

***Callophrys mossii bayensis* (R. M. Brown), 1969**
San Bruno Elfin
(Lycaenidae: Theclinae: Eumaeini)



Photo by Larry Orsak.
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SUMMARY

The San Bruno Elfin inhabits rocky outcrops and cliffs in coastal scrub on the San Francisco peninsula. The San Bruno Elfin is restricted to a few small populations, the largest of which occurs on San Bruno Mountain. Its habitat has been diminished by quarrying, off-road recreation, and urban development. Development pressures on the San Francisco peninsula continue to grow, and the major threats to the butterfly—increased urbanization in the area, and loss of habitat by road construction and rock and sand quarrying—reflect this. Grazing may have encouraged the growth of exotic plants in the area. In the early 1980s, a habitat conservation plan was developed to allow development on San Bruno Mountain while minimizing the adverse effects on the San Bruno Elfin butterfly and other rare species in the area. This plan is currently being amended, which may result in further urban development.

CONSERVATION STATUS

Xerces Red List Status: Critically Imperiled

Other Rankings:

Canada – Species at Risk Act:	N/A
Canada – provincial status:	N/A
Mexico:	N/A
USA – Endangered Species Act:	Endangered
USA – state status:	None
NatureServe:	G4T1
IUCN Red List:	N/A

SPECIES PROFILE

DESCRIPTION

The San Bruno Elfin is a small brownish butterfly in the family Lycaenidae (gossamer wing). It has a wingspan between ? to 1? inches (22 to 28 mm). The dorsal side of the male is grayish brown with a tan patch on hindwing inner margin and the female is light brown to tan with dark borders. The ventral side is coppery brown to purplish brown, marked by an uneven dark line that separates the inner and outer halves of the wings. On the hindwing, the inner half is darker than the outer half.

TAXONOMIC STATUS

Callophrys mossii bayensis (R. M. Brown), 1969. The species *C. mossii* was previously placed in the genus *Incisalia* Scudder, 1871, and some lepidopterists consider it now to be in the genus *Deciduphagus* Johnson, 1992.

LIFE HISTORY

The adult flight period is late February to mid-April, with the peak flight period occurring in March and early April. Eggs are laid in small clusters or strings on the upper or lower surface of broadleaf stonecrop (*Sedum spathulifolium*). Larvae hatch from the eggs within 5-7 days of being laid.

Young larvae start to feed immediately by tunneling into the swollen succulent leaves. The first and second instars feed in this manner. Third and fourth instars move up to the flowers of the food plant and feed while they are tended by several species of ants that protect them from predators. These ants feed on a honeydew produced by the larvae.

Pupation and pupal diapause (a dormant stage) take place in the loose soil and litter at the base of the larval food plant from June until February of the following year. The adults then emerge and mate. The adult food plants have not been fully determined. Montara Mountain colonies are suspected to use Montara manzanita (*Arctostaphylos montaraensis*) and California huckleberry (*Vaccinium ovatum*).

DISTRIBUTION

The San Bruno Elfin is found in coastal mountains near San Francisco Bay, in the fog-belt of steep north facing slopes that receive little direct sunlight. It lives near prolific

growths of the larval food plant, broadleaf stonecrop, which is a low growing succulent. Broadleaf stonecrop is associated with rocky outcrops (often in the shade) that occur on steep, mainly north-facing slopes from 200 to 5,000 feet elevation.

First described in 1962 near San Francisco, colonies are known today on San Bruno Mountain (the largest population), Milagra Ridge, and Montara Mountain of San Mateo County; Mount Diablo in Contra Costa County; and near Alpine Lake and at Dillon Beach in Marin County.

THREATS

The loss and modification of habitat due to residential and business development are the principal threats. Plant records indicate that the larval hostplant (broadleaf stonecrop) was previously widespread and that the San Bruno Elfin may have inhabited sites now built on or lost to exotic invasive plants such as iceplant (*Mesembryanthemum* sp.) and eucalyptus (*Eucalyptus* sp.).

San Bruno Mountain, the major remaining location for this butterfly, has experienced significant habitat change during the last century. Well over a thousand acres of the mountain was lost to development between the 1930s and the 1980s. During the same period, more than half of the predominantly grassland landscape was lost to the spread of scrub and woodland. Change in the remaining grassland was also brought about by the spread of European annual grasses and the loss of native bunchgrasses.

Elsewhere, the few surviving colonies are also under pressure from urbanization, vegetation change, and road development. Montara Mountain, for example, has been threatened by a freeway expansion.

CONSERVATION STATUS

Current management on San Bruno Mountain and in other areas focuses on reduced pesticide use, careful recreation management, and vegetation management. Several areas from which populations had been previously extirpated are also being targeted for re-vegetation and reintroduction of the butterfly. Much of San Bruno Mountain is a county park. The park managers are the lead people in amending the Habitat Conservation Plan.

Numbers appear to be stable based on 2000 annual monitoring of San Bruno Mountain HCP. There is no information from 2001 monitoring work to support any change in status.

The San Bruno Elfin is a federally endangered species (*Federal Register* 41:22041-22044; 6/1/69).

Recovery Plan: Draft; *San Bruno Elfin and Mission Blue Butterflies Recovery Plan* (10/10/84). (Never finalized; much of the information is currently out of date.)

Critical Habitat: Proposed (*Federal Register* 42:7972-7976; 2/8/77)

CONSERVATION NEEDS

The principal conservation need of this butterfly is for its remaining habitat to be appropriately managed and protected from development proposals. The existing Habitat Conservation Plan for San Bruno Mountain is not really working. There is continuing development on the mountain and inadequate funding for management work and monitoring programs.

RESEARCH NEEDS

Monitoring of extant populations should be done to assess population status and the impacts of habitat change and management.

RESOURCES

CONTACTS

U.S. Fish & Wildlife Service: Don Hankins, Sacramento Fish And Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, CA 95825. Telephone: (916) 414-6600; fax: (916) 414-6713.

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