

**STATE
ENDANGERED**

Hessel's Hairstreak

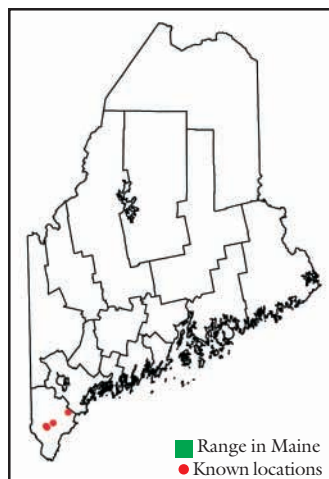
(*Callophrys hesseli*)

Description

Flitting high in the canopy of the cedars, this butterfly is often a challenge to capture or observe closely. The Hessel's hairstreak is a small butterfly, about one inch long. The wings are a beautiful emerald green and have a tiny tail on each hindwing. The green background color of the underside of the wings is highlighted with red-brown patches surrounding white spots and lines. This species can be differentiated from the related juniper hairstreak (*C. gryneus*) by the outward offset of the first white spot in a band of spots on the underside of the forewing. Habitat preference is also a key distinguishing feature, since the juniper hairstreak is generally restricted to dry fields and ridge tops that have red cedar stands.

Range and Habitat

The Hessel's hairstreak is restricted primarily to the coastal plain from southern Maine to Florida. Across its range, populations are widely scattered.



For unknown reasons, many areas with appropriate habitat do not support populations. Southern Maine is at the northern edge of the species' range, with only three populations documented from York County in Sanford, Saco, and Alfred. Hessel's hairstreak is found exclusively in or near swamps and bogs



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where its host plant, Atlantic white cedar (*Chamaecyparis thyoides*), is present. Atlantic white cedar also reaches its northern limit in Maine.

Life History and Ecology

Adult Hessel's hairstreaks emerge in mid to late May and fly into early to mid June in Maine. Adults are observed during fair weather while nectar-feeding on flowering shrubs (e.g., highbush blueberry, mountain holly, sheep laurel, rhodora, leatherleaf, huckleberry) in proximity to Atlantic white cedar (but sometimes up to ½ mile away). Males are also found perched on the tips of host tree branches where they await mating opportunities with females. Females lay their eggs singly on cedar foliage. Following a brief egg stage, the highly cryptic greenish larvae (caterpillars) consume cedar foliage, often near the tips of branches. After the larvae grow to full size, they hibernate as pupae (a sedentary, dormant stage), with the new generation of adults emerging the following spring.

Threats

Because Atlantic white cedar swamps are naturally rare in Maine, the Hessel's hairstreak was probably never abundant. However, the butterfly is

vulnerable to extirpation because of the incremental loss and conversion of cedar swamps from development and logging for their valuable rot-resistant timber. Some white cedar swamps are in southern Maine in areas of rapid residential growth. Furthermore, the quality of Atlantic white cedar swamps has been degraded by partial filling, deteriorated water quality, and water level changes. Insecticide spraying for gypsy moth control has reduced or eliminated Hessel's hairstreak populations in other parts of its range and may account for absences of the butterfly in some of Maine's cedar swamps. Excessive collection of adults could affect some small, isolated populations.

Unlike northern white cedar, Atlantic white cedar is shade-intolerant and requires periodic disturbance (e.g., fire, blowdown) to facilitate regeneration. As a substitute for natural disturbance, careful logging practices could be beneficial if designed to regenerate patches of mature cedar forest and reduce the threat of succession by other competing forest species (e.g., red maple, eastern hemlock).

Conservation and Management

The Hessel's hairstreak is generally rare and listed by many states throughout its range. Protection of Maine's few remaining Atlantic white cedar swamps and bogs is essential to secure a viable future for this butterfly in the state. In addition, efforts should be made to conserve as much of the surrounding upland forest as possible to serve as a water quality buffer. Maine's Atlantic white cedar swamps also host several rare plants including sweet pepperbush, smooth winterberry holly, spicebush, and clammy azalea.

State wetland laws protect the habitat for Hessel's hairstreak. However, the Natural Resources Protection Act (NRPA) offers only limited protection for upland development buffers, and no protection from potentially excessive logging practices. Hessel's hairstreak is protected from take (possession, collecting, or killing) by the MESA.

Recommendations:

- ✓ Prior to land development or forest harvesting near Atlantic white cedar swamps with Hessel's hairstreaks, consult with a biologist from MDIFW or the Maine Natural Areas Program to assist with planning.
- ✓ Municipalities should strive to maintain areas adjacent to Hessel's hairstreak sites in a low-density, rural setting and identify these areas in comprehensive plans. Consider protecting Atlantic white cedar

swamps and a 250-foot upland buffer as Resource Protection Districts.

- ✓ Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for threatened and endangered species.
- ✓ Avoid projects that could result in the loss or degradation of Atlantic white cedar swamps hosting the Hessel's hairstreak, including filling, ditching, polluting, pipeline or road crossings, or changes to water level.
- ✓ When projects are proposed within 250 feet of Atlantic white cedar swamps, adhere to forestry Best Management Practices (handbook available from the Maine Forest Service, SHS #22, Augusta, ME 04333) and Maine Erosion and Sediment Control Recommendations (available from the Maine Department of Environmental Protection, SHS #17, Augusta, ME 04333).
- ✓ Avoid the use of broad-spectrum pesticides within ¼ mile of Atlantic white cedar swamps. 🐛