



## A new species of extinct fossil scops owl (Aves: Strigiformes: Strigidae: *Otus*) from the Archipelago of Madeira (North Atlantic Ocean)

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### Abstract

The extinct Madeiran Scops Owl *Otus mauli* n. sp. is described from fossil bones found in Quaternary sites on Madeira Island (Madeira Archipelago, North Atlantic Ocean). It is the first extinct bird to be described from this archipelago and the first extinct species of Strigiformes known from anywhere in Macaronesia. The forelimb bones of the new taxon are similar in size to those of the Eurasian Scops Owl (*Otus scops* Linnaeus) but the hindlimb bones are longer, especially the tarsometatarsus, which is much longer and more slender than in *O. scops*. The estimated body weight and wing loading, together with the proportions of hindlimb bones (femur, tibiotarsus and tarsometatarsus) in relation to total length of leg bones (femur+tibiotarsus+tarsometatarsus), seem to indicate a ground-dwelling life-style. Human arrival and subsequent habitat alterations (introduction of alien taxa, burning, etc.) are the most probable causes of its extinction. The same species or a close relative is documented from dunes on the island of Porto Santo, but the quality of preservation of its bones precludes more certain identification.

**Key words:** Extinction, evolution of island biotas, Madeiran Scops Owl, *Otus mauli* n. sp., Macaronesia, Quaternary.

### Introduction

Existing vertebrate faunas of islands have usually been modified by two recent global events: (1) numerous extinctions and (2) introduction of alien taxa, both mainly caused by human arrival and subsequent alteration of insular ecosystems (Olson & James 1982a; Worthy & Holdaway 2002; Steadman 2006). Consequently, current autochthonous biotas are essentially human-influenced subsets of those originally present. Knowing the former diversity and species' distributions of pristine island faunas is critical for understanding the evolutionary history, biogeography, and conservation status of remaining species and ecosystems.

The oceanic Macaronesian archipelagos (Azores, Madeira, Selvagens, Canary Islands and Cape Verde) are located in the North Atlantic Ocean (15°N–39°N and 10°W–30°W), and between ~100 km (Canary Islands) and ~1350 km (Azores) from the Old World mainland (Fig. 1). The original Quaternary faunas of these islands have been poorly studied in the Azores, Madeira, Selvagens, and Cape Verde, whereas those from the Canary Islands are better known. The Canary Islands differ from other Macaronesian islands by: (i) the prehistoric presence of endemic non-flying land mammals (three extinct species of Rodentia and one of Soricomorpha), which are absent from the other archipelagos; and (ii) by their different history of human colonization. In the Canary Islands, two well differentiated waves of human arrival took place; the “aboriginal”, from north-west Africa, some time between 756 cal BC–313 cal AD (Alcover *et al.* 2009), and a second wave of colonization from Europe starting in the 14<sup>th</sup> century (Aznar *et al.* 2006). The other Macaronesian archipelagos were first populated from Portugal during the 15<sup>th</sup> century (Crosby 1988).