



<http://dx.doi.org/10.11646/zootaxa.3641.2.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:5FAD6A33-0893-434D-B4CB-A3FA89AAE82B>

A detailed description of *Simulium (Meilloniellum) adersi* (Pomeroy) from Mayotte, Comoro islands, with comments on bionomics and biogeography (Diptera: Simuliidae)

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Abstract

All stages of *Simulium (Meilloniellum) adersi* (Pomeroy) from Mayotte, Comoro archipelago are described in detail. This species is widespread on the African mainland and in Madagascar; morphological divergences from African material point towards the Mayotte entity being a separate, but closely related species. Biology of the species overall is reviewed and brief comments are made regarding habitats and biogeography of the Mayotte material.

Key words: Comoro archipelago, Mayotte, Simuliidae, *Simulium*, *Meilloniellum*, *adersi*, black flies

Introduction

Located in the northern Mozambique Channel, 300 km off the north-western tip of Madagascar, the Comoros are a linear array of islands (Fig. 1). Politically, Grand Comore, Mohéli and Anjouan islands form the Union of the Comoro, with Mayotte an independent protectorate of France.

Of relative recent geological age, flora and fauna of the archipelago is generally considered to have resulted from dispersal out of the African mainland and Madagascar (*e.g.*, Vences *et al.* 2003, Johanson and Mary 2009, and others).

Simuliidae are known for the archipelago and Crosskey (2012) published detailed notes with emphasis on Anjouan. Simuliids do not occur on Grande Comore—there is no permanent running water. Anjouan was well collected by Prof. Dr. Ferdinand Starmühlner (Zoologisches Institute der Universität Wien) (1976, 1979) during an Austrian expedition in 1974. That material, now in the Natural History Museum, London, comprises, *Simulium adersi*, *S. ruficorne*, *S. dentulosum* group sp. (sp. new) and an unidentifiable species of the *S. ruficorne* group. Crosskey (*loc. cit.*) noted that the Madagascan subgenus *Xenosimulium* was not collected by Starmühlner. This is of interest since Grenier and Grjebine (1959) found larvae on Mohéli that might have been of *S. (X.) imerinae*. The record by Crosskey and Howard (1997) for *S. imerinae* on Mayotte is in error and refers to Mohéli.

The taxonomic history of *S. adersi* is not particularly complex, but there are considerable disagreements in descriptions between the various accounts—themselves widespread and often disparate in the literature. For that reason, where relevant, we give page and figure numbers for the citations. That disparity between descriptions is a major reason for this complete description of all stages of the Mayotte *S. adersi*.

Freeman and de Meillon (1953) provided a detailed synonymy for *S. adersi* up until 1950. There was an earlier one by Bequaert (1939). We, therefore, comment only on some main items. *Simulium adersi* was originally described by Pomeroy (1922) as a variety of *Simulium hirsutum*, differing mainly in the branching of pupal filaments (his fig. 6). Otherwise, given material available at the time, the two entities were essentially identical. Edwards, though, (in de Meillon 1930) commented that the pupa of *S. hirsutum* var. *adersi* was sufficiently different from *S. hirsutum* that it probably represented a distinct species. Gibbins (1934) had material of sufficient quality that he formally raised *S. adersi* to species status. That work is noteworthy for the fine description and illustrations. An oddity is that Gibbins and Loewenthal (1933), in a paper that was published essentially