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DRAGONFLIES FROM MT. DUIDA AND THE VENEZUELAN BORDER

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A small collection of pinned dragonflies from the Venezuelan border and adjacent parts of Brazil, sent to me for determination by The American Museum of Natural History, contains some interesting new material. Not all of it is specifically determinable, for some of the specimens are tenerals and many are broken. Among the whole ones, however, in condition fit for description, there are specimens representing one new genus and two new species. A list of species by localities follows, with descriptions of the new forms given at its close.

MT. DUIDA

Orthemis ferruginea Fabricius.—A single male, October 27, 1926.

Zenithoptera americana Linnaeus.—One female, March 7, 1929; a male, October 10, 1928.

Erythrodiplax umbrata Linnaeus.—One male, October 27, 1928.

Ephidatia batesii Ris.—One female, October 21, 1928.

Mecistogaster linearis Fabricius.—One male, November 23, 1928.

Dimeragrion secundum, new species.—Two males, December 8, 1928. Tate No. 433. See p. 5.

Argia (species?).—Undeterminable fragments of apparently three species.

Metaleptobasis (species?).—A single undeterminable female, December 23, 1929. Tate No. 373.

Acanthagrion (species?).—A single fragment of a male, December 10, 1928.

Rima arcana, new genus and species.—See p. 3.

Aeolagrion fulvum, new species.—See p. 5.

MT. RORAIMA

Staurophlebia reticulata Burmeister.—A single female of very large size (hind wing, 75 mm.), January 2, 1928.

Aeschna (species?).—A single female, not certainly determinable; of the *A. cornigera* group.

Nephepeltia (species?).—A single female with the end segments of the abdomen lost, apparently near *N. flavifrons*, yet not agreeing with other species of the genus in certain venational characters; in the possession in the fore wing of a half antenodal cross-vein (6½ in all), in a subtriangle of two cells, in having two cross-veins behind the stigma, and in having two full cell-rows in the space beyond the triangle. Despite these considerable differences I believe it belongs in *Nephepeltia* because of major agreements in form of triangles, in the origin of vein Cu1 from the outer side of the triangle in the fore wing, in the general disposition and number of cross-veins, and in having the radial planate subtend and definitely circumscribe four cells in the front wing and three in the hind.

Orthemis ferruginea Fabricius.—One male, Paulo, 4000 feet, December 17, 1927.

Uracis ovipositrix Calvert.—Two females. Aribupu, altitude 4200 feet, December 20, 1927.

Erythrodiplax abjecta Rambur.—One male. Philipp Swamp, altitude 5000 feet, October 28, 1927. One pair, January 28, 1929.

Erythrodiplax attenuata ? Kirby.—Two females.

Sympetrum illotum Hagen.—One male from summit, at 8600 feet, November 24, 1927. Comes nearest the variety *virgula* of De Selys in coloration.

Lais (species?).—Two undeterminable fragments from an altitude of 4200 feet.

Heteragrion ictericum Williamson.—One male from an altitude of 4200 feet, December 26, 1927.

OTHER LOCALITIES

Orthemis ferruginea Fabricius.—One male from Rio Negro Brazil, February 19, 1928.

Erythemis credula Hagen.—One male, September 15, 1928.

Erythrodiplax attenuata Kirby.—Two males, Rio Negro Brazil, September 24, 1928.

Diastatops obscura Fabricius.—One female, Rio Casiquiare, Venezuela, September 30, 1928.

Triacanthagyna septima De Selys.—Two females, Low Amazonas, April 29.

Neoneura (species).—One male (fragment), Rio Negro, Brazil, September 10, 1929.

Rima, new genus

Head broad, with low occipital ridge and with hardly any frontal prominence. Hind lobe of the prothorax produced (♀) into a thin flat plate. Legs moderate, with spines rather few and short. Claws toothed well before the apex. Wings stalked to near the level of the first antenodal cross-vein. Arculus a little before the second antenodal cross-vein, its upper piece very short, and the space between this and the subnodus without cross-veins. Middle fork much nearer the arculus than the nodus. Quadrangle oblique and sharply pointed, its front side a little shorter in the fore wing and a little longer in the hind wing than the inner side. There are no cross-veins in quadrangle, subquadrangle, or in the space behind the latter. Stigma rather elongate, without brace-vein. Vein M_2 parts from M_1 a little beyond the subnodus. Three rows of intercalary cells occupy the marginal interspaces immediately behind veins M_{1a}, M_2, Rs and M_4.

GENOTYPE.—*Rima arcana*, new species.

This form is so distinct from all other known *Zygoptera* that I have no hesitation in giving it a name. In venation it is nearest to the Indian genus *Megalestes*. It is allied to the Neotropical *Hypolestes*. From both of these it differs in the remoteness of the nodus from the arculus, and in the more proximal origin of veing M_2. It agrees with *Hypolestes* in lacking a brace-vein to the stigma, but further differs in having intercalaries between veins M_2 and Rs, and a more elongate stigma.

The nymph of *Hypolestes* (if rightly identified) is, however, not lestine at all. More knowledge of the immature stages of these and allied forms is needed to establish their relationship.

The name I have used, it will be observed, is that of the heroine of Wm. H. Hudson's Venezuelan novel, 'Green Mansions.'

Rima arcana, new species

Length, 41; abdomen, 30; hind wing, 30 mm.

Colors dull greenish-black and brown. Head dull black above from antennae to occiput, with a suggestion of a pair of minute pale dots between the antennae. Face yellow, with a smooth, bare and shining greenish-black labrum, and a squarish patch of the same color on the middle of the horizontal upper surface of the postclypeus. Jaws and labium yellow, heavily tipped with black. Rear of head black. The six segments of the black antennae are of nearly equal length, and all beyond the basal one are very slender.

Prothorax dull yellowish-brown with a black spot covering its projecting hind lobe and a small adjacent crescentic area on the middle lobe. Synthorax brown, with a wide greenish-black middle stripe that at its ends overspreads the outer angles of crest above and collar below in fore-and-aft symmetry. In the brown of the sides there are obscure darker bands in front of and bordering the three lateral sutures. The middle one is darkest, being almost black.

Legs brown basally, becoming black beyond the knees. Tibial spines slightly longer than the intervals between them; fourteen in number in the outside row on the hind tibia.

Wings hyaline with black beins and brown stigma. Postnodal cross-veins 17 to 18, and 15 to 16 in fore and hind wing respectively. There is an extra half antenodal in the costal space of the left hind wing, as shown in figure 1.. Stigma 4 mm. long by 1 mm. wide; a little widened between heavy bordering black veins, about equally acute at the ends. Behind it are six or seven cross-veins. Vein M1a approaches M1 convergently behind the stigma and is followed by three cell-rows thence to the wing

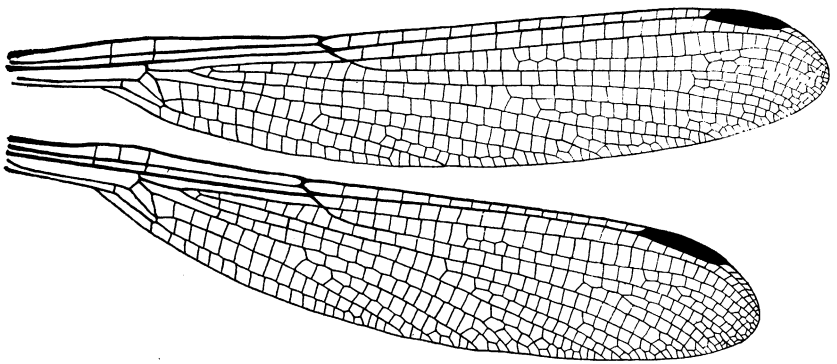

Fig. 1. *Rima arcana*, new species.

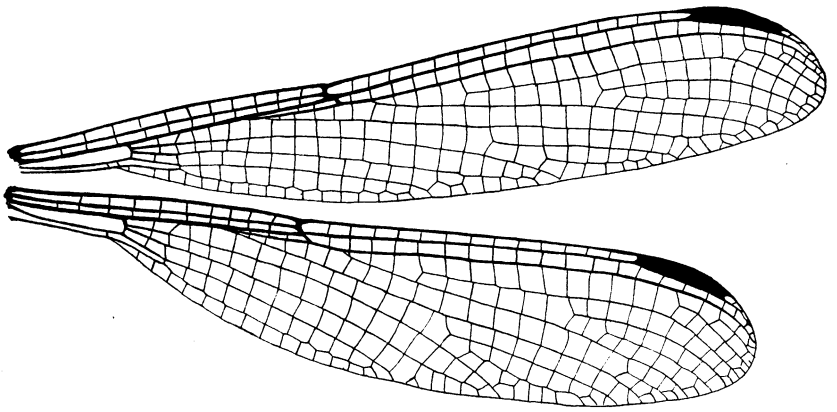

Fig. 2. *Dicterias procera*, Selys

margin. Veins M3 and M4 diverge at the wing margin with an irregular disposition of cells between them. Vein Cu1 springs forward from the apex of the quadrangle, and then for a distance runs parallel with M4. Behind veins Cu1 and Cu2 are single rows of cells.

Abdomen greenish black above, dull yellowish-brown beneath from end to end. The paler color rises a little higher on the sides of the basal segments. There is a wash of blackish on both base and tip of the ovipositor. The tenth abdominal segment is

divided to the base by a deep mid-dorsal cleft. Cerci hardly as long as the tenth segment, thick and subtriangular. The ovipositor slightly surpasses the tip of the hairy anal tubercle. Its slender declined tips are about as long as the cerci. Its lower margin is smooth at base but very finely denticulate toward the tip.

There is a single female specimen from Mt. Duida, Venezuela; January 4, 1929. Amer. Mus. accession No. 29500; Tate No. 527.

With the figure of the wing of *Rima*, we present a drawing of *Dicterias* (from the same region)—the only American agrionine genus of which the venation has not hitherto been adequately figured.

Dimeragrion secundum, new species

Length, 52; abdomen, 44; hind wing, 31 mm.

This is a greenish-black, yellow-faced species with very long and slender abdomen. Top of head black, this color extending forward in a stout-stemmed T-spot whose slender top-bar lies on the frontoclypeal suture.

Prothorax yellowish, black-barred across the front margin and more narrowly across the thinly fringed rear margin. Synthorax greenish black with a translucent brownish-yellow stripe before the humeral suture. Sides brownish yellow with a diffuse streak of greenish black just behind the humeral suture and a narrow black line along the subalar carina; below, yellow. Legs blackish beyond the yellow basal segments. There are six long spines and two close-set shorter ones in the outer row on the hind tibia. Wings hyaline. Postnodal cross-veins 25 and 24 in fore and hind wing respectively. There is no cross-vein in the space before the anal crossing. Otherwise, very closely similar to *D. percubitale* as figured by Calvert, 1913, Proc. Acad. Nat. Sci. Phila., Plate XIV, figure 6, except that the veins M_2 and Rs arise a little farther forward; Rs very close to the subnodus, and M_2 nearly a full cell-length before it.

Abdomen blackish above and yellowish at the sides and beneath. The brown is dilated into an apical ring-band on segments 3 to 7 and there is a narrower, brighter yellow basal ring on the same segments. Segments 8 to 10 are more extensively dark brown or blackish, the apex of 10 being wholly black. There is a black (-mark on the hind margin of segment 1 at the side, and there are two similar but smaller (-marks on the rear of the metathorax just before it. Superior appendages black, paler within; inferiors brown. These are similar to those of *D. percubitale* as figured by Calvert (*loc. cit.*, Figs. 7 and 8), except that the superiors are distinctly longer than the inferiors, and the plate that they bear internally is very much broader and projects obliquely downward and forward in a blunt barb-like angulated recurrent lobe.

The single specimen is a fairly mature male from Mt. Duida, Venezuela; December 16, 1928. Amer. Mus. accession No. 29500.

This is a larger species than *D. percubitale*, differing in many minor points of coloration.

Aeolagrion fulvum, new species

Length, 42; abdomen, 35 ; hind wing, 22 mm.

This is a brownish-rufescent species having the thorax heavily striped with black. Face rufescent up to and including the antennae. Top of head black with a

pair of small pale V-marks which may be enlarged and united at the middle ocellus into a transverse yellow W-mark. The hind margin of the occiput is obscurely paler.

Prothorax tawny, with three black blotches, a median one on the base of the hind lobe and two lateral ones on the sides of the middle lobe. There are also some black dots above the coxa. Synthorax with a broad and regular black mid-dorsal stripe that is wider than the bordering pale stripe. A fine line of brown in the depths of the humeral suture is expanded into an oval spot near its upper end. A broad black stripe covers most of the mesepimeron, its front edge straight, its hind margin serrately notched into three big decurrent teeth. The upper end of the third lateral suture, points on the subalar crest, and the lower hind angle of the metepimeron are narrowly touched with black. The remainder of the sides and all of the venter are tawny yellow.

Legs uniformly reddish, with black spines and claws. Hind tibiae with seven spines on each row, longest in the middle, the two proximal spines weaker than the others.

Wings slightly yellowish in tint, with brown veins and tawny stigma. Postnodal cross-veins about 14 and 13 mm. in fore wing and hing wing respectively.

Abdomen pale reddish-fulvous, a little darker at the ends, without pattern. The dorsal apical margin of the tenth segment is uprolled and erected in a thickened rim that is bilobed, pale on its anterior and blackish on its posterior face. Superior appendages of the male as long as tenth segment. Viewed from above they are at first subcylindric, then obliquely truncated to their divergent tips, and blackened on the face of the truncated surface. Viewed from the side their thick ascending basal third bears above an obtuse tubercle, after which they are suddenly narrowed, flattened and then tapered to a blunt black tip. The inferior appendage viewed from the side is slightly shorter than the superior, thick at the pyramidal base, then directed straight to rearward and tapered to the black tip, which bears a low superior tooth. Viewed from beneath, beyond the stout approximated bases of the inferior pair, the tapering blunt-ended tips form a ()- shaped enclosure.

The single headless female in the collection shows the same pattern as the male, with more darkening on the dorsum of the prothorax and along the dorsum of the abdomen as far as the apex of the ninth segment. The black stripes of the synthorax are wider, but otherwise similar.

In both sexes there is a thin fringe of long tawny hairs on the dorsum of the thorax and on the venter of the basal abdominal segments.

Twelve males and one female; Mt. Duida, Venezuela; January 7, 1929. Amer. Mus. accession No. 29500; Tate No. 539.

This species belongs to the group having the superior appendage of the male unbranched. It is allied to *A. demerarum* Williamson, but is readily distinguished in the male by the all-red abdomen, by the uprolled and erected apex of the tenth abdominal segment, and by the form of the appendages.