

A NEW SPECIES OF *THRAULODES* FROM NEW MEXICO
(EPHEMEROPTERA: LEPTOPHLEBIIDAE)

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While working on the Ephemeroptera collection in the Entomology Museum at Michigan State University, the author came upon a single specimen of *Thraulodes* which appeared to be a new species. Although it is only in fair condition (the preserving fluid having dissipated under field conditions), the colors are well preserved and very distinctive. The specimen was sent to Dr. Jay R. Traver, University of Massachusetts, who confirmed suspicions that the specimen was new. I have been informed by Dr. Traver that she and Dr. George F. Edmunds Jr. are presently engaged in a revisionary study of the genus for North and South America, and it should be in press shortly.

THRAULODES BRUNNEUS sp. nov.
(Figs. 1-3)

MALE IMAGO.

Size. Body 8 1/2 mm.; forewing 9 mm.

Head. Blackish brown with large pale areas mesad to bases of antennae; frontal margin of head hyaline. Antennae light brown; lower eyes black, upper eyes red-brown.

Thorax. Overall light brown, excepting pronotum black on anterior and lateral margins, and with a distinct full-length, median black stripe; meso- and metanota light yellow-brown, apex of scutellum dark brown; propleura almost completely blackened by a mark extending from base of forewing to forecoxa. Black markings almost completely encircling mesocoxal cavity, present dorsally at metacoxal cavity, and also extending between the two cavities. Prosternum purplish; meso- and metasterna light yellow-brown.

Legs. First and third pairs missing beyond the trochanters. All coxae light brown with black markings; protrochanters dark brown, meso- and metatrochanters pale. Basal two-thirds of mesofemur pale, apical third with a reddish brown band, the proximal margin of which is not darkened. Mesotibia and tarsus pale, claws and apical half of distal tarsal segment reddish brown as in *T. speciosus*.

Wings. (Fig. 1). Hyaline. Forewing with longitudinal veins pale brown, crossveins and base of fork of MA darker brown. Basal crossveins in costal and subcostal spaces, and in following spaces in basal half of wing disc darkest; most of these crossveins also margined with

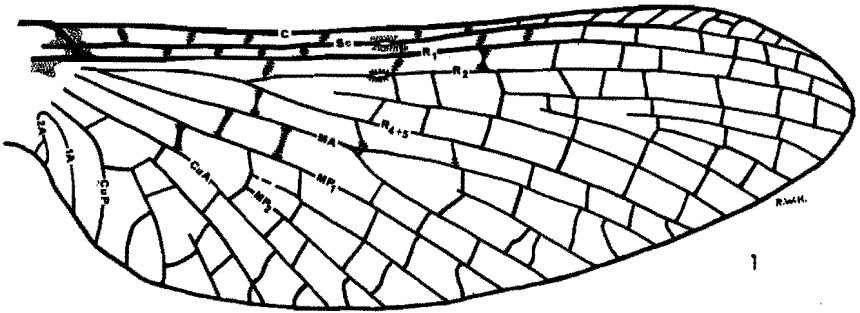


Fig. 1, right forewing of *Thraulodes brunneus*, holotype.

brown. Humeral crossvein, base of R_1 , and bullae on subcosta and on second radial are surrounded by a smoky cloud. Stigmatic area white, crossveins slanting and slightly anastomosed (more so in left wing than in right). The second anal vein of the right wing forked. Basal third of hindwing with crossveins and longitudinal veins pale brown; apical two-thirds with all veins hyaline. Humeral crossvein and portion of subcosta surrounding its point of attachment are dark blackish brown.

Abdomen. (Figs. 2, 3). Tergites 1-3 dark chocolate brown; tergite 2 with three small hyaline areas on anterior margin, and tergite 3 with two small hyaline areas on the anterior margin. Tergites 4-6 hyaline, each with large dark chocolate brown posterolateral triangles connected posteriorly by a narrow band of the same color. Tergites 7-10 a lighter red-brown, with posterior margin on tergite 10 white, and anterolateral corners of segment 7 hyaline. All tergites black on posterior margins.

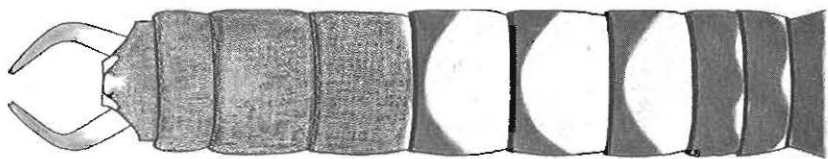
Sternite 1 light chocolate brown, sternites 2 and 3 dark chocolate brown. Sternites 4-6 dark chocolate brown on posterior three-fourths to four-fifths; the narrow anterior portion hyaline. Sternites 7-9 reddish brown as in their respective tergites. Black posterior marginal coloration fades medially on all sternites.

Genitalia. Terminal two segments of forceps missing. Forceps base very pale brown. Basal segment of forceps ventrally with apical third, and dorsally with apical two-thirds dark smoky; basal portion white. Penes similar to those of *T. speciosus* and *T. arizonicus*.

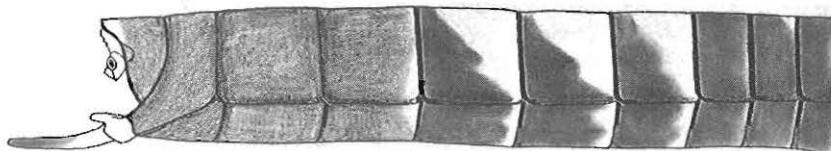
Caudal Filaments. Absent.

FEMALE. Unknown

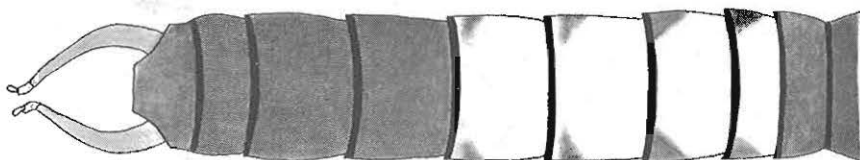
Figs. 2-7, dorsal (even numbers) and lateral (odd numbers) abdominal color patterns. Figs. 2 and 3, *T. brunneus*, holotype (terminal two segments of forceps missing); Figs. 4 and 5, *T. speciosus*; Figs. 6 and 7, *T. arizonicus*.



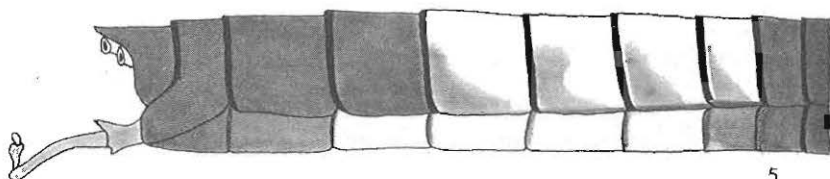
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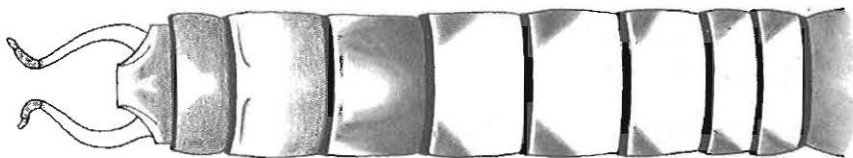
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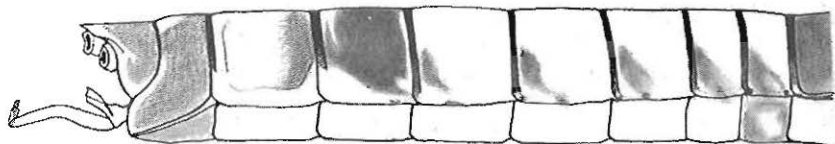
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del R. SNIDER

Holotype.--Male imago. Collected by R. E. Tuck in Grant Co., New Mexico, 14 miles north of Silver City, 7 July 1961. Deposited in the Entomology Museum, University of Utah.

Diagnosis. The abdominal color pattern of *Thraulodes brunneus* is quite distinct from that of *Thraulodes speciosus* described by Traver (1934; Figs. 4, 5) and *Thraulodes arizonicus* described by McDunnough (1942; Figs. 6, 7), the only other North American *Thraulodes* known at the present time. The almost completely darkened venter and the large postero-lateral dark triangles on tergites 4-6 are sufficient to separate *T. brunneus* from the other two species, both of which have very light venters and much smaller triangles. Also, the darkened third tergite serves to separate *T. brunneus* from *T. speciosus*; and the darkened second and third tergites separate *T. brunneus* from *T. arizonicus* (the respective tergites are mostly hyaline in *T. speciosus* and *T. arizonicus*). Abdominal segments 7-10 are much like those of *T. speciosus*, lacking the creamy colors found in *T. arizonicus*. The new species, therefore, is named *T. brunneus* because of its dark brown coloration. Although the penes are of the same type found in the other two species, the forceps are distinctive in having the apical one to two-thirds of the basal segment quite darkened. Color patterns about the thorax will also aid in distinguishing the species.

The wing of *T. brunneus*, like that of *T. speciosus*, differs from *T. arizonicus* by the presence of margined crossveins. The wing venation of *T. brunneus* is also more like that of *T. speciosus* than *T. arizonicus*.

Morphologically, *T. brunneus* is more like *T. speciosus* than *T. arizonicus*, and this parallels their geographic distribution. The only known locality for *T. speciosus* is in the Chiracahua Mountains, Arizona, about 75 miles southwest of the *T. brunneus* site, while the only known locality for *T. arizonicus* is near Flagstaff, Arizona, some 250 miles northwest of the *T. brunneus* site.

ACKNOWLEDGMENTS

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I also wish to thank Richard J. Snider for his excellent abdominal drawings and help in arrangement and preparation of the plate, and Julian P. Donahue for reading the manuscript.

LITERATURE CITED

- McDunnough, J. 1942. An apparently new *Thraulodes* from Arizona (Ephemeroptera). *Can. Entomol.* 74:117.
- Traver, J. R. 1934. New North American species of mayflies (Ephemeroptera). *Elisha Mitchell Sci. Soc. Jour.* 50: 189-254, 16 plates.