

New Ephemerellidae from Madagascar and Afghanistan¹
(Ephemeroptera)

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A collection of Ephemerellidae from W. Wittmer of the Naturhistorisches Museum, Basel, Switzerland, included an undescribed genus and species represented by two female imagoes. A third female imago was examined at the University of Utah, Salt Lake City, with the permission of G. F. Edmunds, Jr. The forewing characters of *Manohyphella* n. gen. are similar to *Teloganella* Ulmer, *Teloganodes* Ulmer, and *Ephemerellina* Lestage, and it is herein included, with the above genera, in the subfamily Teloganodinae. Two undescribed species of *Ephemerella* Walsh were also included in a collection of nymphs from Afghanistan which were loaned to the author by G. F. Edmunds, Jr. One belongs in *Drunella* Needham and is the eighteenth species in the subgenus known to occur in Asia. The other is a representative of *Serratella* Edmunds and constitutes a new Asian record for the subgenus as the taxon was previously reported from only North America.

Manohyphella Allen, new genus

Small mayflies with robust body and proportionately narrow wings. Forewings with long connected or unconnected intercalaries. Intercalaries of forewing reduced in number with only one between IMP and MP₂, only one between MP₂ and CuA, and only three between CuA and CuP (Fig. 2). Hindwings proportionately small and costal projection sharp and at apex of wing (Fig. 3).

TYPE SPECIES.—*Manohyphella keiseri* Allen, new species

This is the third genus of Ephemerellidae to be reported from the Ethiopian Region. *Ephemerellina* was described from South Africa, and is now known from Australia and eastern China. Allen and Edmunds (1963) reported a record of *Ephemerella* (*Eurylophella*) Tiensuu from Madagascar, but they considered it questionable and possibly due to a labeling error. *Manohyphella* is distinguished from the other described Teloganodinae by the character of the hindwing. The costal projection of *Ephemerellina* is in the anterior half of the wing, the projection is blunt and symmetrical, and there are usually between fifteen and twenty crossveins in the wing (Fig. 5). In *Teloganella* and

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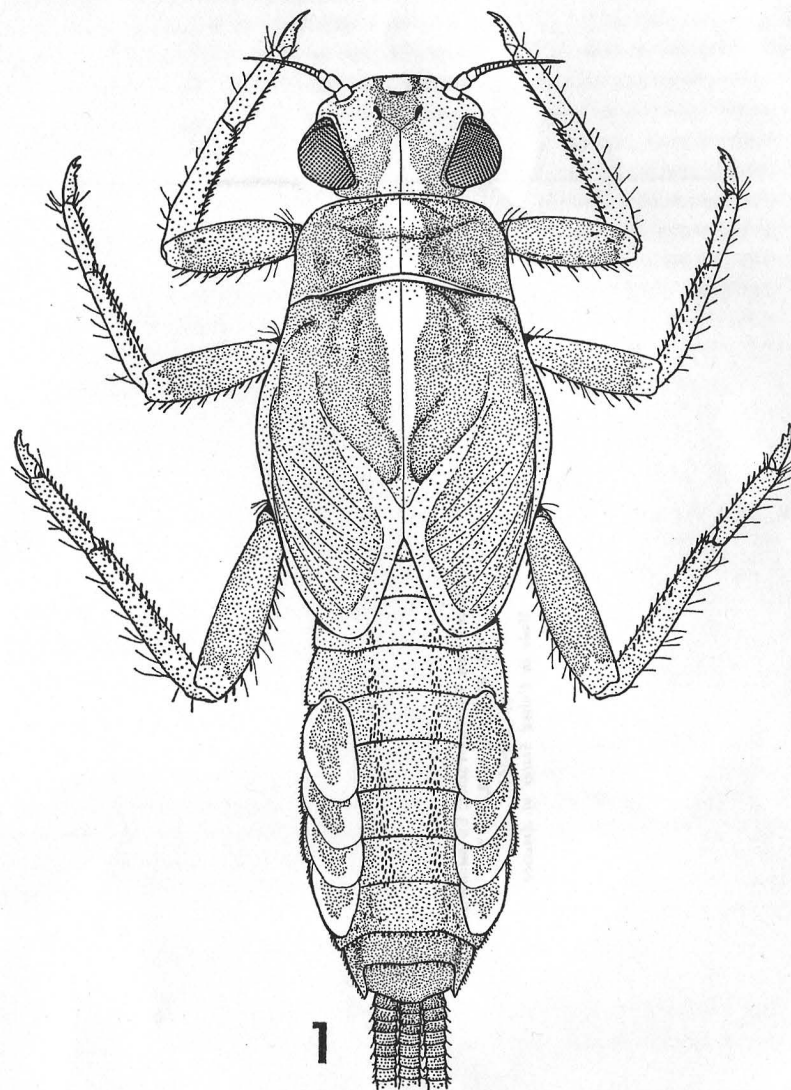
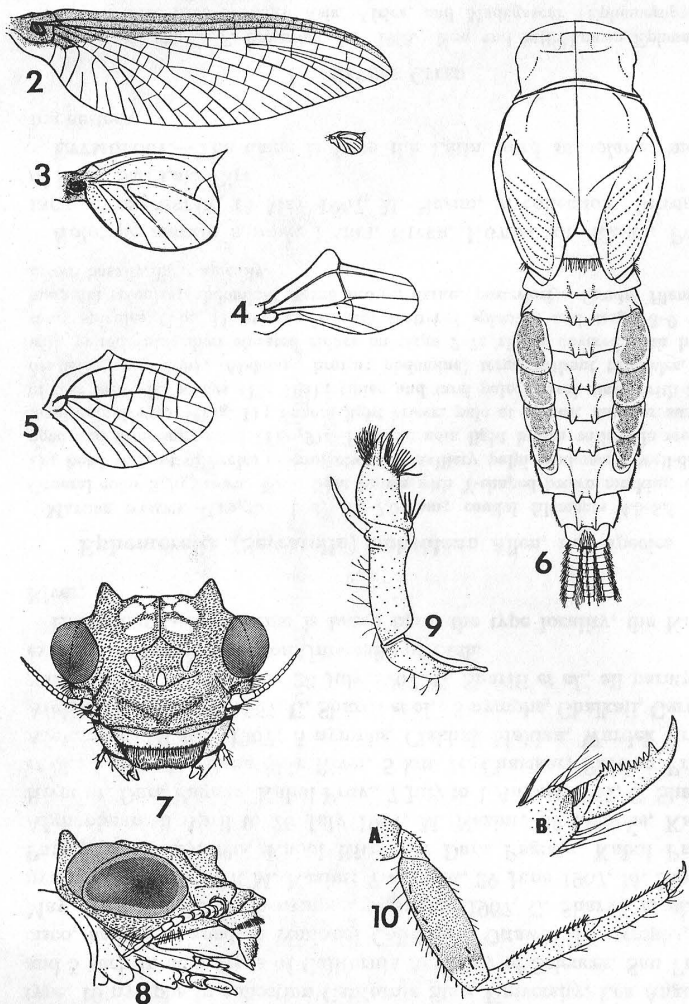


FIG. 1. *Ephemerella* (*Serratella*) *subsolana* Allen, n. sp., mature nymph, dorsal view.

Teloganodes, the costal projection is blunt and asymmetrical, and there are usually less than five crossveins in the wing (Fig. 4). The above two genera are further characterized by well-developed prominent crossveins arising from the posterior margin of the costal projection and



FIGS. 2-3. *Manohyphella keiseri*, wings. FIG. 2, forewing. FIG. 3, hindwing. FIG. 4. *Teloganella*, hindwing. FIG. 5. *Ephemerellina*, hindwing. FIGS. 6-8. *Ephemerella (Drunella) kabulensis*, nymphal structures. FIG. 6, thorax and abdomen, dorsal view. FIG. 7, head, front view. FIG. 8, head, side view. FIGS. 9-10. *Ephemerella (Serratella) subsolana*, nymphal structures. FIG. 9, maxilla. FIG. 10a, right fore leg. FIG. 10b, tarsal claw.

extending to the subcosta and the radius (Fig. 4). The costal projection of the hindwing of *Manohyphella* is in the posterior half of the wing, the projection is sharp and symmetrical, and there are only two crossveins in the wing. The crossveins originate near the posterior margin of the costal projection, as in *Teloganella* and *Teloganodes*, but they are poorly developed and barely discernible (Fig. 3).

ETYMOLOGY.—*Manohyphella* is from the Greek words *manos* meaning rare and *hyphē* meaning web, and from the Latin diminutive *ella*.

Manohyphella keiseri Allen, new species

FEMALE IMAGO.—Length: body 5.0–6.0 mm; forewing 10.0 mm. General color reddish brown to black. Head dark brown. Pronotum reddish brown; pronotum with median elevated longitudinal ridge; mesonotum reddish brown with dark markings along sutures; metonotum with prominent posterior submedian flap-like structures; forewings hyaline, stigmatic area and base of wings brown (Fig. 2); longitudinal veins black, hindwings hyaline, base of wings marked with brown; longitudinal vein brown (Fig. 3); legs light brown. Abdomen reddish brown without distinctive markings. Caudal filaments yellowish brown.

Holotype female imago, RANOMAFANA, MADAGASCAR, 12 September 1958, F. Keiser, in collection Naturhistorisches Museum, Basel, Switzerland. Paratopotype, female imago, same data and deposition as holotype. Paratype, female imago, Farimbony Riv., at R. N. 2, Prov. Tamatave, Madagascar, 15 October 1971, G. F. and C. A. Edmunds, F. Emmanuel, in collection University of Utah, Salt Lake City.

ETYMOLOGY.—Named in honor of F. Keiser, the collector of the holotype.

Ephemerella (Drunella) kabulensis Allen, new species

MATURE NYMPH.—Length: body 9.5–10.5 mm; caudal filaments 6.0–7.0 mm. General color light brown. Head brown with dark transverse band across anterior margin of compound eyes; head with moderately developed paired occipital tubercles (Fig. 7), with moderately developed median tubercle on frons between compound eyes (Fig. 8), and with short lateral genal projections. Thorax light brown; thoracic nota without tubercles, but often with scattered long setae; legs brown; ventral (leading) edge of fore femora with tubercles; anterior margin of fore femora with longitudinal ridge near middle of segment and median transverse ridge extending from longitudinal ridge to anterior margin of segment; apical tibial projection straight and moderately developed; tarsal claws with 1 or 2 sub-basal denticles. Abdominal trega brown; terga 2–10 with paired submedian tubercles; tubercles moderately developed on terga 2–9, small on tergum 10; terga 2–9 often with scattered long setae; tergum 1 with row of setae along posterior margin and tergum 10 with median tuft of setae (Fig. 6); abdominal sterna light brown. Caudal filaments light brown.

Holotype mature nymph, KABUL RIVER NEAR PACHAM, KABUL PROVINCE, AFGHANISTAN, 26 August 1967, M. Nazim, in collection University of Utah, Salt Lake City. Paratopotypes, 68 nymphs, same data as holotype, 10 nymphs in collection California State University, Los Angeles, and 5 each in collections of California Academy of Sciences, San Francisco, and the Canadian National Collection, Ottawa; 13 nymphs, 25 May 1967, M. Nazim; 5 nymphs, 9 August 1967, G. Sharafi *et al.*; 2 nymphs, 8 April 1967, M. Nazim; 7 nymphs, 29 June 1967, M. Nazim. Paratypes, 14 nymphs, Kabul River nr. Dara Pagnan, Kabul Prov., Afghanistan, 8 April to 26 July 1967, M. Nazim; 28 nymphs, Kabul River nr. Dara Pagnan, Kabul Prov., 7 July to 1 August 1967, G. Sharifi *et al.*; 7 nymphs, Pang Shir River, 5 km. N. Charikar, Parwan Prov., Afghanistan, 9 July 1967; 5 nymphs, Ciakhak Maidan, Wardek Prov., Afghanistan, 15 July 1967, G. Sharifi *et al.*; 5 nymphs, Ghalkaii, Gardez, Paktia Prov., Afghanistan, 28 July 1967, G. Sharifi *et al.*, all paratypes except as noted in collection University of Utah.

ETYMOLOGY.—The name is based upon the type locality, the Kabul River.

***Ephemerella (Serratella) subsolana* Allen, new species**

MATURE NYMPH.—Length: body 6.0–7.0 mm; caudal filaments 4.5–5.5 mm. General color light brown. Head light brown with Y-shaped brown marking (Fig. 1); head without tubercles or projections; maxillary palpi moderately well-developed and three-segmented (Fig. 9). Thoracic nota light brown with pale median longitudinal stripe (Fig. 1); femora light brown, pale at apices; anterior surface of fore legs with spines (Fig. 10a); tibiae and tarsi pale; tarsal claws with 8–10 denticles (Fig. 10b). Abdomen brown; abdominal terga without tubercles, but with paired submedian elevated ridges on terga 2–7; ridges covered with heavy short spicules (Fig. 1); tergum 8 with scattered spicules, and terga 8–9 with marginal spicules; abdominal sterna brown, darker posteriorly. Caudal filaments brown basally, light apically.

Holotype mature nymph, KABUL RIVER, KOTASUNGI, KABUL PROVINCE, AFGHANISTAN, 13 May 1967, M. Nazim, in collection University of Utah, Salt Lake City.

ETYMOLOGY.—The name is from the Latin word *subsolanus* meaning eastern.

LITERATURE CITED

- ALLEN, R. K. AND G. F. EDMUNDS, JR. 1963. New and little known Ephemerellidae from southern Asia, Africa, and Madagascar (Ephemeroptera). *Pac. Insects*, 5: 11–22.