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THE GENUS *ZESTUSA* (HESPERIIDAE) IN EL SALVADOR WITH DESCRIPTION OF A NEW SPECIES

STEPHEN R. STEINHAUSER

Apartado 109, San Salvador, El Salvador

The genus *Zestusa* Lindsey, 1925, a replacement name for *Plestia* Mabille, 1888, which is a junior homonym of *Plestia* Stal, 1871, includes two species: *Z. dorus* (Edwards), 1882 and *Z. staudingeri* (Mabille), 1888, the type. *Z. staudingeri* is further subdivided by Evans (1952) into two subspecies: the nominate and *elwesi* (Godman & Salvin), 1893. Approximate geographic ranges of the three forms have been reported as follows:

Z. dorus—Southwestern U. S. to northern Mexico (Sonora)

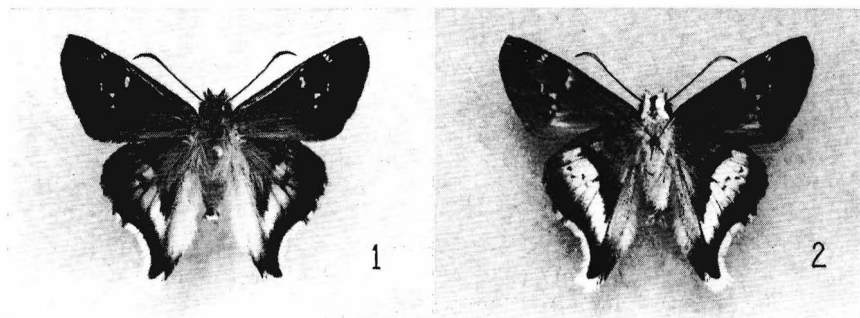
Z. s. elwesi—Mexico (Vera Cruz)

Z. s. staudingeri—Mexico (Chiapas) to Guatemala

Very little has been published relating either directly or indirectly to the butterflies of El Salvador. Distribution data for *Zestusa* (= *Plestia*) published by Godman & Salvin (1893), Draudt (1921) and Evans (1952) do not mention El Salvador, nor were any *Zestusa* species listed by Franz and Schröder (1954). The recent discovery in El Salvador of two *Zestusa* species, *s. staudingeri* and a new species described below, therefore constitutes a new distribution record for the genus.

Both of these insects were found in the cloud forest of the Hacienda Montecristo near the summit of Cerro Miramundo which marks the common corner of El Salvador, Guatemala and Honduras. Fifteen males and one female of the new species and 53 males of *Z. s. staudingeri* were taken during late February and March, 1970 through 1972 at 2300 m.

The examples of *Z. s. staudingeri* from Miramundo match the figure in Godman & Salvin (1893) very closely and fit quite nicely in the key of Evans (1952) although some specimens show traces of the hyaline spots in spaces 4 and 5 of the forewing that are typical of *Z. s. elwesi*, perhaps



Figs. 1 & 2. Upper and under side of *Zestusa levona* Steinhauser, holotype male, Hacienda Montecristo, Cerro Miramundo, Cloud Forest, El Salvador, elev. 2300 m. 27 February 1971 (S. R. & L. M. Steinhauser). Natural size.

indicating a clinal variation between the two forms. The figure of *elwesi* in Seitz (Draudt, 1921) is somewhat exaggerated; the yellow discal and submarginal markings of the upper side of the hindwing as illustrated are entirely too regular and sharply defined. *Z. s. staudingeri* is not figured. The male genitalia of the Miramundo specimens differ somewhat from the sketch in Evans (1952) which is undoubtedly of *elwesi* as there were no examples of *staudingeri* in the British Museum (Natural History) at the time he prepared his catalogue. Unfortunately he did not illustrate the uncus, thus implying that it is nearly identical to that of *Z. dorus* which is illustrated; Godman & Salvin's figure shows only the lateral view. Because of this I have included a sketch of the genitalia of *staudingeri* from Miramundo (Fig. 4). The principal difference from *elwesi* lies in the greater caudal production of the cuiller and generally narrower clasp of *staudingeri*. The genitalia of 31 males examined showed very little individual variation.

The new species, which I am pleased to name *levona* in honor of my wife, a very able and most enthusiastic collector, is described below. Apart from substituting penis for aedeagus, the morphological and structural terms of Evans (1952) have been adopted.

***Zestusa levona* Steinhauser, new species.**

MALE

Wing Measurement: Forewing, base to apex, 20 mm (range of 19–21 mm in 15 type specimens).

Upperside (Fig. 1): Forewing with pronounced costal fold; color dark brown with red-bronze reflection, slightly darker toward termen with bronze hairs on basal and discal areas; fringe dark grey-brown. Small white hyaline spots in discal area: two (upper and lower) usually separate but occasionally narrowly conjoined in space 2 just distad origin vein 3; sometimes minute dot space 1b immediately behind outer

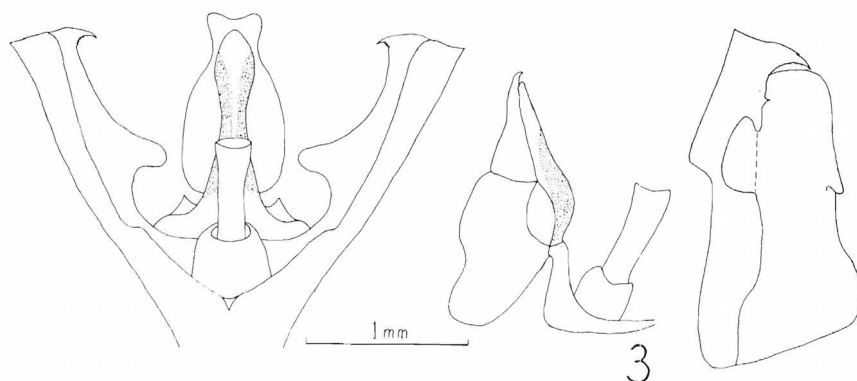


Fig. 3. Male genitalia of *Zestusa levona*, paratype; specimen not dissected. Ventral view (left) shows relative position of opened claspers to uncus, gnathos and penis.

edge of lower spot space 2; narrow straight dash space 3 normal to vein 3 well separated distad from spots space 2; generally three pre-apical spots in straight line nearly normal to costa spaces 7 (may be absent) 8, 9 and fourth (may be minute or absent) space 6, displaced distad; may be minute upper spot space 4 behind spot in space 6; upper cell spot basad of spots in space 2, usually extending more than halfway across cell but may be minute; small spot near base space 11 behind costal fold.

Hindwing with short (± 5 mm) tail along prolongation vein 1b; cell weakly closed, vein 5 present but vestigial, marked by well defined crease. Color same dark brown as forewing but with diffused yellowish-ochreous discal stripe, more sharply defined basad, crossed by dark veins and zig-zag dark line distad of origins veins 4 and 6. This pale discal area tapers from vein 6 or 7 where very diffuse to vein 1b where terminates in more sharply defined point just forward of base of tail. Fringe at inner anal angle dark brown, sharply contrasting with pale yellow to white fringe of tail and rear half termen; on forward half of termen checkered with dark brown at vein ends and grading to completely brown at apex. Fringe on tails long (2 mm). Costal area thinly covered dark brown hairs; dorsum densely covered pale tawny hairs.

Underside (Fig. 2): Forewing dark brown; same hyaline spots as upper side surrounded by diffuse haloes of slightly darker brown; scattered ochreous-yellow super-scaling more concentrated along costa above vein 12, beyond end of cell in spaces 4 and 5 forming vague paler spot, and in space 1b forming indistinctly divided spot behind and basad of hyaline spot in 1b. May be additional small white spot on costa in space 12 adjacent to spot in 11.

Hindwing as upper side but discal pale stripe more sharply defined, pale yellow, extending from vein 8 to vein 1b, widest (4 mm) in 5 and 6, containing four small dark brown spots in spaces 3–6, those in 5 and 6 offset distad. Detached diffuse pale spot space 7 basad of discal stripe and yellow super-scaling in basal wing area.

Body: Head, thorax and abdomen dark brown; thorax and abdomen densely clothed tawny hairs above, yellow-tawny hairs beneath; abdomen beneath ringed pale yellow at each segment. Head above with mixed pale yellow and dark brown hairs. Palpi porrect, hairy, dark brown above with some pale yellow hairs and scales, white beneath with some black hairs; cheeks white.

Legs brown with pale scaling, densely hairy; mid and hind tibiae smooth; mid tibiae single pair spurs; hind tibiae two pairs. Antennae longer than half costa, reaching beyond origin vein 11; shaft black, plain below, some yellow checkering near base above; club broadly arcuate, pale yellow beneath; nudum 19–22 brown.

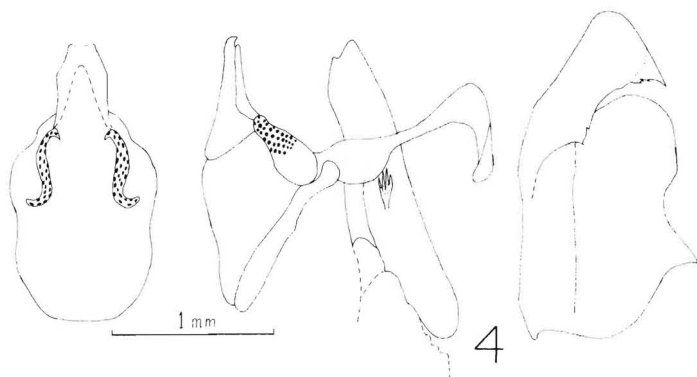


Fig. 4. *Zestusa staudingeri staudingeri* (Mabille), male genitalia of specimen from Cerro Miramundo, El Salvador, 18 March 1971 (S. R. & L. M. Steinhauser).

Genitalia (Fig. 3): Uncus weakly bi-lobed, narrow; gnathos laterally sclerotized, non bi-furcate; penis relatively broad and blunt. Clasps symmetrical, cuiller projecting to sharp serrated dorsal tooth, its ventro-caudal apex right angled and sharp; valva with short inward-pointing dorsal projection.

FEMALE (Fig. 5)

Wing Measurement: Forewing, base to apex, 22 mm. Both wings slightly broader than male.

Upperside: As male but forewing spots all present and larger. No fold.

Underside: As male but forewing spots as above with additional faint sub-apical spot in 5; hindwing as male but pale discal stripe wider (5 mm).

Body: Head, thorax, abdomen, legs as male; antennae as male, nudum 22.

Type Material: Holotype, male, Hacienda Montecristo, Cerro Miramundo, Cloud Forest, El Salvador, elev. 2300 m, 27 February 1971 (S. R. & L. M. Steinhauser), No. H-1124, in the U.S. National Museum, Washington, D.C. Fourteen male paratypes, same location (type locality) and collector, 7 March 1970 (Nos. H-223, H-224); 27 February 1971 (No. H-1125); 13 March 1971 (No. H-1168); 18 March 1971 (No. H-1234); 4 March 1972 (No. H-4185); 5 March 1972 (No. H-4186); 25 March 1972 (Nos. H-4288, H-4289) and 26 March 1972 (Nos. H-4291 through H-4295) are deposited as follows: one in the American Museum of Natural History, New York; one in the Carnegie Museum, Pittsburgh; one in the British Museum (Natural History), London and 11 in my own collection. The allotype female, same location and collector, 26 March 1972 (No. H-4290) will remain in my own collection.

Z. levona is strikingly different in habitus (Figs. 1, 2, 5) from the three previously known forms of *Zestusa* and can be recognized immediately by the pale yellow stripe and prominent, white-fringed tail of the hindwing. The male genitalia (Fig. 3) have a slightly broader and more pronouncedly lobed uncus than *staudingeri* (Fig. 4); the cuiller is ventrally right angled rather than smoothly rounded and the valva is longer and has an inwardly curved dorsal projection.

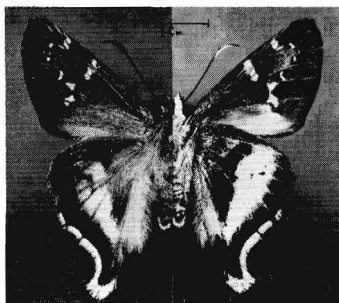


Fig. 5. *Zestusa levona* Steinhauser, allotype female, upper and under side; Hacienda Montecristo, Cerro Miramundo, Cloud Forest, El Salvador, elev. 2300 m. 26 March 1972 (S. R. & L. M. Steinhauser). Natural size.

Biological Notes

The isolated cloud forest of Cerro Miramundo covers an estimated 20 sq. kms. of the frontier zone between El Salvador, Guatemala and Honduras, extending down from the peak (2418 m) to about 2100 m. Being the sole remaining patch of virgin cloud forest in El Salvador, it affords a unique site to explore the distinctive and restricted insect fauna associated with this environment. Of the 114 butterfly species so far known from there, 35 have not yet been found elsewhere in El Salvador. Because of the extremely dense forest growth, collecting is virtually impossible except in clearings or at the edge of the forest.

The observed flight season of *Zestusa* at Miramundo does not extend beyond February, March and April; despite good collecting conditions and careful search, none were found on 23, 24 January or 8, 9 May 1971. Unfortunately it was not possible to visit the area between 18 March and 8 May 1971, and the earliest good weather conditions encountered after January 1971 were on 27 February. Only one collecting trip (7 March) was made between January and November 1970. No *Zestusa* were found 12–15 February 1972 but collecting was good for both species during 2–5 and 25–26 March 1972.

Although both species were found in the same limited area at the same time, their habits are quite different. *Z. levona* was observed only either in flight (approx. 7 m) or visiting flowers. One female and 14 males were taken on the pale lavender blossoms of a tree of the family Asteraceae identified by T. F. Hall as *Ageratum* sp. close to *rugosum* Coulter. Standley and Calderon (1925) describe *rugosum* as generally less than one meter high, whereas this tree grows up to five meters. One male was taken from the purple flowers of another tree not yet identified. *Z. s. staudingeri* on the other hand, was never found visiting flowers. One

specimen was taken while drinking from a damp spot on a vertical rock face (tuff) along with a male hesperiid, *Doberes anticus sobrinus* (Godman & Salvin), 1895. Aside from this, it was observed only in a "territorial defense" position on leaves or bare twigs of various trees along the road, whence it frequently sallied forth in a rather leisurely "inspection" flight, covering up to 20 meters in each direction before returning to its observation post, or in rapid attack flight against other passing skippers. It never was seen to attack other insects or even butterflies of other families though many flew past. It frequently could be induced to investigate a net waved to and fro resulting in its capture, although it often found my head a more interesting subject, circling so close as to make capture impossible.

Despite these differences in habits and the much less extensive nudum of the antennal club (21 segments instead of the 34 mentioned by Evans (1952) as a character of the genus), the porrect palpi, very hairy legs, broadly curved antennal club and general aspect of the genitalia place *levona* quite clearly in the genus *Zestusa*.

ACKNOWLEDGMENTS

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