

Mission Blue Butterfly

National Park Service
U.S. Department of the Interior
Golden Gate National Recreation Area



Clockwise from top left: Female mission blue butterfly, male mission blue butterfly, and underside of a mission blue.



Mission blues' coastal grassland habitat with lots of lupines.

Meet the Endangered Mission Blue Butterfly

Discovered in San Francisco in 1937, the mission blue was one of the first insects added to the federal endangered species list in 1976. Today it fights for survival in remaining fragments of its native Bay Area grasslands.

First Impressions

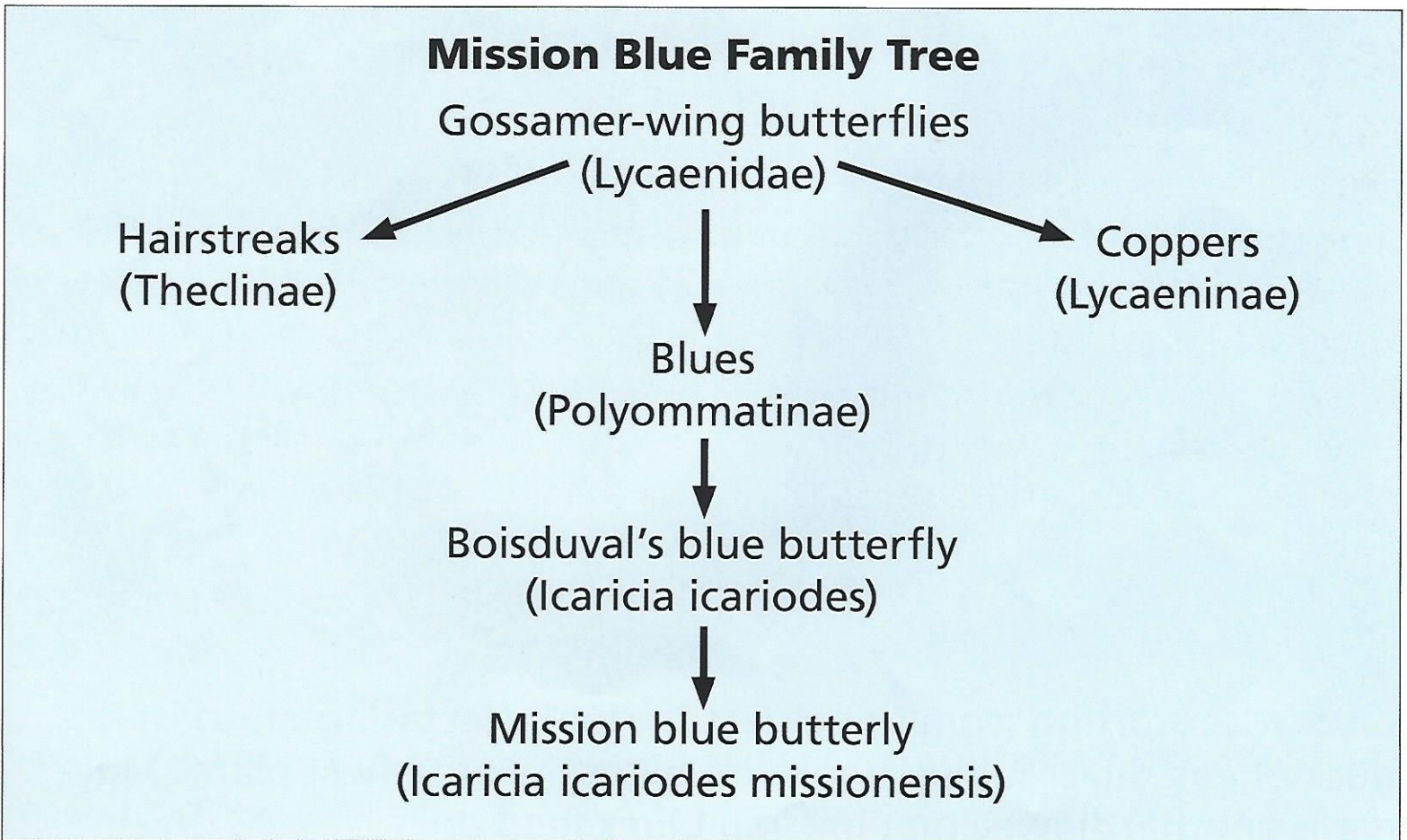
The wings of these quarter-sized butterflies are light iridescent blue (males) or brown with blue towards the base (females), with narrow black and white margins. Their gray/silvery underside is characterized by two rows of black dots enclosed in white halos.

Common Impersonators

Don't be fooled! Pipevine swallowtails, echo blues and acmon blues can all appear a lot like mission blues if you don't look closely. Notice that pipevine swallowtails are much larger and darker, echo blues have faded dark spots without white halos and acmon blues have telltale orange spots on the base of their hind wings.



Clockwise starting from top left: Mission blue butterfly, pipevine swallowtail butterfly, echo blue butterfly, and acmon blue butterfly.



Known Hangouts

Although they probably once fluttered through grasslands between Marin and San Mateo counties, mission blues now exist only in parts of the Marin Headlands, Twin Peaks, San Bruno Mountain, San Francisco Peninsula Watershed, and Milagra and Sweeney Ridges. Look for them in grassland or scrub containing silver, summer or varied lupines—the only plants mission blue caterpillars can eat.

Favorite Foods

Picky mission blue caterpillars eat only parts of lupine leaves, but adults have more varied tastes. Many favorite nectar flowers are members of the sunflower family.



Clockwise starting from upper left to right: Nectaring on coast buckwheat. Silver lupine is mission blues' favorite host plant. Mule's ear is another flower that mission blues feed on.



Photo courtesy: Kevin Dick

Time to Shine

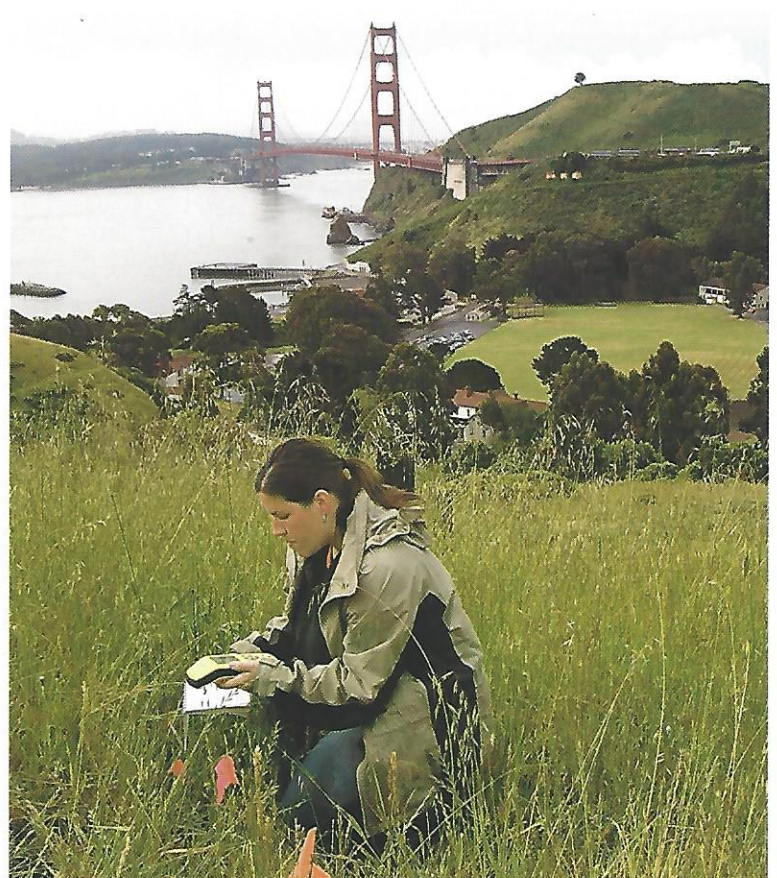
Eggs may be on lupines from March through June. The eggs hatch into tiny caterpillars and spend 3 weeks after hatching busily feeding on lupines.

Mission blue caterpillars then spend most of the year—when the weather and vegetation are less suitable to their tastes—in the debris at base of their host plants in a hibernation-like state called diapause.

After diapause, the caterpillars eat for another 4 to 5 weeks. Finally, plump caterpillars turn into small, green pupae in the debris below lupine plants. A week later they emerge as adults.

Friends and Foes

Certain ants are among mission blues' best buddies. In what is known as mutualism, the ants "tend" mission blue caterpillars, providing protection from predators and parasites in exchange for a meal of sugary "honeydew" that the caterpillars secrete when stimulated. Foes include wasps that parasitize mission blue caterpillars, rodents that gobble up caterpillars in diapause, and lizards, birds, and spiders that snatch adult butterflies.



Gathering butterfly data near Fort Baker.

Fighting for Survival

Historically, the loss of Bay Area grasslands to development was an enormous threat to mission blues' survival. Now, the habitat that remains is fragmented, leaving mission blue populations isolated and vulnerable to random events. For instance, a fungus attacked the butterflies' lupine host plants in 1998, devastating mission blues in those areas. Invasive plants represent another threat to mission blues. Nonnative trees and plants such as Pampas grass and French broom can quickly overcome the lupines and nectar plants that mission blues need to survive. Poaching, trampling and harassment also threaten mission blue butterflies' survival.

Saving the Mission Blue Butterfly & Beyond

Today, we have monitoring programs to learn more about mission blue and lupine populations. We also do a variety of habitat restoration projects such as invasive plant removal and planting native grassland vegetation. Preserving mission blue habitat

protects other members of the grassland ecosystem, like birds, mammals and wildflowers as well. Restoring grasslands also reduces wildfire fuel buildup and conserves an important source for clean air and carbon sequestration.

- Stay on designated trails to avoid harming mission blues in all of their life stages.
- Don't pick flowers. The more nectar plants available to mission blues, the better.
- Learn what mission blues' host plants look like, and avoid disturbing them.
- Avoid planting potentially invasive species in your backyard.
- Volunteer for habitat restoration activities or donate to the Golden Gate National Parks Conservancy by visiting www.parksconservancy.org



Top to bottom: For years Milagra Ridge was covered in invasive Pampas grass; Now that the Pampas grass has been removed, there is much more suitable mission blue habitat.