



## Description of the nymph of *Ulmeritoides uruguayensis* (Traver) (Ephemeroptera: Leptophlebiidae)

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The genus comprises 13 species, but only nymphs of six species have been described. In the present paper the nymph of *Ulmeritoides uruguayensis* is figured and described. The nymph of *U. uruguayensis* can be distinguished from its congeners by the following differential characters: 1) middle tibia with an apical black spot; 2) glossa with digitate bristles on apex; 3) segment I and base of segment II of maxillary palpi brown; 4) posterolateral projections on abdominal segments II–IX.

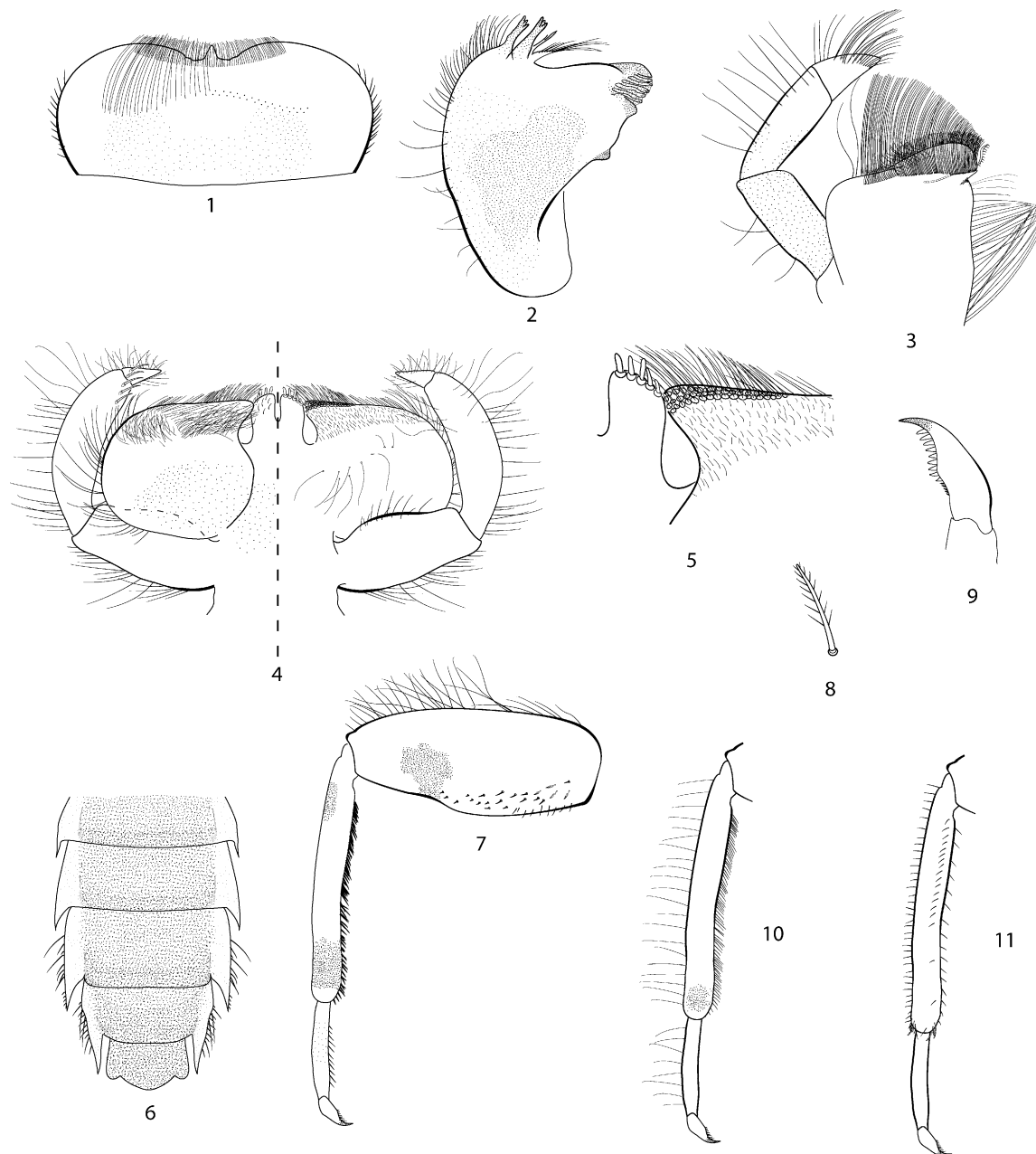
*Ulmeritoides* was established by Traver (1959) as a subgenus of *Ulmeritus* Traver, 1956 with two species, *U. (U.) uruguayensis* and *U. (U.) luteotinctus*. Later Domínguez (1991) elevated *Ulmeritoides* to genus status. Presently the genus is composed of 13 species but only nymphs of six species have been described: *U. misionensis* Domínguez, 1995; *U. guanacaste* Domínguez, 1995; *U. tifferae* Domínguez, 1995; *U. oepa* Lopes, Da-Silva and Py-Daniel, 2003; *U. acosa* Ávila and Flowers, 2005 and *U. chavarriae* Ávila and Flowers, 2005.

In Brazil four species were reported, *U. patagiatus* Thew, 1960; *U. uruguayensis* (Traver, 1959); *U. misionensis* Domínguez, 1995 and *U. oepa* Lopes and Da-Silva, 2003. The others Neotropical species are *U. luteotinctus* (Traver, 1959); *U. haarupi* (Esben-Petersen, 1912); *U. spinulipenis* Domínguez, 1995; *U. huitoto* Domínguez & Zúñiga, 2003; *U. flavopedes* (Spieth, 1943) from South America and *U. acosa* Ávila and Flowers, 2005; *U. chavarriae* Ávila and Flowers, 2005; *U. guanacaste* Domínguez 1995; *U. tifferae* Domínguez, 1995 from Central America.

### *Ulmeritoides uruguayensis* (Traver) Domínguez, 1991

**Diagnosis.** The nymph of *U. uruguayensis* can be distinguished from its congeners by the following differential characters: 1) middle tibia with an apical black spot; 2) glossa with digitate bristles on apex; 3) segment I and base of segment II of maxillary palpi brown; 4) posterolateral projections on abdominal segments II–IX.

**Mature Nymph.** Body length: 8.8 mm. Caudal filaments: 12 mm. General coloration: brown, dark brown and yellow. Head: dark brown with yellow spots; clypeus equal in width to labrum, anterior margin of clypeus almost straight. Antenna: yellow. Mouthparts: yellow and brown. Labrum (Fig. 1): yellowish brown, antero-median region wide, deep and U-shaped, with inconspicuous remains of four denticles and one middle larger denticle. Mandibles (Fig. 2): yellow and brown with black spots, outer dorsal margin with fine bristles. Maxillae (Fig.3): yellow; segment I and base of segment II of palpi brown, segment III of palpi ½ of the length of segment II, with tuft of bristles on apex and many bristles on apical region; 10–14 subapical pectinate setae. Labium (Fig. 4): yellow; segment II of palpi similar in length to segment I and five times length of segment III; labium yellow with black spots on paraglossa and with many antero-dorsal bristles; glossa with digitate bristles on apex (Fig. 5). Abdomen (Fig. 6): brown and dark brown with lateral margin in yellow;



**FIGURES 1–11.** *Ulmeritoides uruguayensis*: 1, labrum; 2, left mandible (dorsal view); 3, right maxilla (ventral view); 4, labium (right ventral view, left dorsal view); 5, detail of glossa (ventral view); 6, abdominal color pattern; 7, fore leg; 8, plumose bristles; 9, tarsal claw (fore leg); 10, middle leg; 11, hind leg.

posterolateral projections on abdominal segments II–IX. Thorax: dark brown with yellow spots. Legs: yellow. Fore leg (Fig. 7): black spots on middle of femur, apex and part of base of tibia; femur with some plumose bristles (Fig. 8) at base of inner margin, remaining bristles filiform, in the outer margin long bristles; inner surface of tibia with plumose bristles (Fig. 8); apex of tarsal claws (Fig. 9) hooked, narrow and brown, with small spines basally and progressively larger denticles apically. Middle leg (Fig. 10): femur with a median black spot; tibia with bristles on the inner surface and long slender bristles on the outer margin; a black spot on the apex. Hind leg (Fig. 11): femur with several dorsal bristles; tibia with row of bristles on the inner and outer surface, numerous plumose bristles at apical margin and a row of plumose bristles on the ventral side.

Material examined: 6 nymphs: Brazil, São Paulo State, Salesópolis, Estação Biológica de Boracéia, Córrego Venerando (23°39'14"S 45°53'28"W), 09-x-2004, Froehlich, C.G.; Mariano, R.L.S., Siegloch, A.E. and Silveira, G.A. 1 nymph: same data except Córrego Mutuca (23°38'22"S 45°50'49"W), 11-x-2004, Froehlich, C.G.; Mariano, R.L.S., Siegloch, A.E. and Silveira, G.A. 4 nymphs: same data except Córrego Venerando (23°39'14"S 45°53'28"W), 12-x-2001, Froehlich, C.G.; Mariano, R.L.S. and Polegatto, C. M. 2 nymphs: same data except Córrego Venerando (23°39'14"S 45°53'28"W), 26-iii-2003 Froehlich, C.G.; Mariano, R.L.S. and Spies, M.R. 1 nymph: same data except Ribeirão Coruja (23°40'05"S 45°53'57"W), 28-iii-2003, Froehlich, C.G.; Mariano, R.L.S. and Spies, M.R. 5 nymphs: same data except Córrego Venerando (23°39'14"S 45°53'28"W), 27-iii-2003, Froehlich, C.G.; Mariano, R.L.S. and Spies, M.R. 1 nymph: same data except Córrego Mutuca (23°38'22"S 45°50'49"W), 27-iii-2003, Froehlich, C.G.; Mariano, R.L.S. and Spies, M.R. 5 nymphs: same data except Córrego Mutuca (23°38'22"S 45°50'49"W), 28-iii-2003, Froehlich, C.G.; Mariano, R.L.S. and Spies, M.R. 6 nymphs: same data except Córrego Venerando (23°39'14"S 45°53'28"W), 26-iii-2003, Froehlich, C.G.; Mariano, R.L.S. and Spies, M.R.

The material is deposited in Museu de Zoologia da Universidade de São Paulo, São Paulo State, Brazil (MZUSP).

**Remarks.** The nymphs were collected in leaf packs in pools of low order permanent stony bottom streams. *U. uruguayensis* adults were collected in the same places, thus providing an indirect association with the nymphs described here. Light trap collections at the same sites over six years have not provided any other *Ulmeritoides* species. The vegetation of the collection site (Estação Biológica de Boracéia) is Atlantic Rain-forest.

The nymph of *U. uruguayensis* stands probably near *U. oepa* and *U. misionensis* by possessing a large middle denticle in the anteromedian emargination of the labrum; thus *U. uruguayensis* could be a third member of the species group proposed by Lopes et al. (2003). The main difference between the nymph of *U. uruguayensis* and the others congeners is a posterolateral projection on abdominal segments II–IX, instead of VI–IX, as described for the genus.

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## References

- Ávila A., S. & Flowers, W.R. (2005) New species and records of *Ulmeritoides* (Ephemeroptera: Leptophlebiidae) from Costa Rica. *Zootaxa*, 1010, 1–14.
- Domínguez, E. (1991) The status of the genus *Ulmeritoides* (Ephemeroptera Leptophlebiidae: Atalophlebiinae) and related taxa. In: Alba-Tercedor, J. & Sanchez-Ortega, A. (Eds.), *Overview and Strategies of Ephemeroptera and Plecoptera*. Sandhill, Gainesville, pp. 157–167.
- Domínguez, E. (1995) Cladistic analysis of the *Ulmeritoides* group (Ephemeroptera: Leptophlebiidae), with descriptions of five new species of *Ulmeritoides*. *Journal of the New York Entomological Society*, 103, 15–38.
- Domínguez, E., Molineri, C., Pescador, M.L., Hubbard, M.D. & Nieto, C. (2006) *Aquatic Biodiversity of Latin America, Vol. 2: Ephemeroptera of South America*. Pensoft Publisher, Bulgaria, 646 pp.
- Lopes, M.J.N., Da-Silva, E.R. & Py-Daniel, V. (2003) A new species of *Ulmeritoides* from Brazil (Ephemeroptera: Leptophlebiidae). *Revista de Biología Tropical*, 51, 195–200.

- Thew, T.B. (1960) Taxonomic studies on some Neotropical Leptophlebiid mayflies (Ephemeroptera: Leptophlebiidae). *Pan-Pacific Entomology*, 36, 119–132.
- Traver, J.R. (1956) A new genus of Neotropical mayflies (Ephemeroptera: Leptophlebiidae). *Proceedings of the Entomological Society of Washington*, 58, 1–13.
- Traver, J.R. (1959) Uruguayan mayflies. Family Leptophlebiidae: Part I. *Revista de la Sociedad Uruguaya de Entomología*, 3, 1–13.