STATE ENDANGERED

Edwards' Hairstreak

(Satyrium edwardsii)

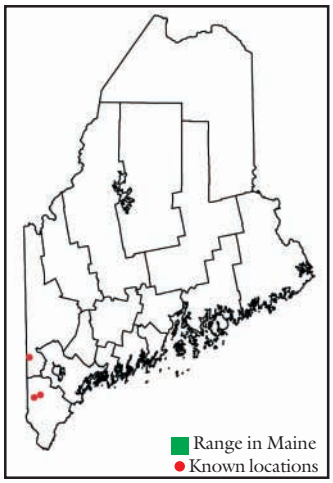
Phillip deMaynadier

Description

The Edwards' hairstreak is a small (1¼-inch), pale brown butterfly with a tiny tail on each hindwing. As with most North American hairstreaks, the upper sides of the wings are a uniform gray-brown and the undersides are paler. Unique among hairstreaks, the hindwing of the Edwards' hairstreak has a band of *oval*-shaped brown spots that are ringed by white near the rear margin of the wing. Another distinguishing characteristic is that the blue spot near the tail does not have an orange cap.

Range and Habitat

The Edwards' hairstreak occupies an extensive range across the eastern United States. It is found from northeastern Texas, central Missouri, and northern Georgia, north to extreme southeastern Saskatchewan, southern Manitoba, Ontario, Quebec, and southern Maine. Quebec and Maine represent the northeastern limit of this species. Edwards' hairstreak has been found at only three sites in York County, including the towns of Fryeburg, Waterboro, and Shapleigh.



The Edwards' hairstreak inhabits dry oak thickets in pine woodlands or open areas. These sites typically have poor soil and sparse vegetation. Maine sites are all in pitch pine-scrub oak barrens, a rare and declining forest type. Rare habitats such as pitch pine-scrub oak barrens support a unique assemblage of rare insects, including many moths and butterflies. The Edwards' hairstreak is found only where its host plant, scrub oak, grows in profusion.

Life History and Ecology

Edwards' hairstreaks have a one-year life cycle in Maine. A single flight period occurs from mid-June to early August. Males typically perch on the leaves and twigs of scrub oak where they await mating opportunities with females. Eggs are laid in the bark crevices of young host plants, which include scrub oak and occasionally black oak. Caterpillars that are nearly full-grown hide during the day in ant nests at the base of the host tree. In return for protecting the caterpillars, the ants feed on sugary secretions the caterpillars produce. Adults feed on the nectar of various flowers, including dogbane, goldenrod, meadowsweet, and milkweeds. Edwards' hairstreak hibernates as a larva or pupa and emerges the following summer.

Threats

Edwards' hairstreak may be susceptible to severe winter conditions at the northern extent of its range in Maine. A more important threat is limited habitat. There are only seven remaining pitch pine-scrub oak barrens in Maine, all located in the southwest part of the state. Formerly extending farther north along the coast, pine barrens were reduced to less than half of their historic acreage. Land development, sand and gravel extraction, timber harvesting, and fire suppression all contributed to the loss of pine barrens. In many areas, forest succession threatens to replace healthy scrub oak thickets with

less disturbance-adapted species like red oak and white pine. Historically, fire played a major role in regenerating and maintaining extensive areas of pitch pine and scrub oak barrens. Aggressive fire suppression has reduced the natural role of fire in the pitch pine-scrub oak forest type in Maine and elsewhere in the Northeast. The Edwards' hairstreak is also vulnerable to forest pesticide spraying for gypsy moth and other insect pests. Off-road vehicles may destroy fragile plant communities.

Conservation and Management

Edwards' hairstreak is listed as endangered because it is very rare at the northern extent of its range in Maine, it occupies habitat that has a very limited distribution in the state, its populations are highly fragmented, and it has experienced historical population declines.

Scrub oak stands are maintained in pitch pine barrens where periodic fires and dry conditions occur. Maintaining a pine barrens community requires periodic burns or other disturbances to maintain vegetative structure. Considerations should be made to reintroduce prescribed fires in discrete locations to maintain this disturbance-dependant community. Alternatively, carefully designed forest harvesting practices may be beneficial if they successfully regenerate patches of pitch pine woodland or open scrub oak barrens. Pitch pine barrens, formerly considered wastelands suitable for development, are ecologically important for species such as Edwards' hairstreak, pine barrens buck moth, several species of rare tiger beetles, pine barrens zanclognatha (threatened), twilight moth (threatened), and several rare plant species.

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.