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Tardigrade fauna of the South Sandwich Islands, maritime Antarctic

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Abstract

The maritime Antarctic South Sandwich Islands are an isolated oceanic archipelago of volcanic origin lying between 56º18'S, 27º34'W and 59º27'S, 27º22'W. All the islands are of recent origin (maximum ages 0.5–3 million years) with many still exhibiting some form of volcanic activity. The islands are part of the Scotia Arc, lying on a crustal upwarp extending from South Georgia through the South Sandwich Islands to the South Shetland Islands that connects the Andean chain of South America to the Antarctic Peninsula. As part of an extensive biological survey completed during early 1997, samples were collected from 10 of the 11 major islands in the archipelago from which the tardigrade fauna has subsequently been extracted. We report the composition of this fauna, and discuss its biogeographical relationships. Tardigrade species richness was low (6 taxa), in keeping with the recent formation and isolation of these islands. However, as reported previously for the terrestrial arthropod fauna and bryophyte flora, there is indication of both sub- and maritime Antarctic origin.

Key words: Biogeography, dispersal, geothermal activity, Tardigrada

Introduction

The South Sandwich Islands are a group of small isolated oceanic islands in the South Atlantic sector of the Southern Ocean. The archipelago comprises 11 major islands, with numerous offshore islets and stacks, lying between 56º 18'S, 27º 34'W and 59º 27'S, 27º 22'W (Figure 1). The chain is volcanic in origin and all the islands are geologically recent, ranging in age from c. 0.5 to 3 million years. With the exception of Vindication Island, all continue to show geothermal activity, ranging from warmed ground and pools, through fumaroles of varying activity, to eruptions and lava flows. To the north-west, a submerged active cone suggests that the archipelago may not have reached it full extent (Holdgate 1963; Baker *et al*. 1964). Although lying relatively far north of the Antarctic continent,

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