

# THE HEAT IS ON

Species feeling the effects of climate change



JILL OTTROP/USFWS

## Karner Blue Butterfly

*Lycaeides melissa samuelis*

### Region:

Great Lakes

### Area affected:

New York, Wisconsin

### Climatic change:

Warmer, drier summers

### Impact:

Reproductive changes,  
habitat loss

### ABOUT THIS SPECIES

The Karner blue butterfly, a subspecies of the Melissa blue, is a small, bright blue butterfly with very distinct habitat requirements. While adults will feed on the nectar of a number of flowering plants, they lay their eggs exclusively on the leaves of the lupine plant, which is the sole food source for the developing caterpillar. Lupine is found mainly in fire-maintained oak savannah habitats that were once common across the Great Lakes region, but have declined sharply over the past century. The butterfly is now restricted to a few small, disjunct populations in New York, Michigan and Wisconsin, and has been listed as “endangered” under the Endangered Species Act since 1992. Karner blues generally undergo two life cycles during the course of a year: eggs laid in late summer hatch the following April, and the caterpillars feed for about a month before pupating and emerging as adults by late May. These adults mate and their offspring emerge in July. This second generation lays eggs that overwinter and hatch in spring.

### DESCRIPTION OF IMPACT

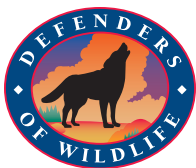
The Karner blue’s remaining population strongholds in New York and Wisconsin are experiencing warmer and drier summers that are having a negative effect on the butterfly and its habitat. Warmer summer temperatures can induce the second generation eggs to hatch in late summer or early fall instead of overwintering. This third generation then has less time to feed and develop, particularly if the weather is dry, which causes the lupine the caterpillars rely on for food to die back before they complete their feeding period. As a result, the extra summer generation of butterflies does not grow as large, lays fewer eggs and produces **fewer butterflies the next year than would a second generation of eggs that overwinters to spring instead of hatching.** Karner blue butterfly numbers have declined significantly in Wisconsin, where their habitat has experienced a long-term drying trend.

### References

National Park Service. The impact of climate change on the Karner blue butterfly. <http://www.nps.gov/indu/naturescience/upload/Karner-bulletin2014.pdf>

U.S. Fish and Wildlife Service. 2012. Karner Blue Butterfly 5-Year Review. [http://ecos.fws.gov/docs/five\\_year\\_review/doc4046.pdf](http://ecos.fws.gov/docs/five_year_review/doc4046.pdf)

U.S. Fish and Wildlife Service. Karner Blue Butterfly (*Lycaeides melissa samuelis*) (species profile). <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=I00F>



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