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## Neotropical *Allocladius* Kieffer, 1913 and *Pseudosmittia* Edwards, 1932 (Diptera: Chironomidae)

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## Abstract

The Neotropical species of the genera *Pseudosmittia* Edwards, 1932 and *Allocladius* Kieffer, 1913 are described or redescribed, short generic diagnoses are given, and keys to the males presented. The following new species are described and figured as male imagines: *Allocladius globosus*, *A. quadrus*, *A. scrotus*, *Pseudosmittia adunca*, *P. amorimi*, *P. cambuciensis*, *P. carioca*, *P. catarinense*, *P. gibbistyla*, *P. invirgata*, *P. lamasi*, *P. lamellata*, *P. magdae*, *P. nana*, *P. palpina*, *P. paulista*, *P. pinhoi*, *P. roquei*, *P. tropis*, *P. umbonata*, and *P. uncata*. *Allocladius bilobulatus* (Edwards) **comb. n.**, *A. fortispinatus* (Edwards) **comb. n.**, *A. neobilobulatus* (Paggi) **comb. n.**, *Pseudosmittia joaquimvenancioi* (Messias *et*

Oliveira), and *P. windwardensis* (Sæther) are redescribed as male imagines. Diagnoses of *Pseudosmittia brachydicerca* (Edwards), *P. digitata* Sæther, and *P. forcipata* (Goetghebuer) are given. The female of *A. bilobulatus*, the pupa of *A. neobilobulatus*, a pupa from Chile possibly belonging to *A. bilobulatus*, a pupa of the *Pseudosmittia forcipata* group from Brazil, and an unplaced larva from the Falkland Islands are also described.

**Key words:** Chironomidae, Orthoclaadiinae, *Allocladius*, *Pseudosmittia*, new species, new combinations, keys, Neotropical

## 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. Our investigations in the tropics indicate that these groups may be dominating in some tropical areas. Most of the semiaquatic species of midges are to be found within the subfamily Orthoclaadiinae where one of the larger genera remaining to be revised is the genus *Pseudosmittia* Edwards. However, Ferrington and Sæther (in manuscript) show that the genus should be divided into three genera. The genera are particularly interesting since they contain species that range from purely limnic species to species that are terrestrial, semiaquatic and even intertidal marine as larvae and pupae. Two of the genera occur in the Neotropical region, *Pseudosmittia* Edwards with the type species *Spaniotoma (Smittia) angusta* Edwards and *Allocladius* Kieffer with the type species *Allocladius niger* Kieffer, and are worldwide in distribution. The third, as yet unnamed genus, primarily is Holarctic and Afrotropical.

In this paper we are treating the 29 known Neotropical species, 21 of which are new to science. In addition two pupal and one larval morphotypes are described. Ferrington and Sæther (in manuscript) will be dealing with the phylogeny of the genus as a whole. Preliminary results indicate that the apparent many transitions from a limnic to a terrestrial or marine way of life all are steps of the same trend, from limnic to disposed for marine / terrestrial life to terrestrial or marine.

## Material and methods

Morphological nomenclature follows Sæther (1980) with the modifications and additions given in Sæther (1989, 1990). The measurements are given as ranges followed by a mean when four or more measurements are made, followed by the number measured in parentheses (n).

Several species have an extra vein in that the postcubitus has preapical furcation. A ratio  $VR_2$ , which is the distance from arculus to the postcubital fork divided by the length of M, is given. On the wing there often is a false vein continuing from the lower margin of  $R_{4+5}$  or of the costal extension slightly below the wing margin and sometimes reaching to the wing apex (e.g. Freeman 1956 fig. 13h). This false vein often has been mistaken for the costal extension.

The abbreviations for the collections where the material are kept are listed below:

BMNH: The Natural History Museum [British museum (Natural History)], London, England.

CU: Cornell University, Division of Biological Sciences, Ithaca, New York, USA.

ILLP: Instituto de Limnología de La Plata, La Plata, Argentina.

IOC: Instituto Oswaldo Cruz, Rio de Janeiro, Brazil.

IRSN: Institute Royal de Sciences Naturelles de Belgique, Bruxelles, Belgium.

MZUSP: Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.