

**THE TYPE-SPECIES OF THE GENUS *LEPTOPHLEBIA* WESTWOOD
(EPHEMEROPTERA: LEPTOPHLEBIIDAE)**

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Abstract.—The type-species of the genus *Leptophlebia* Westwood is *Ephemera vespertina* L., not *Ephemera marginata* L. as has been commonly supposed.

The identity of the type-species of any genus is of crucial importance to the taxonomy of that genus because the type-species serves as the basis for any definition of the genus; any redefinition or modification of the generic limits must take into account the type-species. It is therefore important to understand the correct concept of the type-species of a genus before any taxonomy (at least at the generic level) or systematics involving that genus is begun. Any errors in the present concept of the identity of a type-species may well be transformed into greater errors in work of the future if left uncorrected today.

One such error has persisted in the literature since it was first introduced in 1881. The genus *Leptophlebia* Westwood, 1840, is one of the largest genera of Ephemeroptera and is the type-genus of the family Leptophlebiidae which contains about one-quarter of the extant genera of mayflies. The type-species has generally been thought to be *Ephemera marginata* Linnaeus, 1767.

Eaton (1871) in his Monograph on the Ephemeridae listed no type-species for the genus *Leptophlebia*. However, he divided the genus into 4 "series" and gave a type-species for each. "Series 3," which included *Leptophlebia vespertina* Linnaeus, 1758, and eight other species, was given *Ephemera marginata* for a type-species. Following this Eaton (1881) restricted the definition of the genus *Leptophlebia sensu stricto* to coincide with "series 3". The type-species of "series 3", *Ephemera marginata*, was retained by Eaton as the type-species of *Leptophlebia* (restricted). Since this time, all major works treating the Leptophlebiidae which list type-species (e.g., Eaton, 1884; Needham, Traver, and Hsu, 1935; Grandi, 1960; Landa, 1969; Peters and Edmunds, 1970; Edmunds, Jensen, and Berner, 1976) have con-

sistently given *Ephemera marginata* as the type-species of the genus *Leptophlebia*, apparently following Eaton (or each other).

An investigation of the original establishment of *Leptophlebia* (Westwood, 1840) however, reveals that the genus was erected for *Ephemera vespertina* L., and "the allied species." The present International Code of Zoological Nomenclature requires that the type-species of a genus be one of the originally included nominal species, and that if only one nominal species is originally included, it is the type-species by monotypy. Thus, *Ephemera vespertina* L., 1758, must be regarded as the type-species of *Leptophlebia* Westwood, 1840 (type by indication: monotypy), not *Ephemera marginata* as has been commonly, but erroneously, accepted.

There is little doubt as to the identity of *Leptophlebia vespertina* or to the fact that it is the species which Westwood had in mind when he established *Leptophlebia*. He both mentioned it by name and referred to the figure of DeGeer's (1771) "*Ephémère noire à ailes blanches*" which has been shown by Bengtsson (1912) to be Linnaeus' *Ephemera vespertina*. The figures, descriptions, and distributions given by Linnaeus (1758), DeGeer (1771), and Westwood (1840) are all compatible with the present concept of *Leptophlebia vespertina*.

Leptophlebia vespertina is a senior synonym of *Leptophlebia meyeri* Eaton, 1884, and *Euphyurus albitarsis* Bengtsson, 1909 (see Lestage, 1917, for a fuller discussion of these specific synonymies). *Euphyurus albitarsis* is the type-species by monotypy of *Euphyurus* Bengtsson, 1909, making the latter a junior synonym of *Leptophlebia* as suggested by Lestage (1917).

This clarification of the true type-species of the genus *Leptophlebia* will induce no change in any of the present prevailing concepts of the genus, but may well prevent taxonomic confusion in the future.

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