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**A revision of the genera *Pseudosmittia* Edwards, 1932,
Allocladius Kieffer, 1913, and *Hydrosmittia* gen. n.
(Diptera: Chironomidae, Orthoclaadiinae)**

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Abstract

The genera *Pseudosmittia* Edwards, 1932, and *Allocladius* Kieffer, 1913, supported by parsimony analysis, can be divided into three groups, *Pseudosmittia*, *Allocladius* and *Hydrosmittia* **gen. n.** Generic diagnoses to all stages and both sexes of all three genera are given. The mostly Neotropical and Afrotropical *Allocladius* together with the mostly Holarctic and Afrotropical *Hydrosmittia* form the sister group of the more widespread *Pseudosmittia*. *Allocladius* in addition to some basal species is divided into a paraphyletic nearly Cosmopolitan *fortispinatus* group, a monotypic Afrotropical *soemmeri* group, an Afrotropical and Palaearctic *niger* group, a Holarctic *nanseni* group, and a Neotropical, Afrotropical and Holarctic *longicrus* group; *Hydrosmittia* into an Afrotropical and Palaearctic *brevicornis* group and a mostly Holarctic *rutneri* group. *Pseudosmittia* is divided into 13 species groups in phyletic sequence: *gracilis* [*simplex* + *rotunda* (*topei* (*digitata* (*xanthostola* + *brachydicrana* + *insulsa*))], [*conjuncta* (*tokaraneoa* + *albipennis* (*brevifurcata* (*angusta* group, divided into *angusta*, *trilobata*, *lamasi*, *danconai*, *uncata* and *forcipata* subgroups))]. The *xanthostola* and *brachydicrana* groups are with few exceptions known only from South Asia and the Indo-Pacific region, while most other groups are present in most regions.

Keys to male and female imagines, pupae and larvae of all three genera are given. Type material of 180 species assigned to *Pseudosmittia*, *Camptocladius* v. d. Wulp, *Spaniotoma* Philippi, *Smittia* Holmgren, *Mesosmittia* Brundin, *Orthosmittia* Goetghebuer, *Ancylocladius* Sublette *et* Wirth, *Allocladius* Kieffer, and *Lindebergia* Tuiskunen, belonging to 15 museums have been re-examined, lectotypes designated, and new combinations and synonyms given. An additional 21 species are lost or could not be located, of these 5 are declared *nomina dubia*. Another 4 species were not available for study or not examined. Most of these could be placed in other genera or as synonyms of species in *Pseudosmittia*. One hundred and thirty species are treated, 37 of which are new, 93 species are completely redescribed in all available stages. The following new species are described: *Allocladius* *bubatus*, *A. caspersi*, *A. deborae*, *A. hirticaudatus*, *A. luciniolus*, *A. soemmeri*, *A. wangorum*, *Hydrosmittia* *aagaardi*, *H. annulata*, *H. falsicostata*, *H. soelii*, *H. tenuistylata*, *Pseudosmittia* *aculeathrix*, *P. acutilobata*, *P. carita*, *P. christmasensis*, *P. cristagata*, *P. cunealata*, *P. dolabrata*, *P. digitriente*, *P. fusata*, *P. laticauda*, *P. legonensis*, *P. licina*, *P. longicornia*, *P. malickyi*, *P. navama*, *P. parifusata*, *P. parinavama*, *P. pedata*, *P. propetropis*, *P. pugnata*, *P. siamensis*, *P. spinispinata*, *P. tericristata*, *P. tokunagai*, and *P. unniae*. Ten species of *Allocladius* (including 2 parthenogenetic), 4 species of *Hydrosmittia* (including 2 parthenogenetic), and 31 species of *Pseudosmittia* (including 3 parthenogenetic and 3 species known only from females) are known as female imagines; 5 species of *Allocladius*, 6 species of *Hydrosmittia* and 12 species of *Pseudosmittia* are known as pupae; and 4 species of *Allocladius*, 5 species of *Hydrosmittia* and 10 species of *Pseudosmittia* are known as larvae.

Errors in previous publications are corrected and remarks on variation given. The genera treated contain at least 7 apparently obligate parthenogenetic species, while facultative parthenogenesis is found in at least one species and may be widespread.

The species of *Hydrosmittia* probably all are truly aquatic, while *Allocladius* has species found in both fully aquatic environments and in moist earth. In *Pseudosmittia* there are no certain fully aquatic species. Most species appear to be semiaquatic to semiterrestrial or live in the marine intertidal zone. The *insulsa*, *brachydicrana*, and *xanthostola* groups contain mostly marine seashore species, and several groups have species, which larvae live both in semiaquatic freshwater localities and on the seashore. In the *angusta* group, however, only *P. bifurcata* appears to be intertidal.

Only in *Allocladius* a cool southern transantarctic Gondwanian vicariance may have taken place, but combined with dispersal to West Asia, further to the Euro-Mediterranean and East Asian Regions, and across a Beringian Region to North America. A more northern warm Gondwanian connection between West Africa and East South America could be present but not common in *Pseudosmittia*. The dominating distribution pattern in *Pseudosmittia* appear to be caused by direct dispersal, in America across the Caribbean and the Central American lowland, in the Indian Ocean and the Pacific across oceans by floating debris and vegetation.

Key words: Chironomidae, Orthoclaadiinae, *Allocladius*, *Hydrosmittia*, *Pseudosmittia*, new genus, new species, new combinations, phylogeny, keys

Introduction

Aquatic species of non-biting midges (Chironomidae) are among the most important members of freshwater invertebrates. They occupy a key position in aquatic systems from an ecological perspective and are very valuable indicators in biogeographical, fauna-historical, and phylogenetic patterns. Much less emphasis has, however, been placed on rearing, associating and describing semiaquatic and semiterrestrial species as well as species from temporary freshwater habitats and marine intertidal zones. Consequently, the biodiversity of such midges is much less well known. These groups, however, are very important, phylogenetically as well as biogeographically, since they show adaptations found both among the more primitive and among the most derived groups of Chironomidae.