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Three new species of Collembola from soils of Mediterranean cork-oak forests of Sicily (Italy)

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Abstract

Three new species of soil Collembola from cork-oak (*Quercus suber*) forests located in eastern Sicily (Italy) are described: *Neonaphorura alicatai* **sp. nov.**, *Friesea guarinoi* **sp. nov.** and *Arrhopalites antonioi* **sp. nov.**.

Key words: Tullbergiidae, *Neonaphorura*, Neanuridae (Frieseinae), *Friesea*, Arrhopalitidae, *Arrhopalites*, soil fauna, taxonomy

Introduction

The present study is part of a larger ecological study conducted in 2010, whose objective is to provide an organic knowledge on soil Collembola communities in Mediterranean habitats of Sicily.

The checklist of the Italian fauna (Dallai *et al.* 1995) lists 419 species of springtails, 108 of which are known for Sicily. The poverty of this number is evident when one considers that in Europe are known approx 2500 species (Hopkin 1997). This study was dictated, therefore, by the need to strengthen taxonomic and ecological studies in Sicily; a great variety of habitats and geographical areas of this Island remain unexplored from the point of view of collembolan fauna.

One of the habitats chosen for this study was the cork-oak forest (9330: *Quercus suber* forests): a typical Mediterranean habitat distributed in the western parts of the Mediterranean basin. In Sicily there are two sites that show a significant extension of this habitat: the cork-oak forests in the Iblei Mountains and those on the northern slope of Nebrodi Mountains.

The sampling of this habitat at two localities (Caronia and Santo Pietro) led to the discovery of three new species described in the present article. One species (*Arrhopalites antonioi* **sp. nov.**) had been found only in Santo Pietro, with 11 individuals. Two species (*Neonaphorura alicatai* **sp. nov.**, *Friesea guarinoi* **sp. nov.**) were found in Caronia with a low number of individuals. For this reason, a second sampling was carried out in the latter place, in which were found several individuals belonging to such species.

Material and methods

Sites description. Santo Pietro is located in central-eastern Sicily in the Municipality of Caltagirone (Catania), within the SAC ITA070005 'Bosco di Santo Pietro'. The altitude ranges from 230 to 250 m asl.

From the pedological point of view (Fierotti 1997), the location is characterized by Mollic Haploxeralf. These soils, with profile A-B_t-C, medium-depth or deep, evolve mainly on moderate morphology and slope and in woods. With the progress of depth, the texture changes from clay to clay loam, the structure from lumpy to polyhedral sub-