ATOPOPHLEBIA FORTUNENSIS, A NEW GENUS
AND SPECIES FROM PANAMA
(LEPTOPHLEBIIDAE: EPHEMEROPTERA)

R. W. FLOWERS
Laboratory of Aquatic Entomology
Florida A&M University
Tallahassee, FL 32307 USA

ABSTRACT

Atopophlebia fortunensis, a new genus and species of the Leptophlebidae
is described from the mountains of western Panama.

A collection of mayflies from Panama donated by Dr. Charles W. O'Brien
to Florida A&M University contains 2 male imagoes of a new genus and
species of Leptophlebidae. The specimens were collected in median elevation
tropical wet forest near the summit of Cerro Fortuna in Chiriquí Province.

In the following description, the venational terminology is that given in
Peters and Edmunds (1970). Each segment of the fore legs of the male
imago is compared to the length of the fore tibia and expressed as a ratio,
while the length in millimeters of the fore tibia is given in parentheses.

I thank Drs. Charles W. and Lois B. O'Brien and Mr. George B. Marshall
for the specimens and Drs. William L. Peters and Manuel L. Pescador and
Mrs. William L. Peters for their useful suggestions on the preparation of
this paper. This research was supported by a research project (FLAX
79009) of SEA/CIR, USDA, to Florida A&M University, William L. Peters,
Research Leader.

Genus Atopophlebia Flowers, New Genus
(Fig. 1-10)

MALE IMAGO: Length: body, 9.1-9.7mm; fore wings, 9.3-9.9mm. Eyes (Fig.
8-9) separated on meson of head by slightly less than width of median
ocellus, upper portion of eyes oval, on short stalk; lower portion of eyes 7/10
length of upper portion, dorsally contiguous with upper portion; width of
lateral ocelli 2/5 width of upper portion of eye. Wings (Fig. 1-3): maximum
**Flowers: Atopophlebia fortunensis**

width of fore wings 1/3 maximum length of fore wing; vein Rs of fore wings forked 1/5 of distance from base to margin; vein MA forked 1/2 of distance from base to margin, fork symmetrical; MP₂ attached at base to vein IMP with a cross vein 1/3 of distance from base to margin; vein IMP attached to MP₁ and CuA with a cross vein less than 1/3 of distance from base to margin of CuA; ICu₁ attached at base to CuA, remainder of Cu-A area as in Fig. 1; cross veins numerous, those in stigmatic area strongly curved with some anastomosis. Costal projection of hind wings well developed, located 5/6 of distance from base to margin, costal margin slightly concave with short setae before projection, apex of wings obtuse, rounded; cross veins few and clustered in apical 1/3 of wing. **Legs:** ratios of segments in the ♂ fore legs, 0.53:1.00 (3.8mm) :0.03:0.54:0.29:0.12:0.05. Claws of a pair dissimilar, 1 apically hooked (Fig. 10), the other obtuse, pad-like. **Genitalia** (Fig. 4-7): segment 3 slightly shorter than segment 2, segment 2 ca. 1/7 length of segment 1; apex of segment 3 rounded; base of segment 1 broad, its inner marxin forms an angular bend 7/10 the distance from its base to its apex; length of styliiger plate along median line a little less than 1/2 maximum width; basal third of penis lobes fused (Fig. 5-7); lobes narrow and widely separated in apical 2/3, each lobe twisted ventrally and laterally at apex; sperm ducts open laterally at apex of lobes. Terminal filament a little longer than cerci.

**Female Imago:** Unknown.

**Mature Nymph:** Unknown.

**Etymology:** Atopos, Gr. meaning unusual; phleps Gr., Feminine, meaning vein.

**Type Species:** *Atopophlebia fortunensis* Flowers, New Species

*Atopophlebia fortunensis* Flowers, New Species
Fig. 4-10. *Atopophlebia fortunensis*. ♂ imago. 4) genitalia, ventral view; penes, 5) lateral, 6) dorsal, and 7) ventral views; 8) eyes; dorsal and 9) lateral views; 10) fore claw.

**Male Imago** (in alcohol): *Length*: body 9.1-9.7mm; fore wings, 9.3-9.9mm. Upper portion of eyes creamy yellow, lower portion grayish-black. Head yellow, black markings across front of head above carinae and on vertex between eyes (Fig. 8-9); ventral surface of head with a pair of black maculae laterally and a black macula at midline. Thorax pale yellow, lateral
Flowers: Atopophlebia fortunensis

Margins of pronotum washed with dark brown. Legs yellow; prothoracic femora with a dark brown spot on dorsal surface at apex and a brown streak on ventral surface at midlength, prothoracic tibiae dark brown at apex, prothoracic tarsi with segment 5 brown; meso- and metathoracic legs with apex of tibiae and tarsal segment 5 brown. Wings (Fig. 1-3): longitudinal veins of fore and hind wings yellow, cross veins light brown. Membrane of fore wings hyaline, except shaded with amber at extreme apex and milky in stigmatic area; membrane of hind wings hyaline, except apical 1/3 shaded with amber. Abdomen: terga and sterna pale yellow; segments 1, 7-9 opaque, segments 2-6 semi-translucent; posterior margins of terga 1-8 brown; a pair of anterolateral black maculae on terga 8-9. Genitalia (Fig. 4-7): styliiger plate light yellowish-brown of basal half, darker brown at angular bend and washed with brown on outer margin of apical 1/4; segments 2 and 3 yellowish brown on outer margins, yellowish white on inner margins. Caudal filaments pale yellow, apical 3/4 washed with smoky brown.

Female imago: Unknown.

Nymph: Unknown.


Biology: The imagoes were collected by sweeping vegetation in a forested area at ca. 1300m. A small stream and marshy areas were present; however, only 1 tiny nymph, not assignable, was collected.

Discussion: Atopophlebia can be distinguished from all other genera of the Leptophlebiidae by the following combination of characters. In the imago, (1) vein MA in the fore wings forked symmetrically (Fig. 1), (2) costal cross veins in stigmatic area of fore wings strongly curved with some anastomosis (Fig. 1), (3) vein MP₂ of fore wings attached by a cross vein to vein IMP (Fig. 1), (4) hind wing with costal projection 5/6 the distance from base to margin and cross veins clustered in apical 1/3 (Fig. 3), (5) penes narrow in apical 2/3, twisted ventrally and laterally at apex (Fig. 5-7), (6) eyes are separated on meson of head, upper portion on short stalk, lower portion dorsally contiguous with upper portion (Fig. 8-9).

Until the nymphs of Atopophlebia are discovered, the phylogenetic relationships of this genus within the Leptophlebiidae cannot be determined. Adults of Atopophlebia are so highly specialized that, based on this characterization, no demonstration of close affinities with the adults of any other known genus of Leptophlebiidae is possible. In the adults, the connection of vein MP₂ of the fore wings to IMP instead of MP₁ is unusual. This character is occasionally found as an individual variation in other leptophlebiid genera. In the 2 known specimens of Atopophlebia it is consistent but more specimens are needed to determine if this is a good generic character. The shape of the hind wings and the clustering of cross veins in its apical 1/3 are unique among known Leptophlebiidae.

Literature Cited