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of Latin America**

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An interpretation of the morphological variation in the *Simulium amazonicum* species group (Diptera: Simuliidae) of Latin America

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Abstract

A morphological framework for species within the medically important *Simulium amazonicum* group within the subgenus *Psaroniocompsa* Enderlein is provided as a basis for cytological and molecular studies. The diagnostic characters for pupae and adults of the group are provided and the male genitalia are regarded as the major defining feature for the group. Short descriptions of the pupae and adults of each species are given together with digital images of salient characters, largely from type specimens. Variation in pupal characters and adult scutal pattern are comprehensively covered. The taxonomic changes in the *amazonicum* group from that given in the latest world inventory of Crosskey and Howard (2004) are as follows: *S. argentiscutum* Shelley & Luna Dias, *S.*

cuneatum (Enderlein), and *S. quadristrigatum* Enderlein are transferred from “unplaced to group” to the *amazonicum* group; *S. minusculum* Lutz is removed from the *amazonicum* group to “unplaced to group”; two new forms (R. Mari and R. Ituxi) are described within *S. amazonicum s.l.*; the Argentina, and Manabi forms [previously within *S. oyapockense s.l.*] are placed together with *S. roraimense s.s.* as *S. roraimense s.l.* The *amazonicum* group now contains 10 species. Within the closely related *siolii* group, *S. lourencoi* Py-Daniel becomes a junior synonym of *S. siolii* Py-Daniel. The elevation of the *siolii* group to the new genus *Shelleyellum* Py-Daniel & Pessoa is not accepted because of insufficient characters to warrant generic status. *Shelleyellum*, with its type species *S. siolii*, is synonymised with *Simulium s.l.* Latreille.

Key words: Simuliidae, Neotropical Region, morphotaxonomy, new synonyms, *Psaroniocompsa*, *Shelleyellum*, *amazonicum* group, *siolii* group, human onchocerciasis and mansonelliasis vectors

Introduction

In 1905, Goeldi superficially described *Simulium amazonicum* from human-biting females collected in the Brazilian Amazon. Work on the distribution and epidemiology of human mansonelliasis in this region in the 1950s (see Shelley & Coscarón 2001 for review and literature source) and more recently of human onchocerciasis in the 1970s (see Shelley 2002 for review) provoked several further studies on simuliid taxonomy in the region because of difficulties in making accurate identifications of newly incriminated vector species. Initially, *S. amazonicum* was incriminated as a vector of the parasites responsible for these two diseases until it was discovered that several species were masquerading under this name. During this time, it became clear that because of the similarity of females in some human-biting species, accurate species determination was only possible when morphological characters in more than one life stage were used. Several species of the *amazonicum* group are now known to be vectors. Given the importance of accurate identification in vector studies on onchocerciasis, the World Health Organization convened three meetings of simuliid taxonomists (reported in World Health Organization 1979, 1982) to discuss the taxonomy of the Amazonian Simuliidae, with special reference to the human filariae *Mansonella ozzardi* (Manson) and *Onchocerca volvulus* Leuckart.

As a starting point to a revision of *S. amazonicum* and its relatives, a modern description of adults, pupae, and larvae of *S. amazonicum* based on a neotype was provided by Shelley *et al.* (1982). In this paper, six other similar species were compared with *S. amazonicum* and listed as members of the *amazonicum* group within the subgenus *Psaroniocompsa*. Various papers on *S. amazonicum* and its relatives were produced at this stage (e.g. Tidwell *et al.* 1981b), culminating in two comprehensive taxonomic treatments. The first, by Py-Daniel (1983), divided the species of the *amazonicum* group of the subgenus *Psaroniocompsa* with a few additions into two new subgenera, *Cerqueirellum* and *Coscaroniellum* [Later Py-Daniel and Moreira Sampaio (1995) elevated these two subgenera to genera together with subgeneric names of all other Brazilian species]. This