



## Keys, phylogenies and biogeography of *Polypedilum* subgenus *Uresipedilum* Oyewo et Sæther (Diptera, Chironomidae)

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### Abstract

Keys to the males of the 48 known species of the subgenus *Uresipedilum* Oyewo et Sæther of *Polypedilum* Kieffer, and of the known pupae and larvae are presented. *P. (U.) chubetudeeum* Sasa et Suzuki is regarded as a synonym of *P. (U.) aviceps* Townes.

Parsimony analyses show that the subgenus can be divided into four tentative main groups: the *cultellatum* group, the *pedatum* group, the *albicorpum* group, and the *convictum* group. Brooks parsimony analyses (BPA) and Bremer estimate was used to assess the geographic co-evolution and make comparisons with other subgenera. Dispersal via a Beringian connection between East Asia and the Nearctic Region is clear with further dispersal south to Guatemala and Peru more tenuous. There also are indications of connections between the Afrotropical region, South and East Asia, Australia and New Zealand. This may be direct dispersal by mean of floating detritus rather than Gondwanian vicariance as *Polypedilum* is common on several oceanic islands. The same distribution patterns are apparent in other subgenera as well as in other basal Chironomini. However, while there are no clear indication of vicariance between the Neotropical and Afrotropical regions in *Uresipedilum* such vicariance is evident in the subgenera *Tripodura* Townes and *Cerobregma* Oyewo et Sæther as well as in *Nilothauma* Kieffer.

**Key words:** *Polypedilum*, *Uresipedilum*, parsimony analysis, biogeography, key

### Introduction

Kieffer (1912) erected the genus *Polypedilum*. To date the genus contains five subgenera: *Polypedilum s. str.* Kieffer, 1912, *Pentapedilum* Kieffer, 1913, *Tripodura* Townes, 1945, *Uresipedilum* Oyewo et Sæther, 1998, and *Cerobregma* Sæther et Sundal, 1999. *Asheum* Sublette et Sublette, 1983 (syn. *Pedionomus* Sublette, 1964) was included in *Polypedilum* by Oyewo and Sæther (1998), Sæther and Sundal (1999), and Vårdal et al. (2002). Since the shape of the hypopygium and the morphology of the immature stages are not diagnostically separable from *Polypedilum* it was assumed that the simple pulvilli and the lack of the characteristic triangular eight tergite mentioned in the original description was in error like the statement that the gonostylus was void of long setae on the inner margin. Reexamination of some specimens of *Asheum* shows that they do not have bifid pulvilli and are lacking the characteristic triangular eight tergite. These characters are regarded as obligate and objective synapomorphies for the genus. Although a triangular tergite VIII appears elsewhere, for instance in the Tanytarsini and in *Nilothauma* Kieffer, the bifid pulvilli appear to be unique within Chironomini. Accordingly *Asheum* should be re-erected as a full genus.

The larvae of *Polypedilum* are found in all standing and flowing waters except at high latitude and altitude. The larvae of most species occur in sediments, with a few species mining wood or grazing epilignic and epilithic surfaces, and some species coinhabiting pupal retreats of *Cheumatopsyche* and *Hydropsyche* caddis flies. Adult *Polypedilum* may attain nuisance numbers in anthropogenetically disturbed habitats. The genus is