



RARE SPECIES OF THE...

Huron-Manistee National Forest

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Karner Blue

Lycaeides melissa samuelis

Federal Status:

Endangered

Regional Status:

Endangered

Description

The Karner blue is a small blue butterfly which has a wingspan of about one inch. The upper surface of the male is silvery blue with a black margin and white fringe. The female is similar, but more bluish-brown or gray in color, with a row of dark spots with orange crescents along the hind wing margins. The underside of both sexes is slate gray with several marginal rows of orange and black spots. Karner blue larvae are green, or whitish-green, covered with white hair, and have a cream lateral stripe. The head is small and dark.



Male (x1.5)



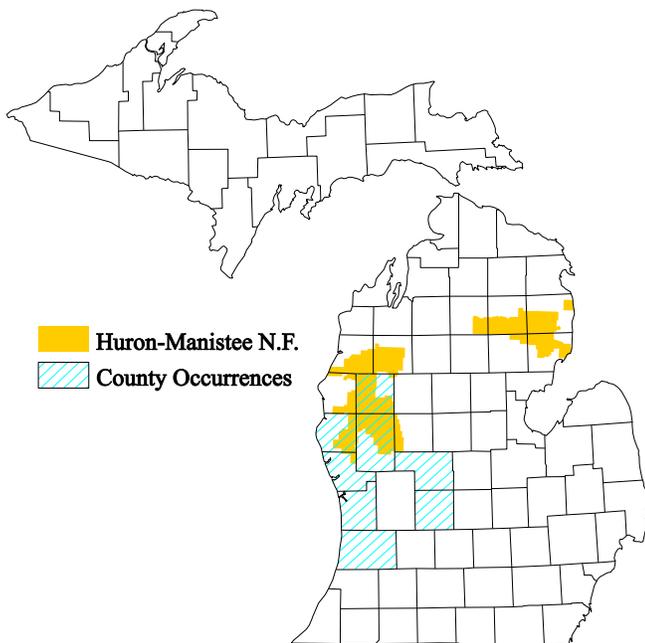
Female (x1.25)

All photos by Ross Frid

Life History

This butterfly usually has two broods, or adult flight periods, each year. Eggs, that have overwintered from the previous year, hatch in April. Peak flight dates are late May through early June and mid July through early August. The larvae only feed on wild lupine leaves and mature rapidly. Dispersal may occur, but generally does

not occur far. Adults are active most of the day. Adults can live up to two weeks, but typically live an average of five days. Karner blues are often attended by ants which provide some protection. Adults utilize a wide variety of nectar plants.



Distribution

Historically, the Karner blue butterfly occurred in a narrow geographic area that extended from eastern Minnesota, across portions of Wisconsin, Illinois, Indiana, Michigan, Ohio, Ontario (Canada), Pennsylvania, New York, New Hampshire, and Massachusetts. Over the past 100 years, the overall number of individuals present in all populations declined throughout the species' range. It is now thought to be extirpated from Ontario, Massachusetts, Pennsylvania, Ohio, and possibly Illinois. In Michigan, the Karner blue still occurs in most of the counties from which it was known historically except Monroe County, where it has likely been extirpated by habitat succession and degradation. However, existing populations are much reduced over earlier levels and have become highly fragmented, with expanses of unsuitable habitat between the remaining subpopulations.

Endangered Species are plants and animals in danger of becoming extinct.

Threatened Species are plants and animals likely to become endangered in the foreseeable future.

Habitat

The Karner blue is a species of open-canopied barrens communities. In Michigan, this habitat typically includes prairies, barrens, and savannas. These areas are generally associated with dry sandy outwash soils (LTAs 1 and 2). Its larval host plant, blue lupine (*Lupinus perennis*) has declined markedly within its range due to shading from closed canopies, competition from other plants, forest succession, and extreme soil scarification following farming or logging and burning regimes. Lupine, an early successional species, can become abundant after appropriate disturbances, for example fire or logging. Management for a large landscape complex including barrens, prairie openings, and wetlands greatly improve conditions for the Karner blue and other prairie and barrens species in these areas.



Field of Lupine

Threats to Survival

Habitat throughout the range of the Karner Blue has shown a drastic decline. Recent surveys have found many historical locations are suffering habitat degradation and loss resulting in a declining population. Factors affecting habitat conditions are fire suppression, fragmentation resulting in isolation, development, loss of openings to pine plantations, off-road vehicle use, and succession of open-canopied oak and pine/oak barrens to closed woods. Disturbance helps maintain the butterfly's habitat by setting back encroaching forests, and encouraging lupine and other nectar plants.

Habitat Management

The loss of habitat has been the most significant cause of the decline of the Karner blue in Michigan. Shading from over story closing and competition from sod-forming grasses and sedges have excluded lupine from many former barrens and prairies where it once was common. Well-planned fire management is an important tool for rehabilitating Karner blue habitat. Other management techniques being implemented are removal of woody encroachment or planted pine by mowing or hand cutting, clear cutting present pine plantations followed by burning, mechanical scarification, and under burning areas to remove some of the forest vegetation. Landscape complexes large enough to accommodate multiple, inter-connected subpopulations of the butterfly is the most desirable management situation. Conservation agreements are needed between landowners, conservation organizations and government agencies to achieve these landscape complexes. Efforts may include additional land acquisition, conservation easements, and partnerships.

Selected References:

- Karner Blue Butterfly: A symbol of a vanishing landscape.* edited by David A. Andrew, Richard J. Baker, and Cynthia P. Lane. Minnesota Agricultural Experiment Station, St. Paul, Minnesota. 1994. Miscellaneous Publication Series.
- Karner Blue Butterfly. Population, Habitat and Viability Analysis.* U. S. Seal, Captive Breeding Specialist Group, Apple Valley, Minnesota. 1992.
- Status of the Karner blue butterfly, Lycaeides melissa samuelis* Nabokov, in the *Manistee National Forest.* J.A. Bess, R.M. Strand, and L.A. Wilsmann Michigan Natural Features Inventory, Lansing, MI. 1989. Unpubl. Rpt to the Huron-Manistee National Forests, MI. 42 pp.
- The Endangered Karner blue butterfly (Lepidoptera: Lycaeides): Biology, Management Considerations, and Data Gaps.* Robert A. Haack, USDA Forest Service, North Central Forest Experiment Station, East Lansing, MI. 1993. 17pp.

