



Endangered Species Facts



Photo source: Thomas Meyer, Wisconsin DNR

The Karner blue butterfly is an endangered species. Endangered species are plants and animals that are in immediate danger of becoming extinct.

Threatened species are plants and animals whose population numbers are so low that they may become endangered in the future.

The U.S. Environmental Protection Agency's (EPA) Endangered Species Protection Program (ESPP) will help ensure that pesticide use does not jeopardize the survival of listed species.

Lycaeides melissa samuelis

Karner Blue Butterfly *Lycaeides melissa samuelis*

Description and ecology

Status Endangered, listed December 14, 1992.

Critical Habitat None designated.

Appearance The wingspan of a Karner blue butterfly is only about one inch. Males and females differ in their coloration. The upper wings of males are violet-blue, narrowly trimmed in black with a white, fringed edge. The female's upper wings are light or dark gray-brown transitioning to violet or blue near the body with a band of orange crescents along the lower edge. The undersides of both males and females are fawn-gray. Orange crescents and metallic, black spots circled with white trail the entire hind edge of the wings.

Range Historically, Karner blue butterfly populations were distributed across a crescent of glacially-created, sandy lands stretching from Minnesota to southern Maine. Populations have decreased 90 percent in the last 20-25 years. Remnant populations remain primarily in Wisconsin, the Indiana Dunes, eastern Michigan, east-central New York, and New Hampshire.

Habitat Karner blue butterfly larvae feed exclusively on wild lupine (*Lupinus perennis*), a plant characteristic of oak-pine barrens, oak savannas and dune/sandplain communities. Wild lupine manages with minimal rainfall on the sandy, nutrient-poor soils. This habitat is a shifting patchwork of sun and light shade, trees and grass, dependent on periodic wildfires. Without fire, grassy openings give way to shrubby woodlands, and sunlit patches disappear.

Life cycle Two generations of Karner blue butterfly eggs hatch each summer, one in mid-April from overwintered eggs and the other in June. Larvae feed for about three to four weeks then enter a pre-pupal wandering phase culminating in their attachment to a twig, lupine leaf, or some part of the leaf litter. Pupation lasts for seven to eleven days. The first-flight of adults begins in late May and continues through June. Adults usually live four or five days, but can live as long as several weeks. First flight females lay their eggs on the leaves, stems, or petioles of lupine plants, or in leaf litter close to a lupine plant. These eggs hatch after five to ten days, feed from early June until late July and then pupate.

The second flight of adults occurs usually from early June to late July, but can vary from year to year with the weather. Second flight females lay the eggs that will overwinter. To afford them greater protection they will often choose a non-senesced lupine, and follow its stem to the ground where they will place eggs on grasses, sedges, leaf litter, or the lupine plant stem.

Eggs, larvae and pupae of the Karner blue butterfly have a mutualistic relationship with many species of ants. The ants harvest a secretion from the larvae that is rich in carbohydrates and possibly amino acids and in return are believed to provide some protection for the immature stages of the Karner blue butterfly.

Karner blue butterflies are weak flyers, seldom travelling more than a mile. When their native patchwork habitat becomes too fragmented, populations become isolated, genetically weakened, and vulnerable to local catastrophic events.

Recovery plan The U.S. Fish and Wildlife Service (FWS) developed a recovery plan for the Karner blue butterfly in 2003. Recovery plans outline reasonable actions that FWS believes are required to recover or protect listed species. FWS prepares recovery plans, sometimes with the assistance of recovery teams, contractors, state agencies, and others. Recovery plans do not necessarily represent the views nor the official positions or approvals of any individuals or agencies, other than FWS, involved in the plan formulation. Approved recovery plans are subject to modification as dictated by new findings, changes in species' status, and the completion of recovery tasks.

Habitat Conservation Plans (HCPs) In 1999, Wisconsin initiated the first statewide Habitat Conservation Plan for the butterfly, including more than 260,000 acres of potential and existing Karner blue butterfly habitat. HCPs are partnerships of public, commercial and private landowners who agree voluntarily to balance the impacts of incidental take with conservation measures to promote species and habitat recovery.

Karner Blue Butterfly



Lupine plant in flower, courtesy of Thomas Meyer

Female Karner blue butterfly
courtesy of Thomas Meyer



John and Karen Hollingsworth
USFWS Digital Library

Karner blue butterfly information sources

Primary reference Beacham, Walton, Castronova, Frank F., and Sessine, Suzanne (eds.), 2001. *Beacham's Guide to the Endangered Species of North America*, Gale Group, New York. Vol. 3, pp. 1510–1513.

Listing Notice U.S. Fish and Wildlife Service, 1992. http://ecos.fws.gov/docs/federal_register/fr2183.pdf

Recovery plan U.S. Fish and Wildlife Service, 2003. http://ecos.fws.gov/docs/federal_register/fr4178.pdf

Habitat Conservation Plan <http://www.dnr.wi.gov/forestry/karner/hcptext>