and concentrated to form a postmedial line, median line, and discal spot. The discal spot is typically present in the male, but may be obscure. The head is brownish-orange in color, the thorax concolorous with the grayish-brown of the forewings, and the abdomen tan. The male Sulphur Angle Moth (*Speranza sulphurea*) is similar to the male Pine Barrens *Speranza*; however, the forewing of the former is more evenly colored, typically without lines, or with only a faint and incomplete postmedial line.

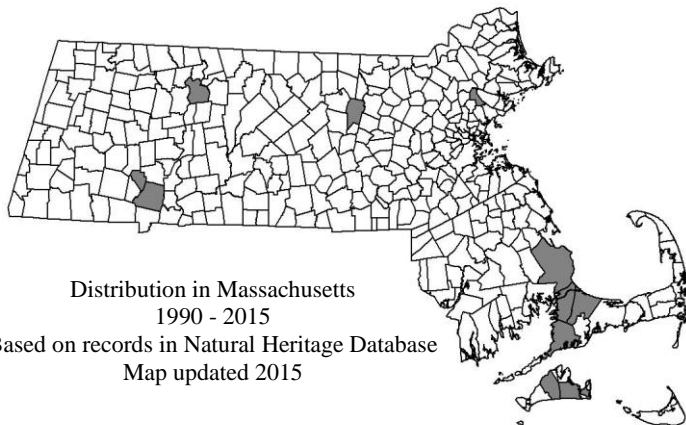
HABITAT: In Massachusetts, the Pine Barrens *Speranza* inhabits pitch pine-scrub oak barrens on sandplains and rocky summits and ridges.



Speranza exonerata, male • Specimen from MA: Plymouth Co., Plymouth, adult female collected 3 Jul 2008 by M.W. Nelson, reared from egg, adult emerged 29 Jun 2009



Speranza exonerata, female • Specimen from MA: Plymouth Co., Plymouth, adult female collected 3 Jul 2008 by M.W. Nelson, reared from egg, adult emerged 29 Jun 2009



Adult Flight Period in Massachusetts

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

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

Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Road, Westborough, MA 01581; tel: 508-389-6300; fax: 508-389-7890; www.mass.gov/dfw

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LIFE HISTORY: In Massachusetts, adult Pine Barrens *Speranza* moths fly from mid-June through mid-July, with stragglers into late July. Eggs overwinter and hatch in early spring. Larvae feed on catkins and new leaves of scrub oak (*Quercus ilicifolia*), completing development and pupating by early June (Nelson 2015).

GEOGRAPHIC RANGE: The range of the Pine Barrens *Speranza* extends along the Atlantic Coastal Plain from southern Maine south to New Jersey, and in the Appalachian Mountains from New York and Pennsylvania south to West Virginia and Virginia (Schweitzer et al. 2011). In Massachusetts, the Pine Barrens *Speranza* occurs in the Connecticut River Valley, in the northeastern part of the state, and in the southeastern part of the state including Plymouth, Cape Cod, and Martha’s Vineyard.

STATUS AND THREATS: The Pine Barrens *Speranza* is threatened by habitat loss and suppression of fire, which is needed to maintain the open structure of its habitat and promote growth of its host plant. Other potential threats include introduced generalist parasitoids, aerial insecticide spraying, non-target herbiciding, off-road vehicles, and light pollution.

Literature Cited

- Ferguson, D.C. 2008. Geometroidea, Geometridae (part): Ennominae (part): Abraxini, Cassymini, Macariini. Fascicle 17.2. 431 pp. *in*: Hodges, R.W. (ed.). *The Moths of North America*. Allen Press, Lawrence, Kansas.
- Nelson, M.W. 2015. The life history of *Speranza exonerata* Ferguson, 2008 (Geometridae: Ennominae: Macariini). *Journal of the Lepidopterists’ Society* 69(2): 77-82.
- Schweitzer, D.F., M.C. Minno, and D.L. Wagner. 2011. *Rare, Declining, and Poorly Known Butterflies and Moths (Lepidoptera) of Forests and Woodlands in the Eastern United States*. Forest Service, U.S. Dept. of Agriculture, Washington, DC. 517 pp.

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

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