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Chironomidae from Gough, Nightingale and Tristan da Cunha islands

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Abstract

The resurrection of trans-oceanic dispersal is the most striking aspect of a major shift in historical biogeography toward a more even balance between vicariance and dispersal explanations. Molecular dating of lineage divergences favors oceanic dispersal over tectonic vicariance as an explanation for disjunct distributions in a wide variety of taxa. Although many oceanic islands harbor a disproportionately high biodiversity and number of endemic taxa, the chironomid fauna of the South Atlantic islands of Gough, Nightingale and Tristan da Cunha apparently consists of 6 species only: *Telmatogeton goughi* **sp. n**. (described as male and female), *Limnophyes minimus* (Meigen), *Smittia* sp. (described as female), *Thalassosmittia christinae* **sp. n.** (described as female), *Clunio jonesi* **sp. n.** (described as male) and *Allocladius lusciniolus* Sæther *et* Andersen (described as female). Except for the marine *T. goughi* and *C. jonesi* the other species are parthenogenetic. *Limnophyes minimus* and *A. lusciniolus* dominate the chironomid fauna. *Telmatogeton goughi* is close to *T. sanctipauli* (Schiner). *Thalassosmittia christinae* differs from *T. thalassophila* (Bequaert *et* Goetghebuer) by having hairy eyes and antenna with subapical seta. *Clunio jonesi* differs from *C. africanus* and *C. gerlachi* by having ultimate flagellomere as long as the 4 preceding segments and gonostylus with only 1–2 apical spines. *Allocladius lusciniolus* differs from other known females of the genus by having 1–5 setae apically on M_{1+2}.

Key words: Diptera, Chironomidae, new species, Gough Island, Nightingale Island, Tristan da Cunha

Introduction

Geographical distribution of terrestrial or freshwater taxa that are broken up by oceans can be explained by either trans-oceanic dispersal or vicariance in the form of fragmentation of a previously contiguous landmass. Vicariance biogeography emerged several decades ago from the fusion of cladistics and plate tectonics and quickly came to dominate historical biogeography. Dispersal being a random process was argued to add only noise to a vicariance system. A consequence of this has been a focus on the biogeography of continents and continental islands, considering the biogeography of oceanic islands less worthy of scientific attention because, being dependent on stochastic dispersal, it was uninteresting. However, molecular dating of lineage divergences favors oceanic dispersal over tectonic vicariance as an explanation for disjunct distributions in a wide variety of taxa. The resurrection of oceanic dispersal is the most striking aspect of a major shift in historical biogeography toward a more even balance between vicariance and dispersal explanations, and a vindication of the phylogenetic biogeography of Brundin (1981) emphasizing Hennig's Progression Rule (de Queiroz 2005). This new view implies that biotas are more dynamic and have more recent origins than had been thought previously (de Queiroz 2005). Amorim *et al.* (2009) also show that different elements with circumantarctic distributions presently occupying the same area do not necessarily belong to the same time period. Their model of "allochronic taxa" allows accommodation of conflicting sources of evidence now available for many groups with circumantarctic distributions.

In chironomids a northern Gondwanian (or Inabrezian) distribution appears to be common (Sæther 2000). This can be divided in an Afrotropical-South American pattern often extending into the Caribbean and/or Central America and further to North America, and an Afrotropical-South Asia pattern often extending to East Asia and/or Australia and may be connected with a Beringian track. However, in many aquatic groups the vicariance pattern

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