

FIELD NOTES ON FOUR WESTERN HAIRSTREAKS  
(LYCAENIDAE: THECLINAE)<sup>1</sup>

Many collectors tend to overlook or ignore some of the hairstreaks found in the Rocky Mts. Those that avidly seek nectar at flowers are conspicuous and are collected with some frequency. These include such species as *Strymon melinus* Hübner, *Mitoura siva* (W. H. Edwards), *Harkenclenus titus* (Fabricius), and *Callipsyche behrri* (W. H. Edwards). Other species generally perch on their larval host plants, usually shrubs or scrub trees, and do not visit flowers on a regular basis; although sometimes they may be taken in numbers at flowers. Four such species are the subject of this paper.

I will discuss the habits and habitats of some of the more elusive hairstreaks found in the western United States. Some species that are considered rare are probably relatively common, but occur only in narrowly-defined biogeographic areas. In addition, their habit of not straying very far from their larval hosts affords an additional measure of protection from the casual butterfly collector.

Some taxonomic matters are discussed, but no actions are taken in this regard.

*Satyrium calanus* Hübner, 1809

Western populations of *S. calanus* are usually assigned to the subspecies *godarti* Field (1938a). In the Rocky Mt. region, there is considerable variation among populations of this insect. The usual form in some regions would be considered as highly aberrant in other portions of its range.

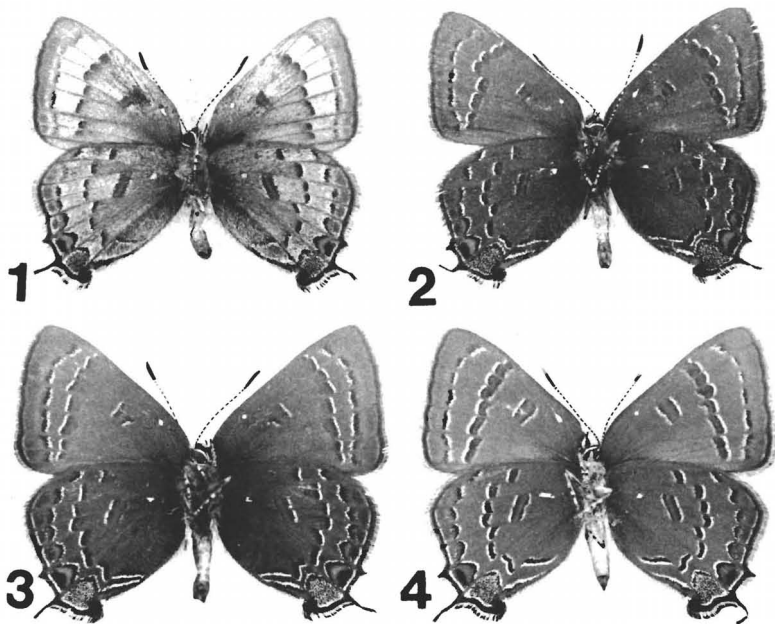
I discovered this species in Wyoming in 1977. Oak, the larval host, does not grow generally in Wyoming. *Quercus macrocarpa* Michx. is found in the Black Hills in the extreme NE part of the state; *Quercus gambelii* Nutt. occurs in an isolated colony on the western slope of the Sierra Madre in Carbon Co. The only specimens of *S. calanus* collected to date in Wyoming are the form shown in Fig. 1 from the Sierra Madre. The ventral surface varies from pale shades of gray to white. A similar form from Manitoba was named *heathii* by James Fletcher (1904, Can. Entomol., 36(5): 121-130). A. H. Clark (see Field, 1938, Bull. Univ. Kansas, 39(10): 1-328) later placed *heathii* as an aberrational form of *S. calanus falacer* (Godart). See Fisher (1976, J. Res. Lepid., 15(3): 177-181) for additional discussion of "heathii" forms. The white-banded aberrational or "heathii" form appears in several North American hairstreaks. In Carbon Co., Wyoming and Routt Co., Colorado (vic. Rabbit Ears Pass), it is the normal form. In several years of collecting this species in Wyoming, I have yet to take a specimen with the dark ventral markings typical of *godarti*.

It is not clear why the aberrational form is the rule in this geographic region. Soil chemistry might be a factor, as has been demonstrated for a few butterfly species (in litt.), although other hairstreaks that occur in the region do not exhibit such aberrations. *S. calanus* and *S. liparops aliparops* (Michener & dos Passos) fly together in Carbon Co., Wyoming. Another factor might be geographic isolation (a relict population as it were). It may be that, because of the host plant isolation over the millennia, the aberrational form has become genetically dominant for some reason. Since the "heathii" form occurs in other *calanus* populations, it does not seem wise at this time to describe the Carbon Co. phenotype as a new subspecies.

The Wyoming habitat is shown in Fig. 17. The area is a well-drained hillside with groves of trees and open meadows. The short dark trees are oaks; the trees with white bark are aspens. The butterflies perch on the oaks and occasionally may be taken on flowers.

Figs. 2-4 illustrate *godarti* from Union Co., New Mexico. No figures appear in Field's description of this subspecies. The two males and one female shown are from the same collection site. Note the wide variation in facies, especially in the VFW bands. These three specimens are typical of the variation found in a large series (over 60 specimens)

<sup>1</sup> Published with the approval of the Director, Wyoming Agricultural Experiment Station as Journal Article No. JA1061. Contribution No. 479, Bureau of Entomology, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville 32602.



FIGS. 1-4. *Satyrium calanus godarti*: 1, male V, Wyoming population, W. slope Sierra Madre Mts., Carbon Co., Wyo., 26-vii-78; 2, 3, males V, Oak Creek, NE of Folsom, Union Co., New Mexico, 28, 29-vi-79; 4, female V, same data.

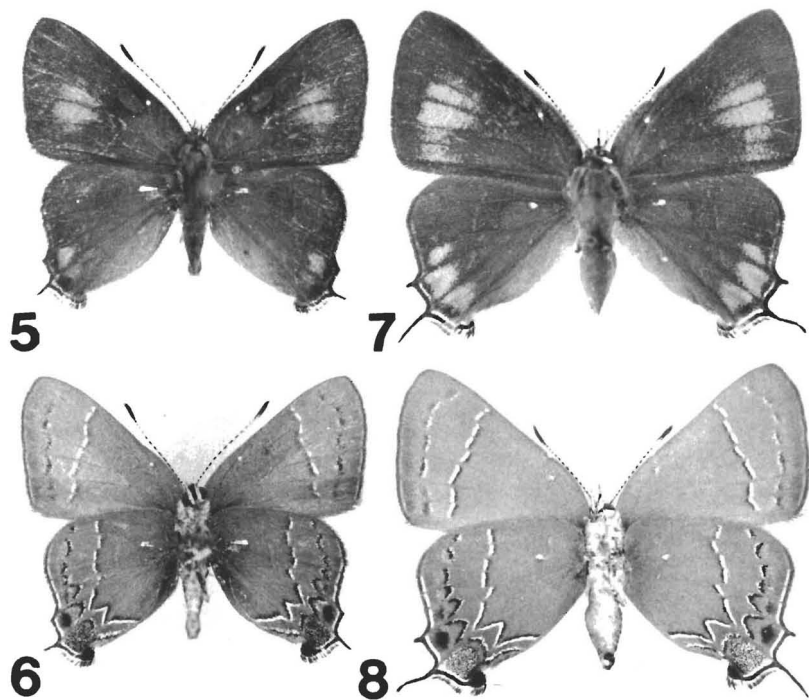
taken at the same locality. They were collected in extreme NW Union Co., north of Folsom. This region is dotted by volcanic cones and there are periodic outcroppings of scrub oak. Additional collecting notes are included in the subsequent discussion of *Fixsenia ontario violae* (Stallings & Turner).

*Fixsenia ontario violae* (Stallings & Turner) (1947, Pan-Pac. Entomol., 23(3):119-120)

Emmel, in Howe (1975, *The Butterflies of N. Amer.*, Doubleday & Co., New York) stated about *F. o. violae*: "This rare subspecies, known only from the type series, is . . ." This butterfly is probably very local, but more common than Emmel's statement would lead one to believe. Figs. 5-8 illustrate this butterfly; Stallings & Turner did not do so. The type series of 24 specimens was collected at 5600' (1708 m) along the Cimmaron River (fide M. S. Fisher), north of Folsom, Union Co., New Mexico. A series was collected along Oak Creek, NE of Folsom in June 1970 by R. E. Stanford and M. S. Fisher. They found adults sipping nectar from yellow sweetclover (*Melilotis officinalis* (L.) Lam.) that was growing along a highway (Stanford, in litt.). A few additional specimens were taken along the Colorado-New Mexico border just south of Branson, Colorado.

I collected along Oak Creek in late June 1979. Most of the sweetclover had been mowed. No *ontario* were to be seen, although several other hairstreaks, including *S. calanus godarti* were taken on the remaining sweetclover and a milkweed that was growing along the highway.

My small series of *violae* was taken over a two-day period by the traditional method of beating the scrub. It helps to have an extra net handle or a stout stick along for this purpose. One thrashes the shrubbery (scrub oak in this instance) and waits to see what



FIGS. 5-8. *Euristrymon ontario violae*: 5, male D, Oak Creek, NE of Folsom, Union Co., New Mexico, 28, 29-vi-79; 6, same V; 7, female D, same data; 8, female V.

flies out. My first attempts yielded nothing but leafhoppers; then a few *calanus godarti* were flushed. The next attempt was made on a ring of oaks encircling a large globular juniper. The oaks were about 8-10 feet tall. The first thrash produced a cloud of hairstreaks, a number of which were collected, all *godarti*. On the second thrash, one or two paler and slower flying hairstreaks were seen.

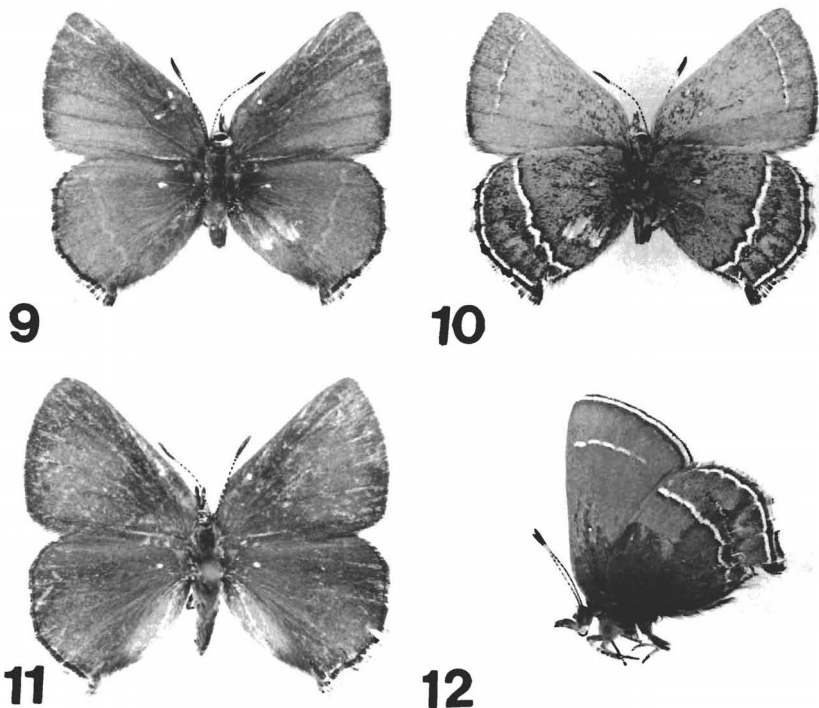
The *godarti* tended to settle and perch toward the tips of the oak branches, where they were quite visible. The others, which proved to be *violae*, settled deeper among the leaves and were more difficult to collect. Diligent and determined whacking of this one oak grove produced 39 *godarti* and 10 *violae*. By the time that these specimens had been collected, the sky was heavily overcast, the sun low in the west, and biting gnats were feasting on the collector.

Collecting the next morning, following a night of natural pyrotechnics, produced another 28 *godarti* and a few more *violae*. Although the sky was clear after the nocturnal thunderstorm, there was a stiff breeze and *violae* did not seem prone to fly, even with thorough thrashing of the scrub oak. Specimens were taken, however, from several different localities in the general area of Oak Creek.

I suspect that the rarity of this butterfly in collections relates both to method of collection, and the fact that the habitat is well off the beaten path for most collectors. I did not find it south of Branson. The elevation there is just slightly higher than the Oak Creek site (6300' versus 6100'), and the butterflies had perhaps not yet emerged.

*Phaestrymon alcestitis* (W. H. Edwards) (1871, Trans. Amer. Entomol. Soc., 3: 266-277)

Maurice L. Howard of Pueblo, Colorado discovered this species in Cottonwood Canyon (Baca-Las Animas Co.), in extreme SE Colorado. The holotype of *P. a. alcestitis* was collected in Dallas, Texas. In 1904 (J. N.Y. Entomol. Soc., 12: 39-44), Dyar described



FIGS. 9-12. *Sandia macfarlandi*: 9, male D, Rancho Campana Agric. Sta., Chih., Mexico, 9-iv-72, Leg: R. J. Lavigne; 10, same V; 11, female D, same; 12, female V, same locality, 3-iv-72.

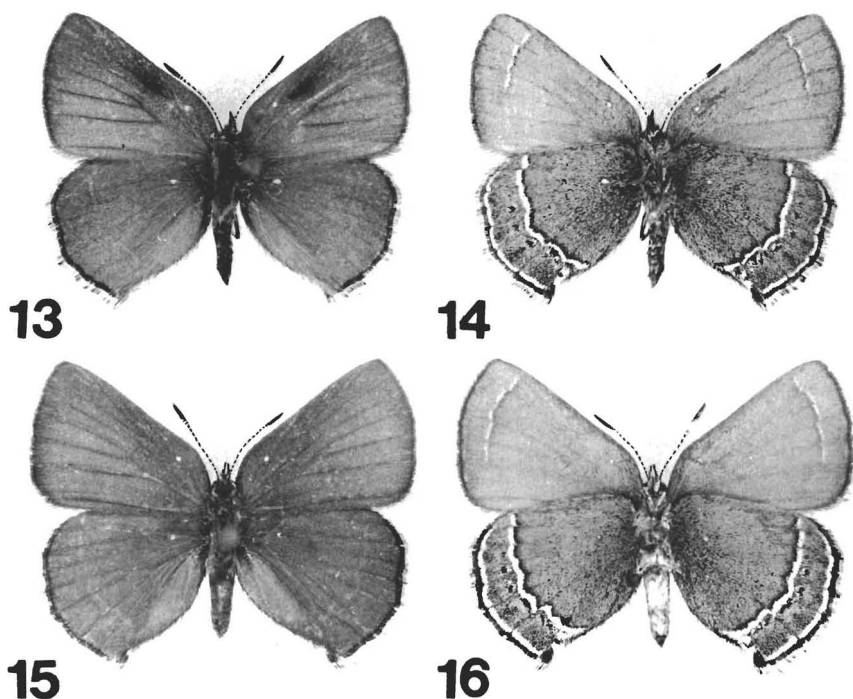
*P. a. osleri* from Tucson, Arizona. In his description of *osleri*, Dyar stated: "Closely allied to *alcestis* Edwards. It is smaller, a grayer brown on the upper side, ashen gray, not brown below and the red markings beyond the outer band are less developed." Generally speaking, Arizona and New Mexico specimens are much paler in all colors than *alcestis* from Texas and Kansas. There is very little color variation within given colonies of either subspecies (*sensu stricto*).

Material from Cottonwood Canyon, on the other hand, is extremely variable. A series collected in 1974 and sent to me by Prof. Howard, exhibits both the typical *alcestis* phenotype and the normal *osleri* phenotype. Most of the specimens are intermediate between these two extremes. This is the only intermediate colony known to me, although others may exist.

I have not collected *alcestis* in Cottonwood Canyon. The larval host in SW New Mexico is *Sapindus drummondi* Hook. & Arn. (western soapberry). The butterflies perch in the flower clusters, where they are very difficult to see. The trees are usually 15-20 feet tall, with the flower clusters at their tops. One must use a "tropics" net with an extension handle. I have found that the best collecting method is to throw a rock into the flower clusters and then watch for the butterflies. With luck, one can see where they settle and then sweep the area with the net. If a colony is located in juvenile *Sapindus*, the beating method for *F. ontario* can be used effectively.

*Sandia macfarlandi* Clench & Ehrlich (1960, Ent. News, 71: 137-141)

This butterfly was originally described from Bernalillo Co., New Mexico. The original description mentioned two specimens taken by J. M. and S. N. Burns in the Davis



FIGS. 13-16. *Sandia macfarlandi*: **13**, male D, La Cueva Can., Bernalillo Co., New Mexico, 4-vi-79; **14**, same V; **15**, female D, same; **16**, same V.

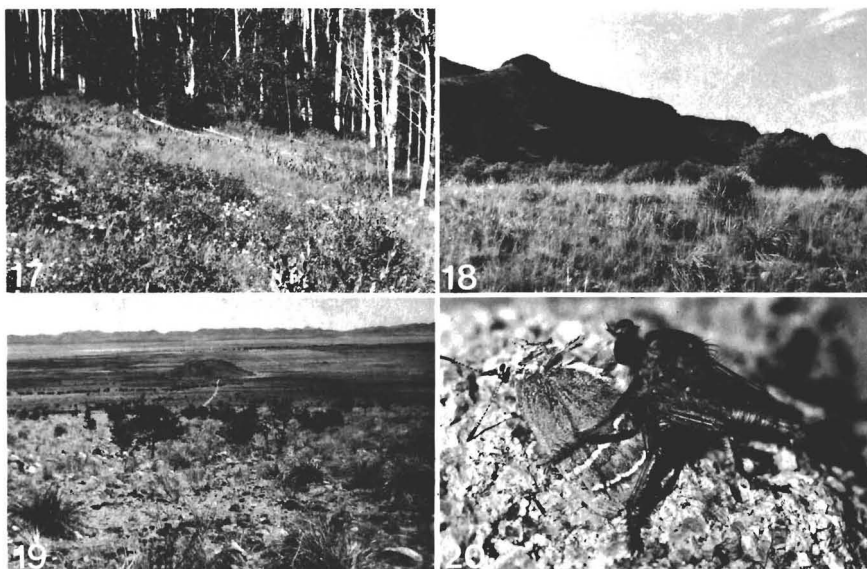
Mts., Jeff Davis Co., Texas. Through the efforts of several itinerant and resident New Mexico collectors, this species is now recorded from eight or more counties in New Mexico.

In 1972 a colleague of mine at the University of Wyoming, Dr. Robert J. Lavigne, visited the Rancho Campana Agricultural Station, located about 100 km north of Chihuahua City, Chih., Mexico. He was studying Asilidae (robber flies) and collected one with a lycaenid prey. He then collected several more of the butterflies for reference. They were given to me to identify, and I confirmed their identity as *Sandia macfarlandi*. Three of the nine specimens collected are shown in Figs. 9-12. Topotypical specimens are shown in Figs. 13-16.

Although there are some slight differences in facies between the Mexican and New Mexican material, they are not considered sufficient to erect a new subspecies. Dorsally the males from both areas are similar; the Mexican females are a warmer and darker brown than typical New Mexico specimens. Ventrally, there are two slight differences. The Mexican specimens manifest a more yellow-green ground color than appears in topotypical specimens. In New Mexican *macfarlandi* the dark row of spots just distad of the post discal band (VHW) follows the contour of the band. In Mexican specimens, this spot row tends to diverge slightly as it approaches the HW costa.

The male and female genitalia have been studied for both populations. No differences have been detected on a geographic basis. The shape of the signa in the female bursae of both populations is identical.

The habitats of the two populations are quite similar. Figs. 18-19 illustrate the habitat at Rancho Campana. Clumps of *Nolina texana* Wats., the larval host of *Sandia*, can be



FIGS. 17-20. 17, Habitat of *S. calanus* and *S. liparops* in Sierra Madre Mts., Carbon Co., Wyo. 18, 19, Habitat of *S. macfarlandi* at Rancho Campana, Chih., Mexico. 20, Robber fly with *S. macfarlandi* as prey at Rancho Campana.

seen in the foreground of both scenes. The terrain around La Cueva Canyon, the type locality of *S. macfarlandi*, in the foothills of the Sandia Mts. looks very similar to the Mexican habitat.

Fig. 20 shows a robber fly, *Efferia triton* (Osten-Sacken) with *S. macfarlandi* as prey. The butterfly, now in the author's collection, is illustrated in Fig. 12 also.

#### ACKNOWLEDGMENTS

I would like to thank Prof. Maurice L. Howard, Pueblo, Colorado for providing Colorado specimens of *P. alcestis*. Dr. Ray E. Stanford, Denver, Colorado kindly provided locality information concerning *F. ontario violae*. Special thanks are due Dr. Robert J. Lavigne, University of Wyoming, for his continuing success in turning up interesting Lepidoptera while pursuing his studies of robber flies. He also provided the color slides from which Figs. 18-20 were made. The late Harry K. Clench of the Carnegie Museum provided the initial impetus for preparing this paper. Dr. Lee D. Miller of the Allyn Museum of Entomology, Sarasota, Florida kindly reviewed the first draft of this paper and provided stimulating discussions and encouragement during its preparation.

CLIFFORD D. FERRIS,<sup>2</sup> Bioengineering Program, University of Wyoming, Laramie, Wyoming 82071.

<sup>2</sup> Research Associate: Florida State Collection of Arthropods, Division of Plant Industry, Florida Dept. of Agriculture and Consumer Services, Gainesville; Allyn Museum of Entomology, Sarasota, Fla. Museum Associate: Los Angeles County Museum of Natural History, Los Angeles, Calif.