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## Subterranean species of *Acipes* Attems, 1937 (Diplopoda, Julida, Blaniulidae)

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### Abstract

Two new blind, cave-dwelling species of the genus *Acipes* Attems, 1937, are described from the Algarve, southern Portugal: *A. machadoi* n. sp. and *A. bifilum* n. sp. *Acipes andalusius* Enghoff & Mauriès, 1999, is reported from the mesovoid shallow substratum in Alicante (Spain), 250 km from the type locality in Andalusia.

**Key words:** Taxonomy, Iberian Peninsula, Algarve, caves, MSS

### Introduction

Up to now, nine species have been described in the genus *Acipes* Attems, 1937 (Enghoff 1983, 1986; Enghoff & Mauriès 1999). Six of these are endemic on the island of Madeira and its satellite islands, one is endemic in the Canary Islands, and two are endemic in continental Spain. One of the latter, *A. andalusius* Enghoff & Mauriès, 1999, is a blind cave-dweller, whereas the eight others are surface dwellers, mostly associated with forests and all having eyes.

Research on subterranean biodiversity of karst areas in Portugal did not match the development in neighboring Spain in the last century (Sendra *et al.* 2011), although it has been increasing remarkably in recent years, due to the combined efforts of several specialists in different taxonomic groups (Reboleira *et al.* 2011, Reboleira, 2012). Millipedes of caves in mainland Portugal have not been subjects of study for almost seventy years (Machado, 1946; Reboleira *et al.* 2013), but recent collecting in Portuguese caves has yielded several species of millipedes, including two new species of *Acipes* found in caves in the Algarve. We here describe and discuss the two new species. We also put on record a second locality for *A. andalusius* located 250 km from the type locality. One of the new species shows a configuration of the first pair of male legs that tentatively suggests periodomorphosis.

### Material and methods

Specimens were collected in two caves and in the mesovoid shallow stratum (MSS *sensu* Juberthie *et al.* 1980) located in the southern Iberian Peninsula, provinces of Algarve in Portugal and Alicante in Spain (Fig. 1).

Sampling in caves was performed by active search in thermally isolated parts of the studied caves and in MSS with the use of pitfall traps, following the general method of López & Oromí (2010). Specimens were examined under a binocular microscope. Gonopods etc. were mounted on temporary slides in glycerine and photographed with a Leica digital camera M205A mounted on a stereomicroscope Leica DFC 420. Images were processed with a Leica Application Suite program and final stacking made with Helicon Focus 4.60.2 Pro software. Type material is deposited in the Zoological Museum of University of Copenhagen (ZMUC) and in the Department of Animal Biology, University of La Laguna, Spain (DZUL).