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Simuliidae (Diptera) of the Solomon Islands: new records and species, ecology, and biogeography

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Abstract

Five species of Simuliidae are reported for the first time from the Solomon Islands of Santa Isabel, Malaita, and Makira, and Kolumbangara and Rendova of the New Georgia Island group. One new

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species, *Simulium* (*Gomphostilbia*) *rhopaloides* Craig, Englund & Takaoka, from Guadalcanal is described. The new material consists mainly of immature larvae, which, while allowing assignment to subgenus, do not always allow identification to species. The probability of other new species is suggested. The record for Makira is the most easterly known for the subgenus *Morops*, as are those for *Gomphostilbia* from Guadalcanal and Malaita. Larval habitats on the islands are illustrated. A brief synopsis of the paleogeology of the Solomon Islands is given as a basis for preliminary comments on distribution and biogeography of the known species of Simuliidae, now 10, for the Solomon Islands.

Key words: Simuliidae, *Morops*, *Gomphostilbia*, ecology, paleogeology, biogeography, Solomon Islands

Introduction

Of major strategic importance during the Second World War, the Solomon Islands comprise the third largest archipelago in the South Pacific. Scattered in a double chain of islands, the archipelago is a mixture of mountainous islands and low-lying coral atolls that stretches between E155.5° and E170.5°, some 1,667 km, in a southeasterly direction from the Shortland Islands to the Santa Cruz Islands (Fig. 1, Table 1) and farther to three remote, tiny outliers, Tikopia, Anuta, and Fataka. From North to South, between the Ontong Java Atoll at latitude S5.2° and the Indispensable Reefs at S12.7°, south of Rennel Island, is ca. 900 km. There are six major and approximately 990 smaller land masses, covering an area of about 28,446 sq km. The biggest islands are, from the west, Choiseul, New Georgia, Santa Isabel, Guadalcanal, Malaita, and Makira (San Cristobal). These larger islands are characterized by thickly forested mountain ranges intersected by deep, narrow valleys.

Bougainville, while politically part of Papua New Guinea, is geologically part of the western Solomon Islands. Similarly, the Santa Cruz Islands, while politically of the Solomon Islands, are geologically part of Vanuatu and are the northern extent of the New Hebrides Arc system.

The presence of simuliids on the Solomon Islands was first noted by Maffi and Sherwood (1970) and that material was described by Stone & Maffi (1971) as *Simulium* (?*Gomphostilbia*) *sherwoodi*; an unknown species near *S. avilae* Smart & Clifford 1965, of New Guinea also was recorded. Crosskey (1989) assigned *S. sherwoodi* to *Morops*. Further material was described as *S.* (*G.*) *hiroshii* by Takaoka (1994) and *S.* (*M.*) *kerei* by Takaoka & Suzuki (1994). A taxonomic revision of simuliids from the Solomon Islands by Takaoka & Suzuki (1995) included five new species: *S.* (*M.*) *kawagishii*, *S.* (*M.*) *noroense*, *S.* (*M.*) *pohaense*, *S.* (*M.*) *selwynense*, and *S.* (*M.*) *solomonense*. Along with *S.* (*M.*) *papuense* Wharton 1948, known also from New Guinea, nine species were recognized and the *Morops* species segregated to groups, mainly the *clathrinum* species group, which possesses a distinctive so-called ‘pit organ’ near the base of the pupal gill. Takaoka & Suzuki (1995) note that the unidentified species, which Stone & Maffi (1971) placed near

