

# Karner Blue Butterfly

*A flighty jewel with special habitat needs*

The rich scent of pine fills the air and the needles crunch under my feet on this hot June day, as I walk through the only national wildlife refuge dedicated to the conservation of butterflies. The dry, sandy soil creates dust drifts across my shoes.

The open, sunny landscape — grassy patches broken by pitch pine and scrub oak — is known as the pine barrens. It creates the right conditions for wild blue lupine, dogbane and New Jersey tea. This small remnant near the Concord Municipal Airport is part of a once-extensive pine barrens where I begin my search for the endangered Karner blue butterfly.

Karner blues have very particular habitat needs, which is why I look for them in the pine barrens. Pine barrens are the only place where wild blue lupine grows, with its beautiful bluish purple flower and lighter green leaves. Wild lupines are essential to the Karner blue butterfly; in fact, the butterfly and the plant evolved together over time, and Karner blue caterpillars feed only on the leaves of the wild blue lupine. This exclusive diet spells danger.

Industrial, commercial and residential development have fragmented the pine barrens to a great extent, leaving only small pieces of this increasingly rare community type. The original pine barrens were maintained by natural disturbances, including insect and weather damage and — especially — fire. The pitch pine's cones burst open with



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*Dependent on pine barrens habitat for survival, the Karner blue butterfly is endangered in the state of New Hampshire.*

fire's heat; the scarified land provided a fertile place for plants like wild blue lupine to take root. Today, the habitat is being restored using a combination of methods: using heavy machinery and controlled burns to emulate natural disturbances, and planting a variety of pine barren plants.

My eyes search the landscape for this tiny butterfly — it's barely an inch across. If I am fortunate, I will see the fluttering of small iridescent blue wings against the low-growing green plants. Both sexes are brilliantly colored, but male and female Karners look different from one another. The male's wings are silver-blue in color with black margins and white-fringed edges. The wings of the female are grayish-brown to bright purplish-blue marked by orange crescents; her assortment of colors is effective camouflage.

Each summer there are usually two generations or hatches of the Karner blue. In April, the first group of caterpillars hatches from eggs that were laid on the blue lupine last July and August. The

*continued on next page*

## Karner Blue Butterfly

*(Lycaeides melissa samuelis)*

**GENERAL CHARACTERISTICS:**  
Blue butterfly, 7/8" - 1 1/4".

**IDENTIFICATION:**  
Larval/caterpillar - green, less than an inch in length.

Adult male - silver-blue wings with thin black margins.

Adult female - grayish-brown to purplish-blue wings with orange bands and thin black margins.

**RANGE:**  
Found only in the pine barrens of New Hampshire, New York, Michigan, Wisconsin, Indiana and Minnesota.

**HABITAT:**  
Pitch or jack pine barrens where wild blue lupine is present.

**REPRODUCTION:**  
Two hatches of eggs per year, one overwintering. First adults emerge in June, second group in July.

**FOOD:**  
Caterpillars - wild blue lupine plants.

Adults - nectar from wild blue lupine and other wildflowers.

KARNER BLUE BUTTERFLY

## KARNER BLUE



The Karner Blue butterfly is very small, with a wingspan that barely spreads across the diameter of a penny.

caterpillars feed on the tender upper surface of wild lupine leaves. As with all butterflies, the caterpillars pupate (or change form), going through metamorphosis. Adult butterflies emerge from their cocoon-like chrysalis by early June. As adults, Karner blues feed on the nectar of flowering lupine as well as dogbane, New Jersey tea, butterfly weed and a variety of other wildflowers.

In a week's time, these adults lay their eggs on lupine and then die. This time, the eggs hatch in about a week, and these caterpillars also feed on the lupine. After about three weeks, the caterpillars begin to change and pupate. The summer's second generation of adult butterflies appears in July. Once again,



ERIC ALDRICH PHOTO © NHF&G

*Wild blue lupine, exclusive food source of Karner blue caterpillars.*


they feed on a variety of nectar-producing wildflowers. These adults mate and lay their microscopic eggs at the base of the lupine plants; however, these eggs will not hatch until the following spring, when the cycle begins again.

I sometimes receive calls from very excited people who think they've seen the rare Karner blue in their yard. Of course, it is almost always an impersonator. The spring azure and the eastern tailed-blue are two common butterflies that bear a strong resemblance to the tiny Karner blue. The spring azure

likes open deciduous woods, roadsides and brushy areas, while the eastern tailed-blue readily adapts to habitats altered by human activities.

The Karner blue shares its habitat with other rare butterfly species, including the persius duskywing (*Erynnis persius*) and the frosted elfin (*Incisalia irus*). They too require the wild blue lupine of the pine barren habitat.

The Concord pine barrens are a special place where wildlife biologists and many partner organizations are working hard to restore a unique ecosystem. Their work requires intensive captive-rearing efforts to be able to reintroduce Karner blues back into the habitat. It's not just the Karner blues that will benefit from restoration efforts, though — the butterflies are only one species out of hundreds of plants and animals that depend on this exceptional habitat.

As for me, I will enjoy my walk in the pine barrens and keep my eyes peeled for a splash of blue. 

### *My Field Observations:*

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