Introduction

The intent of this paper is to facilitate future research of the Solomon Island ant fauna and that of the larger Pacific Island region by providing the first comprehensively researched species list in over 75 years (Mann 1919; Wheeler 1935b). Reliable species lists are the foundation for biodiversity and biogeography research. This is especially true for archipelago systems such as the Solomons which serve as natural laboratories for studying the interface of geography, evolution and ecology (Diamond 1975; Diamond and Mayr 1976; Greenslade 1968; MacArthur and Wilson 1967; Mayr and Diamond 2001; Wilson 1959a; 1961). Accurate faunal lists at the archipelago level allow us to analyze biogeographic patterns at the regional scale, and faunal lists at the individual island level allow us to analyze more local scale patterns. These studies are crucial for the development of precise conservation plans that incorporate the distribution of endemic and rare taxa.

Faunal lists are also necessary for recognizing biodiversity blind spots and identifying which regions and islands are most in need of additional sampling. Increasing environmental threats such as deforestation, mining, agriculture and the spread of invasive species give urgency to surveying these poorly sampled regions. In order to assess how these threats affect native biodiversity, it is important to establish baseline inventories before local populations and endemic species are driven extinct.

Geography, geology and climate

The Solomon Islands is a nation in the Southwest Pacific that is composed of seven large islands, a dozen mid-sized islands and over a thousand smaller islands (Figure 1). These islands, which comprise a total land area of 27,556 km^2, are situated between the latitudes 5° and 13°S, and longitudes 155° and 169°E. The major central islands include the Shortlands, Choiseul, the New Georgias, Santa Isabel, the Russells, Guadalcanal, the Nggelas (Floridas), Malaita, Makira (San Cristóbal), and Olu Malau (Three Sisters). Rennell and Bellona are southern outlying islands situated along the northern margin of the Coral Sea Basin. Northern outlying islands include Sikaiana and the Ontong Java Atoll, which are on the southwestern edge of the Ontong Java Plateau. The eastern outlying islands of the Santa Cruz group are politically part of the Solomon Islands, but are geologically linked to the islands of Vanuatu (Kroenke and Rodda 1984).

The Solomons consist of a double chain of islands separating the Pacific Plate to the north from the Australian Plate to the south (Hall 2002). The islands are believed to have been formed entirely of oceanic origin, and there is no evidence that they were ever attached to continental systems or incorporated any terrains of continental origin (Kroenke and Rodda 1984). They are, in this sense, Darwinian Islands (Gillespie and Roderick 2002). According to several geologic models (Hall 2002) the Solomon Arc formed approximately 40 Ma as part of the Melanesian Arc system. It is unclear, however, when the islands emerged above sea level.