



## Biodiversity patterns of cavernicolous ground-beetles and their conservation status in the Azores, with the description of a new species: *Trechus isabelae* n. sp. (Coleoptera: Carabidae: Trechinae)

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### Abstract

Diversity patterns of cave and epigeal Trechinae (Coleoptera, Carabidae) from the Azores (Portugal) are reported based on recently standardized sampling protocols in different habitats of this geologically young and isolated volcanic archipelago. A total of 10 species are studied, including *Trechus isabelae* n. sp., collected in a volcanic pit on São Jorge, one of the nine islands of the Azores. This new *Trechus* species represents the eighth species of Trechinae described from the underground environment of the Azores. An identification key for the Azorean species of *Trechus* is provided along with additional information per species on their distribution and conservation status in the archipelago. Possible reasons for the different degrees of adaptation to the conditions of the underground environment exhibited by Trechinae are also discussed.

**Key words:** Cave beetles, *Trechus*, *Thalassophilus*, taxonomy, ecology, conservation, Azores

### Introduction

The Azores, an archipelago comprising nine islands in the North Atlantic, are rich in lava tubes and volcanic pits that are inhabited by an interesting troglobitic fauna (see Borges & Oromí 1991; 1994; in press; Pereira *et al.* in press). The recent age of most of these islands (Borges & Brown 1999) may explain the very few cases of polytypic genera among the Azorean endemic insects, one being the genus *Trechus* which displays one of the most interesting cases of diversification in this archipelago (see also Borges *et al.* 2005a; Amorim 2005). During the past two decades, intense biospeleological, entomological and ecological studies have been carried out in the Azores (see Borges *et al.* 2004; 2005b; 2005c; 2006; Borges & Oromí in press; Amorim 2005), resulting in a total of nine new species of Trechinae: *Thalassophilus azoricus* Oromí & Borges, 1991 from São Miguel; *Trechus terceiranus* Machado, 1988 and *Trechus terrabravensis* Borges, Serrano & Amorim, 2004 from Terceira; *Trechus jorgensis* Oromí & Borges, 1991 and *Trechus isabelae* n. sp. from São Jorge; *Trechus picoensis* Machado, 1988, *Trechus montanheirorum* Oromí & Borges, 1991 and *Trechus pereirai* Borges, Ser-