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URBAN WILDLANDS GROUP

January 2, 1999

Bruce Babbitt, Secretary  
U.S. Department of the Interior  
1849 C Street, N.W.  
Washington, D.C. 20240

**Re: Petition for Emergency Endangered Listing for Santa Monica Mountains Hairstreak  
(*Satyrrium auretorum fumosum*)**

Dear Secretary Babbitt:

The Urban Wildlands Group, the Lepidoptera Research Foundation, the California Oak Foundation, the Southwest Center for Biological Diversity, Roger Kim, Lisa Bracamante, Rudi Mattoni, Travis Longcore, Catherine Rich, John Emmel, and John Pasko hereby formally petition to list *Satyrrium auretorum fumosum* Emmel and Mattoni (Santa Monica Mountains Hairstreak) as endangered pursuant to the Endangered Species Act, 16 U.S.C. §§ 1531 et seq. (hereafter referred to as ESA). This petition is filed Under U.S.C. § 553(3) and 50 C.F.R. 424.14 (1990), which grant interested parties the right to petition for issuance of a rule from the Assistant Secretary of the Interior. Petitioners request that critical habitat be designated for *Satyrrium auretorum fumosum* concurrent with listing pursuant to 50 C.F.R. 424.12 and the Administrative Procedures Act, 50 U.S.C. § 553.

Because *Satyrrium auretorum fumosum* is known from only a few populations across a limited distribution, habitat conditions are limited, and habitat destruction is continuing in a rapidly developing part of western Los Angeles and eastern Ventura counties, California, and that the largest known population may be impacted at any time, we appeal for emergency listing pursuant to ESA 4(b)7 and 50 C.F.R. 424.20 in order to protect the species until such time that a final listing package is completed.

Emergency listing is also essential to protect one of four known locations (Carlisle Canyon) which encompasses a minimum area that supports an apparently isolated colony and is under threat of immediate destruction. Emergency listing is therefore essential to ensure the survival of the species and to preserve any opportunities for its recovery.

Sincerely,



Rudi Mattoni, Ph.D.

## EXECUTIVE SUMMARY

The Santa Monica Mountains Hairstreak (*Satyrium auretorum fumosum*) is a subspecies of the nominotypical *Satyrium auretorum*. The subspecies is endemic to the northern slopes and plateau of the western section of the Santa Monica Mountains. Its larval food source is Coast Live Oak (*Quercus agrifolia*). Planned development of the area where this species occurs will significantly impact the population of this butterfly. The proposed development would disturb or remove all or portions of the known preferred habitat. Direct loss of habitat due to vegetation removal is the most significant impact to wildlife.

In 1973 a brief reference was made from Emmel and Emmel of a new subspecies of hairstreak butterfly, which they distinguished from the other known populations of nominotypical *S. auretorum* and subspecies *S. a. spadix*, by the dark ground color both dorsally and ventrally. The subspecies was named “*fumosum*” in 1990 by Emmel and Mattoni. *Fumosum* derives from the Latin root for smoke, in reference to the darkened, “smoky” appearance of the upperside wing pattern of adults of this subspecies.

The subspecies has a restricted range in the western Santa Monica Mountains. Specimens have been collected at Malibu Lake (Type Locality), Paramount Ranch (Santa Monica Mountains National Recreation Area), and Carlisle Canyon, with one female captured about 1–1.5 miles from Brent’s Junction (just north of Highway 101), and one male at Wildwood Park.

The primary reason for decline of *Satyrium auretorum fumosum* is urbanization and as a consequence, habitat fragmentation. The Carlisle Canyon site has recently been approved for the construction of a housing development. Several of *Quercus agrifolia* would be affected by the construction, and would be relocated in an effort to mitigate the situation. In addition, known *Satyrium auretorum fumosum* localities are areas situated in close proximity to a highway and are therefore subject to human disturbance and overcollecting.

*Satyrium auretorum fumosum* is the only butterfly known to be endemic to the Santa Monica Mountains. However, due to the restricted nature of its habitat requirements, limited research has been completed. Although the species has been reared in captivity from eggs laid in captivity and some larvae found in nature, little is known about its biology. Further research is urgent due to the limited distribution of *Satyrium auretorum fumosum* and the high rate of land conversion and increasing fragmentation across its entire range.

Recognition of *Satyrium auretorum fumosum* as endangered with critical habitat under the Endangered Species Act is essential to ensure the continued existence of this species, as well as the habitat that supports it.

*Something will have gone out of us as a people if we ever let the remaining wilderness be destroyed.*

—Historian Wallace Stegner

## **PETITIONERS**

The Urban Wildlands Group is an informal group of concerned UCLA students and conservation enthusiasts, interested in the preservation of the native biodiversity of California.

The Lepidoptera Research Foundation, Inc., is an international academic group concerned with the preservation of lepidoptera around the world. The foundation's mission is to increase awareness and share research information and appreciation of all species of lepidoptera, by publishing a quarterly journal on the subject.

The California Oak Foundation is a non-profit organization dedicated to the protection and preservation of native oak woodlands in California.

The Southwest Center for Biological Diversity uses rigorous conservation biology and innovative legal strategies to promote healthy ecosystems that support diverse plant and animal communities as well as thriving urban and rural lifestyles in the Southwest.

Roger Kim is a graduate of Environmental Studies/Geography from UCLA. Mr. Kim received a research grant from the National Park Service to study the species, studies which are continuing and which provided background for a preliminary paper on its behavior and ecology.

Lisa Bracamonte is a student of Environmental Studies/Geography at UCLA, and is involved in habitat restoration projects in Los Angeles and Ventura County.

Rudi Mattoni is a lecturer in the Geography Department at UCLA, and is actively involved in habitat restoration projects in Los Angeles, San Diego, and San Bernardino Counties. He is also a co-author of the species with Dr. Emmel.

Catherine Rich is an attorney and conservation advocate in Los Angeles County and holds an M.A. from the UCLA Department of Geography.

Travis Longcore is a doctoral candidate in Geography at UCLA.

John Emmel is a distinguished medical doctor and authority on butterflies of California, co-author of the classic *Butterflies of Southern California*, and co-author of the species with Dr. Mattoni.

John Pasko is an advanced amateur lepidopterist who discovered much of our knowledge of the species including its life history. Mr. Pasko lives in Thousand Oaks, has informally monitored the species since the mid 1980s, and has witnessed habitat destruction of the region during that time.

## **PETITION**

### ***TAXONOMY***

#### **Scientific Name**

*Satyrium auretorum fumosum* Emmel and Mattoni (1990)

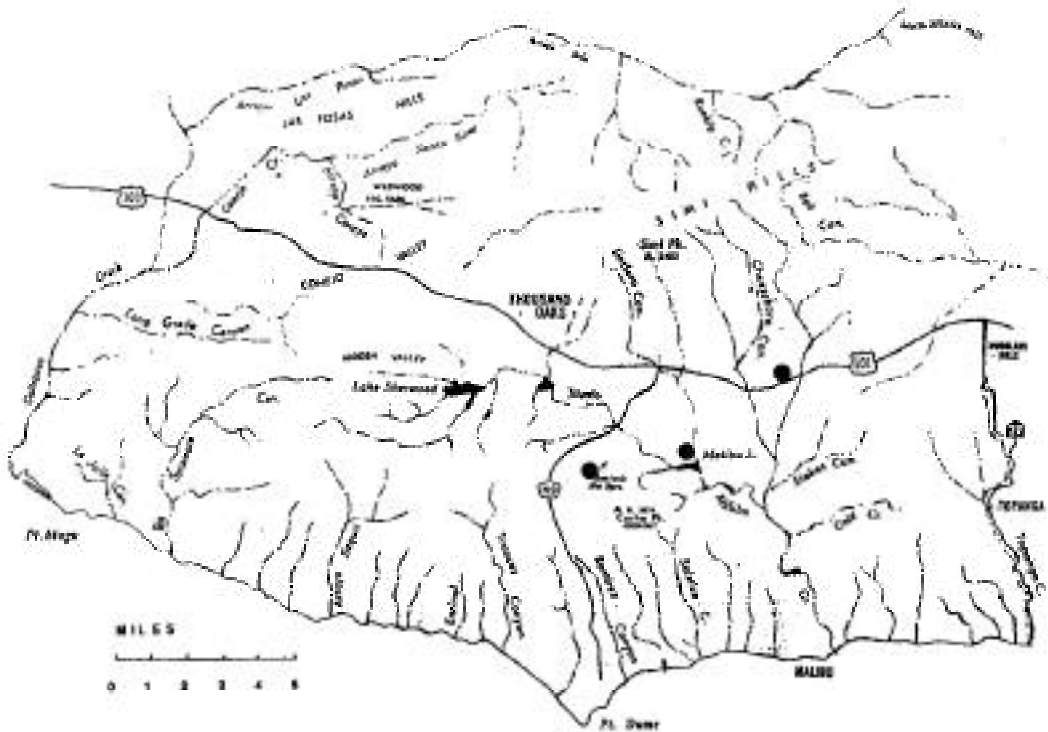
## Common Name

Santa Monica Mountains Hairstreak

## Description

*Satyrium auretorum* (Lepidoptera: Lycaenidae) was first described by Boisduval as a widespread, but local, hairstreak species found throughout the foothills and lower mountain slopes of central and southern California. The nominotypical subspecies was described from a single male (Boisduval 1852), probably taken in the Feather River drainage in the northern Sierra Nevada foothills. The species was considered a rarity for many years and was not even illustrated by Comstock (1927) because of a lack of specimens. However, since that time, it has been collected in numerous locations across the Sierra Nevada foothills and coastal ranges where it is associated with the chaparral plant community and uses scrub oaks (e.g., *Quercus berberidifolia*) as a larval foodplant.

*Satyrium auretorum spadix*, a southern California subspecies, was described in 1881 by Henry Edwards (type locality, Tehachapi pass, California). Edwards characterized *S. a. spadix* as having a lighter ventral surface and with fulvous scaling on the dorsal surface of females that is more extensively developed than in *S. auretorum*. This subspecies has been collected more frequently than the nominotypical one, likely a result of a higher concentration of collectors near its habitat.



**Figure 1.** The known distribution of the Santa Monica Mountains Hairstreak. Localities indicated by ●.

The Santa Monica Mountains Hairstreak, *Satyrium auretorum fumosum*, was first recognized (but not named) as a distinct subspecies in 1973 when Emmel and Emmel made brief reference to an

undescribed subspecies of *S. auretorum* from the Santa Monica Mountains (Figure 1). They distinguished the taxon by its darker phenotype than any other known population. In 1990, Emmel and Mattoni named and further described *Satyrium auretorum fumosum* (Emmel and Mattoni 1990). Their full description follows:

#### **MALE.**

*Size.* Forewing length 12.5–13.5 mm, mean 13.1 mm (N=13).

***Dorsal Surface.*** Forewing: Ground color dark brownish gray. Outer margin with a thin dark brown border, diffused basad into ground color. Fringe pale tannish gray. Androconial scales pale gray, standing out in greater contrast against the ground color than in *S. auretorum* or *S. spadix*. Hindwing: Ground color, outer margin and fringe as in forewing. Anal area pale tannish gray. Tail black with white scaling at tip.

***Ventral Surface.*** Forewing: Ground color dull brown, darker than the fulvous brown seen in nominotypical *S. auretorum* or *S. spadix*. Pale gray overscaling present in post discal and submarginal areas, rendering these areas lighter than the basal half of the wing. Dark brown rectangular macule at distal end of discal cell enlarged approximately two to three times as wide as seen in nominotypical *S. auretorum* or *S. spadix*. Postmedian series of dark brown macules crescent-shaped, enlarged over those seen in nominotypical *S. auretorum* (usually about twice the width), and edged distally with pale gray scaling. Submarginal series of dark brown macules obsolescent, but more developed than in *S. spadix*, in which they are usually absent. In nominotypical *S. auretorum* the submarginal series are usually very well developed. Outer margin edged with a thin brown line, fringe pale tan. Hindwing: Ground color, macules, outer margin and fringe as forewing, except that postmedian series of macules are ovoid to rhomboid in shape. Pale orange “eyespot” mark in cell  $CU_1$   $CU_2$  less developed than nominotypical *S. auretorum*, more prominent than in *S. spadix*, in which it is often obsolescent.

#### **FEMALE.**

*Size.* Forewing length 13.5–14.5 mm, mean 13.9 mm (N=6).

***Dorsal surface.*** Forewing: Ground color dark brownish gray with a small area of dull fulvous scaling in the center of the wing. Fulvous scaling markedly reduced in extent from that seen in other species. In *S. spadix* the scaling often covers over one third of the wing and has relatively discrete borders, in nominotypical *S. auretorum* the scaling is usually extensive, but more diffused into the dark brown-gray ground color. Outer margin and fringe as in male. Hindwing: Ground color as forewing. Fulvous scaling absent, or present in small diffuse patch in the posterior half of the submarginal area. In *S. spadix* and nominotypical *S. auretorum* the fulvous scaling is usually present and more extensively developed.

***Ventral surface.*** Forewing and hindwing: Ground color and marking as in male.



**Figure 2.** *Satyrium auretorum fumosum*, male (holotype), Malibu Lake, Los Angeles Co., CA 6 June 1948; female (allotype), same locality 16 June 1948.

### ***DISTRIBUTION***

The species is one of the few butterflies that is wholly confined to the California floristic province. Although there are many endemic butterfly subspecies within California, only eight other full species share this trait. Full species here refers to a treatment that is systematically conservative.

*Satyrium auretorum auretorum*, the nominotypical species, is found throughout the foothills and lower mountain slopes of much of California, including the coast range and northern Sierra Nevada foothills.

*Satyrium auretorum spadix*, a southern California subspecies found from the Tehachapi mountains through the Transverse Ranges into the Santa Ana Mountains and then into San Diego County and the San Pedro Martir of Baja California Norte. The species is restricted to the scrub oak chaparral and is found wholly within the California floristic province.

*Satyrium auretorum fumosum* is endemic to the western end of the Santa Monica Mountains, more specifically Carlisle Canyon, Paramount Ranch, and Malibu Lake. Distribution is localized in colonies or restricted habitats. *Satyrium auretorum fumosum* is more abundant, though not common, at Paramount Ranch than at Carlisle Canyon. The Malibu Lake population cannot be located and is presumed extirpated, likely from dense development in that area. Also, one specimen was collected at a location just north of Highway 101 near Brent's Junction, and one male at Wildwood Park.

A group of 25 mature *Quercus agrifolia* occur at the Carlisle Canyon site and form an isolated patch as an oak savanna association. In this patch, *Satyrium auretorum fumosum* larvae were found on only four of the 25 trees. At the Paramount Ranch site *Satyrium auretorum fumosum* was found on seven out of 20 trees examined. On May 17, 1997, six males were sighted within a few minutes on the ridge opposite the park entrance. At the same location, four males were counted and two females collected on May 23. There were a number of additional trees in the area, but due to the hilly terrain and thick understory it was not possible to examine them. No populations could be located near the north shore of Malibu Lake.

While comprehensive surveys of the Santa Monica Mountains have not been undertaken for the species, the area has been extensively collected by amateur butterfly collectors with no records other than the localities already listed.

## **HABITAT REQUIREMENTS**

Adults of the subspecies *Satyrium auretteorum fumosum* spend most of their time perching only on *Quercus agrifolia*. Although *Quercus agrifolia* is abundant and widespread across the northwest slopes of the Santa Monica Mountains, many trees are on private property or other disturbed land where much of the undergrowth, including *Eriogonum fasciculatum* (common buckwheat), has been altered or removed. Even when there are a number of trees available, populations seem to be restricted to only a few choice trees with succulent new growth. Most importantly, the larvae require very young tender shoots for survival.

Adults are rarely observed nectaring. When observed, they have only be recorded nectaring on *Eriogonum fasciculatum*. Adults may take sustenance from scale insect secretions or possibly sap runs and slime fluxes (R. Mattoni, pers. obs. of *S. a. spadix*). From observations over the past four years, nectaring usually occurs between 1100h and 1300h, although on especially hot days adults may be observed nectaring as late as 1600h.

Individual adults appear to be extremely sedentary and fly up only when disturbed. They return to perch within a few seconds. This behavior was observed to be more pronounced in females. Males occasionally were observed partaking in short chases with one another before settling back down to perch. Relative abundance is rare as a maximum of only two to six individuals can be sighted on an optimal day during mid flight period. Observation is difficult in general because the life cycle is completed in the oak canopy upwards of 30–40 feet above ground.

The species flies in a single brood from late April to June. There is not a uniform population continuous within the live oak savanna of the region, but rather the populations appear to be structured as a series of metapopulations with minimum interchanges among colonies, with each one delineated by an individual tree.

## **BIOLOGY**

John Emmel has observed one rearing cycle in captivity from eggs laid by a female taken by John Pasko on *E. fasciculatum* at Carlisle Canyon. Larval foodplant preference is monophagous and larvae feed only on *Quercus agrifolia*. The use of *Quercus agrifolia* as the single larval foodplant is a distinguishing characteristic of the subspecies, other subspecies feed also on scrub oaks (*Quercus berberidifolia*).

## **DECLINE**

### **Urbanization**

The Carlisle Canyon locality of *Satyrium auretteorum fumosum* is currently under threat of development (City of Westlake Village 1990). The area has been designated as the site of a future high-priced housing development, with the development calling for the removal of most or all of the 25 aforementioned *Quercus agrifolia*, which is the demonstrated sole foodplant of the butterfly. Mitigation measures suggest the relocation of several of the oaks. However, due to the size and root structure of *Quercus agrifolia*, past transplantation efforts have proven almost totally ineffective (Dagit 1997). No long-term survival of transplanted oaks has been recorded. Transplant of large oaks is a public relations fiction further insulting natural ecosystem processes with the additional neglect of

the rich understory that makes up oak woodland habitat. Therefore, relocation of oaks as a mitigation measure will not result in conservation of the Santa Monica Mountains Hairstreak.

In addition, the area surrounding the *Quercus agrifolia* is vital to a functioning habitat, especially with nectar sources such as *Eriogonum fasciculatum*. Proximity of such nectar resources is likely essential for the butterfly's long-term survival. In a dry year as 1997, it is likely that nectar is a critical factor for survival because homopteran and slime flux secretions, which are hypothesized to be nutrient sources, are virtually nonexistent. If substantiated, larval foodplant alone would be insufficient to support the species. If planned development at Carlisle Canyon is allowed to proceed as planned, it is all but certain that the development will cause the complete extirpation of the Santa Monica Mountain Hairstreak population occurring there.

### **Fragmentation and other Natural and Manmade Factors**

Fragmentation of habitat is one of the biggest threats to the existence of *Satyrium auretorum fumosum*. The Carlisle Canyon area has been fragmented by roads and highways, and currently is a very popular area for mountain biking, in-line skating, jogging, and other forms of recreation. In addition, there is strong evidence of human destruction of the species habitat in the form of littering, dumping, and unlawful hunting of wildlife in the immediate area of which *Satyrium auretorum fumosum* occurs at the Carlisle Canyon location.

### **Overutilization for Commercial, Recreational, Scientific or Educational Purposes**

Overutilization for commercial, recreational, scientific, or educational purpose is another threat to the species. If the location of the habitat is made known without an endangered listing, *Satyrium auretorum fumosum* could come under assault by amateur or recreational collectors of Lepidoptera.

### **Inadequacy of Existing Conservation Mechanisms**

No mechanisms currently exist to protect the Santa Monica Mountains Hairstreak from threats to its continued existence. The State of California does not recognize it as a species of concern, and as an insect, it cannot be protected by the California Endangered Species Act. The California Environmental Quality Act offers no protections as the species is not recognized by the state or federal governments as a species of concern. Oak tree ordinances likewise provide no protections as they allow for the removal of oak trees with mitigation. Sapling replacements planted as mitigation for the loss of mature oak trees do not provide habitat for *Satyrium auretorum fumosum*. In addition, no mechanism exists to protect habitat that provides nectar sources surrounding trees occupied by the species.

## **CRITICAL HABITAT DESIGNATION**

We strongly recommend the designation of critical habitat for *Satyrium auretorum fumosum* coincident with this listing. Critical habitat should be designated in all areas where it currently exists in its natural habitat.

Establishment of critical habitat is both determinable and prudent. Critical habitat is determinable because there are: a) few known populations, b) a limited number of undeveloped areas



remaining in the Santa Monica Mountains, and c) a limited number of areas where the specialized habitat of the species occurs naturally. Establishment of critical habitat is prudent due to the circumstances surrounding the nature of *Satyrium auretteorum fumosum* habitat (climatic conditions, etc.) and difficulty in capturing the species. Therefore, little research has been completed on the butterfly. It is imperative that more is learned about the life history of the butterfly to determine more practical means of sustaining its limited numbers.

### **EMERGENCY LISTING DESIGNATION**

Emergency listing is essential to protect the Carlisle Canyon population. This population will be destroyed by the pending construction and removal of the *Quercus agrifolia*. Emergency listing is necessary if further research is to be completed and recovery is to be achieved.

### **ADDITIONAL RECOMMENDATIONS**

Issues that require immediate attention include the following:

1. Discussions should be initiated with the City of Westlake to encourage complete avoidance of the largest population of *Satyrium auretteorum fumosum* (Carlisle Canyon).
2. Identify other extant populations, especially at Las Virgenes, to assess immediate habitat threats.
3. Local, State, and Federal agencies in Los Angeles and Ventura County should be made aware that this butterfly is facing the serious threat of extinction and that it is of special concern to the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

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