U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Species Account
MISSION BLUE BUTTERFLY
Icaricia icarioides missionensis

CLASSIFICATION: Endangered
Federal Register 41:22041; June 1, 1976
http://ecos.fws.gov/docs/federal_register/fr99.pdf

CRITICAL HABITAT: None designated

RECOVERY PLAN: Final
Recovery Plan for San Bruno Elfin and Mission Blue Butterflies. October 10, 1984
(This plan is now out of date. Contact us if you need a copy.)

5-YEAR REVIEW: Completed February 2010. No change recommended.
www.fws.gov/ecos/ajax/docs/five_year_review/doc3216.pdf
(285 KB)


Mission Blue Butterfly
David Wright, USFWS

DESCRIPTION
The mission blue (*Icaricia icarioides missionensis*) is a small, delicate butterfly in the Lycaenidae (gossamer-winged butterfly) family. Wingspan is about 2.5 to 3.6 centimeters. (1 to 1.5 inch).

The upper wing surfaces of the male are iridescent blue and lavender with black margins fringed with long white hair-like scales. There are no spots on the upper surfaces of the wings. In males, the ventral surfaces of the wings are whitish with small circular gray spots in the submarginal areas and larger circular black spots located in post-median and submedian areas of the fore and hind wings. The body of the male is dark bluish brown. Females have dark brown upper wing surfaces marked with blue basal areas. The margins and wing fringe are similar to the male. Female underwings are stone gray with a dot pattern similar to the males'.

The adult flight season extends from late March to early July, depending on the location and microclimatic conditions. Females lay eggs throughout the mating flight. Adults do not wander far from lupine (*Lupinus albifrons*, *L. formosus* and *L. variicolor*), the larval food plant. The adults feed on *Chrysopsis villosa*, *Brodiaea pulchella*, *Brodiaea taxa*, and *Eriogonum latifolium*. The eggs are laid singly on leaves, stems, flowers and seed pods of lupine species.

Eggs hatch in 4-7 days after being deposited on the larval food plant. Young larvae feed on the inner tissues of the host plant leaves. Flowers are consumed entirely. After feeding, the small second instar larvae (caterpillars that have shed their skin once) enter diapause (a dormant stage) in the litter at the base of the host plant. Larvae emerge from diapause and resume feeding the following spring. The mechanisms that start and end diapause are unknown. Third and fourth instar larvae are tended by ants. These instars have well-developed honeydew secreting glands

that entice ants into this tending behavior. Pupation occurs in the soil beneath the host plant. One generation of butterflies is produced each year.

DISTRIBUTION

The mission blue butterfly was first collected in 1937 from the Mission District of San Francisco. Today a small colony is located on Twin Peaks. The species has also been collected from Fort Baker, Marin County. The majority of the remaining colonies are found on San Bruno Mountain, San Mateo County. Other colonies have been discovered in San Mateo County. Colonies are located at sites ranging from 690 to 1,180-foot elevation. Some colonies occur in the fog belt of the coastal range. Coastal chaparral and coastal grasslands dominate the vegetation type where colonies are found.

Based on the lack of sightings of the adults during the normal flight season since 2004, it is possible the mission blue butterfly is either on the verge of being extirpated from the Twin Peaks Natural Area, or has already been extirpated. Attempts at reestablishing this population are ongoing.

What appears to be a mission blue butterfly metapopulation is found in the southern portion of its range in San Mateo County. This metapopulation is a chain of distinct colonies that extend north from the San Francisco Peninsular Watershed, along Sweeney Ridge, and ends at Milagra Ridge. See 5-year review (above).

THREATS

Present or threatened destruction, modification, or curtailment of the habitat or range of the mission blue butterfly due to private development projects no longer pose as serious of a threat to the species as they did at the time of listing. However, public infrastructure development projects remain a significant threat. All mission blue butterfly populations found on Golden Gate National Recreation Area properties are relatively safe from development activities that would destroy, modify or curtail habitat.

The outbreak of an unknown fungal pathogen that infected lupine host plants during the El Nino year of 1998 at Milagra Ridge and Twin Peaks represents a threat to the mission blue butterfly throughout its range. Although many of the lupine host plant patches, and the mission blue butterfly population along with them, have reestablished themselves at Milagra Ridge and have been reestablished at Twin Peaks, the fungus remains present in the soil. The potential spread and outbreaks of this pathogen poses a greater threat to small and isolated populations.

Non-native grasses and forbs that have invaded California grasslands and the conversion to coastal scrub are serious threats to the two listed butterflies due to their ability to become more abundant while outcompeting or becoming more abundant than the larvae food plant and nectar plants.

See 5-year review (above) and the California Academy of Sciences Hotspot page about this species.

REFERENCES FOR ADDITIONAL INFORMATION

Note There is a special mission blue butterfly species account for 4th, 5th and 6th grade students. http://www.fws.gov/sacramento/es/animal_spp_acct/mission_blue_butterfly_kf.htm

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Thelander, C. ed. 1994. Life on the edge: a guide to California's endangered natural resources. BioSystem Books. Santa Cruz, CA. p 430-431.

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Last updated June 1, 2010