

A NEW SPECIES OF *THRAULODES* FROM URUGUAY
(EPHEMEROPTERA: FAMILY LEPTOPHLEBIIDAE) ¹

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Among the many fine specimens of mayflies collected from various areas in Uruguay by Dr. C. S. Carbonell and his colleagues are a considerable number that belong in the genus *Thraulodes*. The present paper is concerned with one species only of this genus, a species quite unlike any other that has been described to date, as regards the type of genitalia and the abdominal markings of both male and female imagoes. Females of this genus often differ somewhat from the males in color and markings, but in this instance the two sexes are not too unlike. Genitalic features of male imagoes are of primary taxonomic importance: (1) shape and amount of "bowedness" of the forceps limbs; (2) details of structure of the penes; and (3) characteristics of the peculiar plate which is a backward extension of the forceps base, lying between forceps and penes. It is probable that no two species of *Thraulodes* have absolutely identical genitalia, although differences between two closely allied species may be minute. Abdominal markings, certain venational features, and presence or absence of one or more bands on the femora constitute important secondary features, and are indeed the only clues to the identity of females. Imagoes of this genus, especially the males, are often strikingly marked, so that these mayflies are among the most beautiful in the entire order. The new species described herewith is named for the locality from which the holotype male was taken.

Thraulodes paysandensis, sp. nov.

Male imago (holotype). Specimen in alcohol.

Size: Body $7\frac{1}{4}$ mm.; fore wing $7\frac{1}{2}$ mm. Turbinate eyes large, nearly round, contiguous apically; orange-brown in color. Pronotum bright reddish brown, paler laterally; prominent black oblique streak

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extends downward on to base of leg. Mesonotum yellowish brown, lateral margins and scutellum darker; pleura red-brown; very faint dark line above leg base. Metanotum bright reddish brown; black shading in postero-lateral angle above leg base. Prosternum with four reddish dots, one pair antero-lateral, the other postero-lateral. Meso- and metasterna bright reddish with paler mid-band; anterior portion of mesosternum likewise paler. Femora of all legs with two wide bright red transverse bands, apical one wider and brighter; on fore femur, proximal edge of apical band narrowly black, no such dark line on others; bases of femora and spaces between red bands yellowish. A narrow longitudinal gray line probably indicates position of trachea. Tibiae yellow, on leg I faintly red-tinged at base and apex. Tarsus yellowish, claws slightly darkened. Tarsus on second leg faintly red-tinged, joinings of segments darker. Fore wing hyaline; longitudinal veins yellow, cross veins paler yellow, those in cubito-anal region barely colored. Humeral cross vein and bases of Sc and R black; very faint reddish tinge at extreme wing base. Stigmatic area opaque; cross veins slightly aslant, about 14 in number, none are anastomosed. No cross veins in costal space before stigmatic area. Hind wing hyaline, veins very faintly yellowish; black triangle at base formed by humeral cross vein and extreme basal portions of Sc and R. Fore wing does not differ markedly from that shown as Fig. 12, Rev. Soc. Uruguayá Ent. 3, 1959, save for the lack of anastomosis of veins in stigmatic region. Hind wing as in Fig. 1 of this paper.

Tergite 1 dark red-brown shaded in center and on anterior and lateral margins with blackish. Tergites 2-6 translucent yellow, with these markings: (1) dorsal portions of posterior margins with wide red-brown bands, narrowing at center, these bands widest on 6; (2) rather large blackish brown lateral spots midway between pleural fold and mid-dorsal line, connected to outer margins of the wide posterior bands, these spots smallest on 6; (3) a smaller black dot laterad of each of the larger blackish spots; (4) black stigmatic dot, with black line extending rearward from it along pleural fold. On tergites 3-6, additional markings are short parallel dashes at anterior margins on each side of mid-dorsal line, from which extend short lateral lines on 5 and 6. Posterior margin of 6 narrowly reddish. Viewed from the side, a wide yellowish space extends from pleural fold to margin of median red-brown band and the larger blackish spot, enclosing in each tergite the smaller black dot. Tergite 7-10 bright reddish brown, posterior margins narrowly darker; 9 is darker than the others. On 7, 8 and 10, faintly paler streaks parallel the mid-dorsal line on each side; similar paler triangles laterally on 8. Black streak paralleling pleural fold, and black dot above it occur on 7 and 8. Sternite 1 wholly reddish brown. Sternites 2-6 translucent yellowish faintly tinged with reddish; ganglionic areas faintly outlined, and with a tiny dark dot at anterior and posterior end of this area. Parallel to pleural fold a reddish brown dash on 5 and 6, represented on 2-4 by a smaller reddish blotch. Sternites 7-9 more deeply red-tinged; ganglionic areas

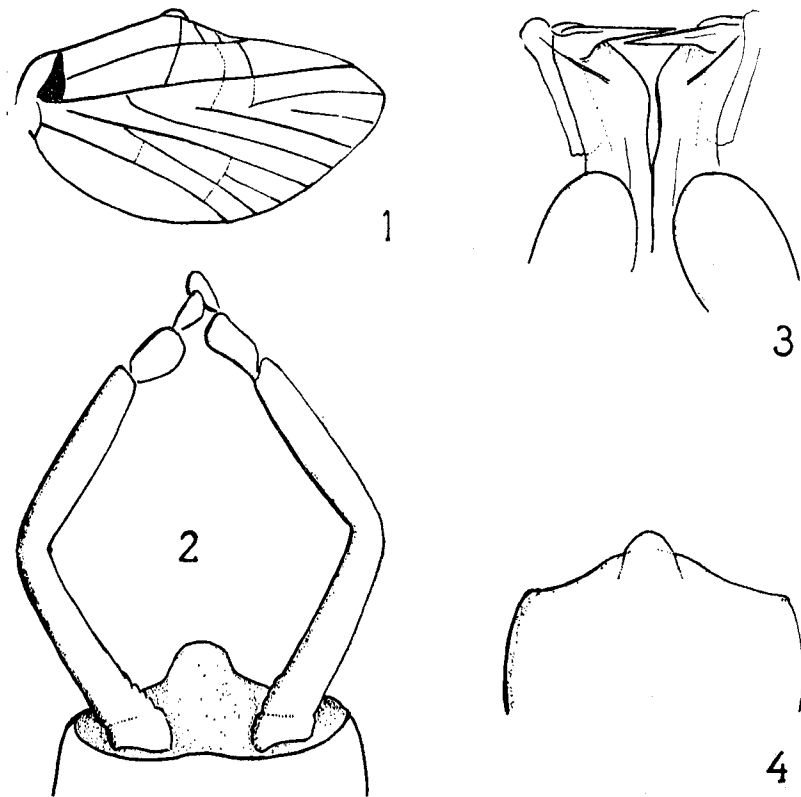
more heavily outlined, streaks paralleling pleural fold darker and more prominent.

Tails white, joinings of segments blackish or deep reddish black, alternately wider and narrower as is usual in this genus.

Penes and forceps as shown in Figs. 2 and 3. Note the long slender basal joint of the forceps, bowed about one-half its length and approximately the same width throughout. The plate extending backward from the forceps base is slightly angulate laterally, and dome-shaped or cap-shaped in central portion.

Male imagoes, paratypes. Specimen: in alcohol. Size as in holotype.

The two male paratypes resemble the holotype male except as noted below. Leg I missing from paratype labeled "Ur Sal G Nov"; on femora two and three, apical band not as bright red, banded proximally by a narrow blackish line; basal bands present but rather



Thraulodes paysandensis n. sp.

Fig. 1. Hind wing of holotype male. Fig. 2. Forceps of holotype. Fig. 3. Penes of holotype. Fig. 4. Forceps plate of one of the male paratypes.

indistinct. Dorsal markings of tergites less well defined, the larger lateral spots occupy more space and are grayish rather than blackish brown in color. Ganglionic areas not distinctly outlined; no lateral dark dash adjoining pleural fold. The other paratype male, labeled "Sal Gr Ur 125" is fully as well marked as the holotype and with ceding paratype. *Posterior* margins of tergites 6 and 7 narrowly red similar femora. The large lateral spots on tergites are as in the pre-dish; similar reddish lines on mid-regions only, of tergites 3-6 appear to be on the *anterior* margins, so that tergite 6 has reddish lines on both anterior and posterior margins. Markings of abdominal sternites as in holotype but not quite as prominent. Genitalia of paratype "Sal Gr Ur 125" had to be remounted, and in this process both apical segments of one forceps limb became folded beneath the long slender basal segment; the last segment of the other forceps limb was missing originally. On this male also, the next-to-last segment of forceps appears slightly longer than in the holotype; basal portion of forceps limb appears wider than distal portions; forceps base *distinctly* angulate laterally. Genitalia of paratype "Ur Sal G Nov" very similar to holotype. Forceps plate of "Sal Gr Ur 125" as in Fig. 4.

Female imago: (allotype). Specimen in alcohol.

Size: Body 7 mm.; fore wing 8 mm. Head yellow before eyes, shaded heavily with dark gray on vertex and occiput. Thorax yellowish with a distinct reddish tinge. Median and two curved lateral dark lines on pronotum; oblique black line to base of leg as in male. Area below and on each side of mesonotal scutellum, and most of metanotum, darker red-brown. Black margins on pleura above leg bases more extensive than in male. Central circular blackish marks on prosternum and anterior portion of mesosternum; meso- and metasterna reddish brown, paler medially. Legs much as in male, with double-banded femora. On fore leg, however, both bands shaded with black; narrow black lower margin and black band at proximal end of apical reddish band.

Abdominal markings much as in male, but dorsal portions of posterior margins of tergites have grayish brown instead of reddish brown bands, these bands not as clearly defined. Lateral large spots more or less wedge-shaped, diminishing in size to rearward. Smaller marks laterad of these wedges are prominent, black, semi-lunate. On tergite 6, whitish streaks extend forward from posterior margin on each side of mid-line, diverging anteriorly. Tergites 2-5 with narrow pale mid-dorsal lines. Tergites 7-10 largely yellowish with reddish shading. Ganglionic areas of sternites clearly outlined only on 6, 7 and 9. Oblique lateral reddish bands on sternite 7. Tiny reddish dash next to pleural fold on a few of the middle sternites only. Tails essentially as in male. As in male also, lateral view of abdomen presents a wide pale streak between wedge-shaped gray patches and pleural fold, with a semi-lunate black spot enclosed within this pale space,

Variations as seen in some of the female paratypes Size of body in each tergite.

6½ - 8 mm.; fore wing 8 - 8½ mm. In those still containing a few eggs, the entire dorsal area of abdomen heavily tinged with reddish.

Type designations as follows:

Holotype- Male imago; vial and slide labeled "Ur.P.St.R.115". One pair wings, one set of legs, and genitalia, mounted on slide. Paysandú, Santa Rita, (Río Uruguay), Nov. 8, 1955. C. S. Carbonell, Coll. In collection of the Department of Entomology, Facultad de Humanidades y Ciencias, Montevideo, Uruguay.

Allotype- Female imago. Same data as given for holotype. In private collection of J. R. Trayer.

Paratypes- Two male imagoes, parts on slide; as indicated for holotype. Slides and vials labeled: "Ur.Sal.G.Nov.", and "Sal.Gr.Ur. 125". Salto, Salto Grande, (Río Uruguay), Nov. 10, 1955. C. S. Carbonell, Coll. One in collection of Department of Entomology, Montevideo (as for holotype); one in private collection of J. R. Trayer.

57 female imagoes. 15 of these, same data as for holotype. Remainder, same data as for male paratypes. Divided between collection of Department of Entomology, Montevideo, and private collection of J. R. Trayer.

For the Paysandú area, Dr. Carbonell's field notes are: "River very deep and wide. In this particular spot, bottom of rock or mud at the banks. Sandy islands nearby. The exact locality is called "Puerto de Pepe Aji". For the Salto Grande area: "River very wide, interrupted by waterfall about 10 feet high at this time of the year. Bottom of rock, very eroded and full of holes and crevices".

R E S U M E N

Se describe una nueva especie de Ephemeroptera (Leptophlebiidae) procedente del Dpto. de Paysandú (Uruguay). Dicha especie difiere mucho de las otras del género que han sido descritas hasta ahora, especialmente en genitalia y en la coloración abdominal de los imagos de ambos sexos.

REFERENCES

- TRAYER, JAY R. 1959. -- *Uruguayan Mayflies. Family Leptophlebiidae. Part. I.* Rev. Soc. Uruguaya Ent. 3: 1- 13. 3 plates.
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