

## THREE NEW SPECIES OF HESPERIIDAE FROM MEXICO

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Since starting a systematic study of the HesperIIDae of Mexico several new species have been discovered, three of which are described below. Two of these were found in material loaned to me for study by Dr. T. Escalante, Mexico, D. F., and the other was in material sent for determination by J. P. Donahue from the Michigan State University collection.

Where reference is made to the venation of the wings or maculation by number, it follows the English system of numbering the veins of each wing from the lowest vein upward.

***Astraptes escalantei* Freeman, new species**

MALE. Upper surface of primaries: black, with a heavy overscaling of shiny blue over basal one-third of wing. Some green and blue scales along costa to mid wing. No apical or discal spots. No costal fold. Fringes black.

Upper surface of secondaries: black, with basal one-third of wing overscaled with shiny blue scales and hairs. Termen nearly straight. Fringes black.

Under surface of primaries: dark brown, with an indistinct white tornal area extending to cell. Costa concolorous with rest of wing. A darker brown stripe in the apical region and a darker area from costa through cell to tornal white suffusion.

Under surface of secondaries: dark brown, with two slightly darker bands; one in discal area, the other midway between discal area and base. Costa concolorous with rest of wing.

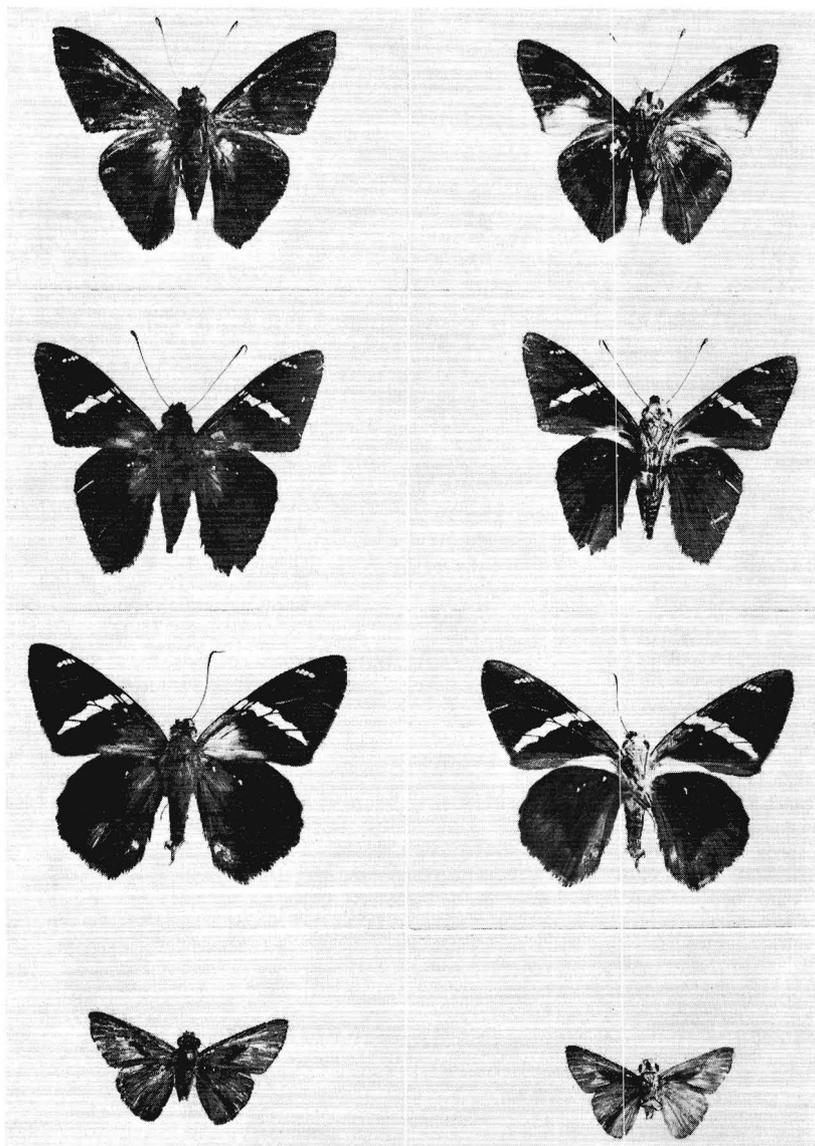
Thorax dorsally greenish-blue, becoming more blue than green near abdomen. Ventral surface of thorax dark brown. Abdomen dorsally brownish-black, heavily overscaled with shiny blue hairs and scales, extending nearly to tip. Abdomen ventrally dark brown. Head dorsally dark green. Palpi, mingled golden and light gray. Legs same color as ventral surface of thorax. Antennae blackish-brown, with the club slender and apiculus bent back against club.

Wing measurements. Holotype male, primaries: base to apex, 27.5 mm; apex to outer angle, 19 mm; outer angle to base, 17 mm; secondaries: base to end of Cu<sub>1</sub>, 17 mm; costa to anal angle, 23 mm. Total expanse, 52 mm. Paratype approximately the same size.

*Holotype* male, Mexico, Ocozingo, Chiapas August, 1948. One male paratype same location, VII-47. These two specimens were received from Dr. T. Escalante, Mexico, D. F., and I take pleasure in naming this species for him. The holotype will be placed in the U. S. National Museum, and the paratype will be retained in my collection.

The nearest relative of *A. escalantei* Freeman appears to be *Acreteus siges* (Mabille) from Brazil. It differs from that species in the genitalia (Compare figure, top left with Evans, 1952: fig. C 14: 28) as well as in

<sup>1</sup> I would like to express my thanks to the National Science Foundation for research grant GB-4122 which is making this study of the HesperIIDae of Mexico possible.



## EXPLANATION OF PLATE I

Top row: *Astraptes escalantei* Freeman Holotype ♂, Ocozingo, Chiapas, Mexico, VII-48. 2nd row: *Astraptes catemacoensis* Freeman Holotype ♂, Catemaco, Vera Cruz, Mexico, IX-64. 3rd row: *Astraptes catemacoensis* Freeman Allotype ♀, Catemaco, Vera Cruz, Mexico, IX-64. Lower row: *Euphyes donahuei* Freeman Holotype ♂, 4 miles east San Blas, Nayarit, Mexico, July 17, 1963.

the hind termen of *siges* which is more nearly straight than in *escalantei*. Another difference is that there is no indication of green iridescence at base of costa on the under surface of the primaries in *escalantei* which is present in *siges*. *A. escalantei* belongs in another species of *Astraptes*, the creteus complex. *A. crana* Evans occurs in the same area as *A. escalantei* but can be separated by the color of the costa on the under surface of the primaries. In *crana* it is brown at the base, followed by white to mid wing, whereas in *escalantei* the entire costa is brown.

### ***Astraptes catemacoensis* Freeman, new species**

MALE. Upper surface of primaries: deep black, with heavy suffusion of blue over basal third of wing. Four small, hyaline, apical spots. Central band of hyaline white, spots compact. Spot in space 3 very small but always present. Costal fold well developed. Outer margin of wing slightly concave, with apex slightly pointed. Fringes concolorous with remainder of wing.

Upper surface of secondaries: deep black, with the basal one-third heavily overscaled with shiny blue hairs and scales. Termen straight. Fringes black.

Under surface of primaries: black, with some lilaceous scales near base and over lower half of wing. All spots of upper surface evident. Costa golden yellow at base, becoming shiny blue to upper edge of cell spot. No indication of darker bands.

Under surface of secondaries: black, with very slight indication of a discal band. Costa, white to mid wing, with a black basal streak having some golden overscaling.

Thorax dorsally shiny greenish-blue, ventrally orange-yellow. Abdomen dorsally dark black, with some greenish-blue coloration near base, ventrally dark brown. Head dorsally green. Palpi yellowish-white. Legs orange-yellow. Antennae black, with some yellowish scales on under side of club. Apiculus bent back against club.

Wing measurements. Holotype male, primaries: base to apex, 29 mm; apex to outer angle, 19.5 mm; outer angle to base, 19 mm; secondaries: base to end of  $Cu_1$ , 18 mm; costa to anal angle, 25 mm. Total expanse, 54 mm. Paratypes approximately the same size.

FEMALE. Upper surface of primaries: deep black, with a heavy suffusion of shiny blue over basal one-third. Four well developed, white hyaline, apical spots. Central band of white hyaline spots compact, with a black vein between each. Spot in space 3 triangular and small. Cell spot broad posteriorly, becoming narrower anteriorly. Spot in space 2 long and narrow. Spot in space 1b triangular, and fairly large. Fringes black, becoming slightly lighter in space 1.

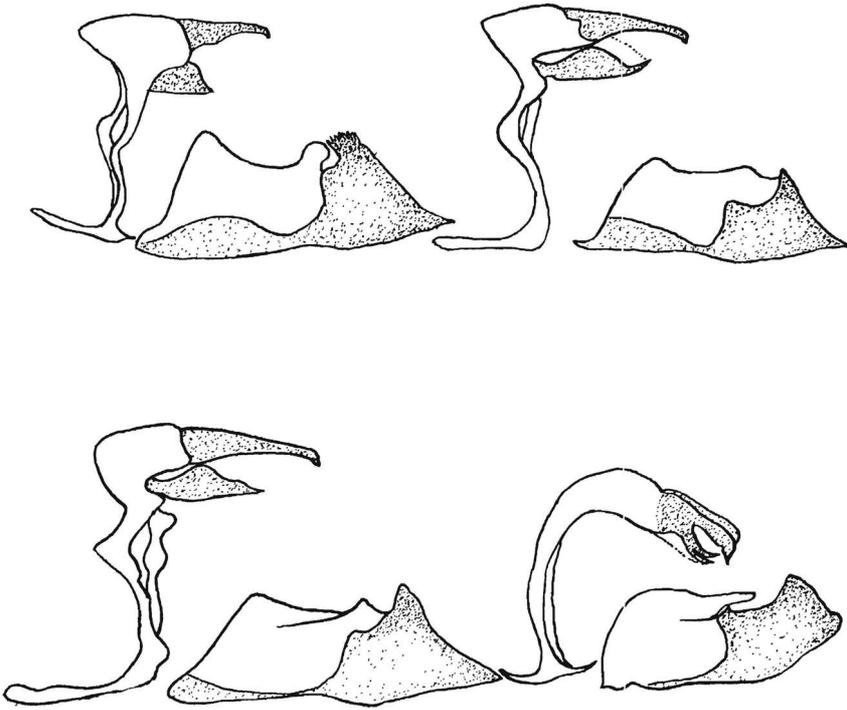
Upper surface of secondaries: deep black, with basal third of the wing heavily suffused with shiny blue hairs and scales. Termen straight from  $Cu_1$  to anal angle. Fringes black.

Under surface of primaries: dull black, with heavy suffusion of shiny blue scales along costa and in cell, extending from base of wing to central spots. Some lilaceous scales between central band and apical spots and near apex. Spot in space 1b edged in clear white. No indication of dark bands.

Under surface of secondaries: brownish-black, becoming darker black from discal area basad. Some faint lilaceous scales between discal area and outer margin. Costa white to beyond mid wing, with indistinct brown line in center at base of wing.

Thorax dorsally dark, shiny blue, with some green hairs present, ventrally orange-yellow. Abdomen dorsally dark black, with basal half suffused with dark, shiny blue hairs, ventrally dark black. Head green and gold dorsally. Palpi yellowish white. Legs orange-yellow. Antennae as in male.

Wing measurements. Allotype female, primaries: base to apex, 33 mm; apex to outer angle, 22 mm; outer angle to base, 21.5 mm; secondaries: base to end of  $Cu_1$ , 22.5 mm; costa to anal angle, 26 mm. Total expanse, 60.5 mm.



## EXPLANATION OF FIGURES

Male genitalia; lateral aspect of tegumen and associated structures and inner face of valva. Top row: left, *Astraptes escalantei* Freeman; right, *Astraptes fulgerator azul* (Reakirt). Lower row: left, *Astraptes catemacoensis* Freeman; right, *Euphyes donahuei* Freeman.

*Holotype* male, Mexico, Catemaco, Vera Cruz, September, 1964. Two male paratypes with the same data. Allotype female, same data as males. These four specimens were received from Dr. T. Escalante, Mexico, D. F. The holotype will be placed in the U. S. National Museum. The allotype and one paratype will remain in the Freeman collection, and the other paratype will be placed in Dr. Escalante's collection.

The nearest relative of *Astraptes catemacoensis* is *A. fulgerator azul* (Reakirt) from which it can be separated by the following characteristics: (1) the male genitalia (compare figures, top right with lower left); (2) *catemacoensis* is larger on an average (*catemacoensis* males average 54 mm, *azul* males 49 mm; *catemacoensis* female, 60.5 mm, *azul* females, 52 mm); (3) *catemacoensis* is darker being deep black, whereas *azul* is

brownish-black; (4) the termen of the secondaries of *catemacoensis* is straight, while in *azul* it is generally evenly curved; (5) the fringe of both wings of *catemacoensis* is concolorous with the rest of the wing, while in *azul* it is usually somewhat lighter, and sometimes checkered dark and light; and (6) *catemacoensis* males have the apex of the primaries more pointed than in *azul*.

### ***Euphyes donahuei* Freeman, new species**

MALE. Upper surface of primaries: brown, with slight indication of a fulvous spot in space 3, just distal to top of broad stigma. No other spots present. Fringes white.

Upper surface of primaries: brown, with slight indication of a lighter area in discal region. Fringes white.

Under surface of primaries: brown, becoming darker near base. Two indistinct, fulvous, discal spots, one in space 3, and one in space 2. A linear lighter area in space 1b.

Under surface of secondaries: brown, evenly overscaled with ochreous scales. No indication of spots.

Thorax dorsally dark brown, lighter ventrally. Abdomen dark brown dorsally, lighter ventrally. Head dorsally dark brown, with some golden-yellow hairs present. Palpi, sordid white, with some intermixed golden-yellow hairs. Legs brown. Antennae black, with a very few yellowish scales on lower surface of the club.

Wing measurements. Holotype male, primaries: base to apex, 16.5 mm; apex to outer angle, 10.5 mm; outer angle to base, 12 mm; secondaries: base to end of  $Cu_1$ , 10 mm; costa to anal angle, 12 mm. Total expanse, 35 mm. Paratype smaller, 29 mm.

*Holotype* male, Mexico, 4 miles east of San Blas, Nayarit, July 17, 1963, J. P. Donahue collector, for whom I take pleasure in naming this species. One male paratype, Mante, Tamaulipas, Mexico, June 22, 1964, H. A. Freeman collector. The holotype will be placed in the U. S. National Museum, the paratype in the collection of H. A. Freeman.

This new species appears to belong to the *peneia* complex members of which occur in Central and South America. The nearest relative, *Euphyes peneia* Godman, is found in Honduras, Panama, and over a large area of northern South America. *Euphyes donahuei* can be distinguished from *E. peneia* in the following ways: (1) male genitalia, *donahuei* has a longer and somewhat differently shaped cucullus than *peneia* (compare figure, lower left with Evans, 1955: fig. M 28: 11); (2) the fringes of *donahuei* are lighter than those of *peneia*, being white; (3) the under surface of the secondaries is evenly ochreous in *donahuei*, while in *peneia* it is gray-brown, with faint indications of a whitish discal band.

### LITERATURE CITED

- EVANS, W. H., 1952. A catalogue of the American Hesperidae indicating the classification and nomenclature adopted in the British Museum. Part II, Pyrginae. Sec. 1. London: British Museum, 178 pp., 10-25 pls.
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