

STATE
THREATENED

Pine
Barrens
Zanclognatha
(*Zanclognatha martha*)



Mark McCollough

Description

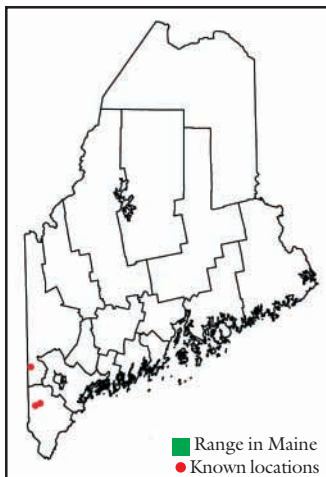
This small moth with a long name is one of many rare and endangered butterflies and moths found only in pitch pine-scrub oak barrens. The pine barrens zanclognatha is a small, nondescript, brown moth having a wingspan of slightly more than an inch. The wings are nearly uniformly tan with small brown spots and flecks. The body is brown and hairy.

Range and Habitat

The pine barrens zanclognatha is found in the Northeast from Virginia to Maine. For much of this range, it is only found in pitch pine-scrub oak barrens. In Maine it is found in pine barrens on sandy soils in glacial outwash plains in Fryeburg, Waterboro, and Shapleigh. It seems to prefer a closed pitch pine canopy.

Life History and Ecology

Little is known of this moth's life history. The adults fly at night from June to mid-August. It is locally abundant at many sites where it is found. Eggs are likely laid on or near the host plant, which is thought to be pitch pine. Eggs probably hatch in late spring, or perhaps they overwinter and hatch the following spring. Pupae are suspected to be found on the forest floor. It is believed that



this moth is more tolerant of fire suppression than other barrens moths.

Threats

Threats to this moth have not been well-documented. Small, separate populations at only three sites led to its listing as threatened in 1997. It is state-listed by other states in the Northeast. Loss of pine barren habitats to commercial and residential development in Maine is the greatest threat. Once pine barrens are developed, it is extremely difficult to manage and perpetuate remaining pitch pine stands by fire. Aerial spraying of pesticides (including *Bt*), especially for other Lepidoptera like the gypsy moth, can eliminate populations. Conversion of forests to pine plantations destroys habitat. Off-road vehicles may destroy fragile plant communities. Gravel mining permanently destroys habitat.

Conservation and Management

Pitch pine-scrub oak barrens are rare habitats in Maine and are found at only seven sites in the state. Not all have been surveyed for the pine barrens zanclognatha. Pine barrens are host to a suite of rare species, especially plants and invertebrates that depend on this unique habitat, such as the twilight moth (threatened), Edwards' hairstreak (endangered), and Karner blue butterfly (extirpated). There are 15 species of butterflies and moths recognized as "Special Concern" species associated with the state's pine barrens.

Maine has over half of the remaining pine barrens in New England. Much of Maine's barrens are in conservation ownership. Even so, these sites need active management to maintain their diverse plant and invertebrate fauna. Large blocks of

appropriate habitat are necessary for the long-term viability of moth populations.

Pine barrens are rejuvenated by fire, and the pine barrens zanclognatha may depend on this natural disturbance to create young, lush plants for the larvae to eat. If fire is suppressed, pine barrens will slowly mature to red oak and white pine forests that likely would not be able to support the moth. Prescribed burns are a routine management technique in New Jersey.

More work is needed to assess populations, document life history, and determine appropriate habitat management for this species. Population introduction and management techniques are unknown at this time. As a state-threatened species, the pine barrens zanclognatha is protected from possession and collection by the Maine Endangered Species Act.

Recommendations:

- ✓ Prior to land development or forest harvesting, consult with a biologist from MDIFW or the Maine Natural Areas Program to assist with planning.
- ✓ Municipalities should strive to maintain important pitch pine barrens identified by MDIFW as open space, identify these areas in comprehensive plans, and conserve accordingly.
- ✓ Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for threatened and endangered species.
- ✓ Where possible, expand existing public and conservation ownership of pine barren acreage to conserve large, contiguous blocks of habitat with a mix of young and old stands.
- ✓ If areas must be developed, minimize footprints of buildings, yards, and roads and landscape with indigenous pine barrens plants. Maintain fuel breaks around homes to minimize danger from wildfire. Compensate loss of pine barrens habitat by creating new pine barrens, restoring degraded habitat, or placing existing habitat in long-term conservation.
- ✓ Encourage forest management plans that perpetuate pine barrens. Avoid plantations and site conversion, and encourage native species, particularly pitch pine.
- ✓ Consider controlled burning, mowing, and mechanical vegetation management to create a mix of young and mature pitch pine and scrub oak stands.
- ✓ Limit commercial extraction of gravel and sand in pine barrens. Restore old gravel pits and agricultural fields to pitch pine habitat.
- ✓ Apply ¼ mile wide spray buffers around sections of pine barrens hosting rare and endangered species

when spraying insecticides for control of gypsy moths and other pests. 🐛

Most pitch pine-scrub oak barrens in Maine are in conservation ownership and are being managed for rare species like the pine barrens zanclognatha.



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