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A new species of *Troglocharinus* Reitter, 1908 (Coleoptera, Leiodidae, Cholevinae, Leptodirini) from southern Catalonia, with a molecular phylogeny of the related species group

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Abstract

In this paper we describe *T. pallisei* **sp. n.**, a new representative of the genus *Troglocharinus* Reitter, 1908 (Coleoptera, Leiodidae, Leptodirini), a strictly subterranean genus restricted to the Eastern Pyrenees and some coastal areas in Catalonia. All known specimens of *T. pallisei* **sp. n.** were collected in a cave next to the town of La Riba, in the province of Tarragona (Spain), situated between the distribution areas of the species of the *T. orcinus* complex and *T. espanoli* Jeannel, 1930. It can be separated from the other members of the *T. orcinus* complex by the presence of penicillus in the apex of the parameres of the aedeagus and from *T. espanoli* by the presence of a mesoventral keel; it also differs from both by its long and erect pubescence. A Bayesian molecular phylogeny including representatives of the main lineages within the genus *Troglocharinus*, based on ca. 5211 Kb of 5 mitochondrial and 4 nuclear genes, placed *T. pallisei* **sp. n.** as sister to *T. orcinus* Jeannel, 1910, and both sister to *T. espanoli,* in perfect agreement with their geographic distributions and the inferred geographic expansion of the genus to the south, with an estimated divergence of ca. 1.3 Ma. In agreement with the results of a previous phylogenetic study, the subgenus *Antrocharidius* Jeannel, 1910 is synonymised with *Troglocharinus* (syn.n.).

Key words: Coleoptera, Leiodidae, Leptodirini, taxonomy, phylogeny, new species, new synonymy, hypogean fauna, Catalonia, Spain

Introduction

The genus *Troglocharinus* Reitter, 1908 (Coleoptera, Leiodidae, Cholevinae, Leptodirini) includes 18 species and 19 subspecies (Salgado *et al*. 2008). The current concept of the genus was only recently established by Fresneda (1998) based on the structure of the male aedeagus, and includes species previously considered to belong to different genera (*Troglocharinus*, *Speophilus* Jeannel, 1911, *Antrocharidius* Jeannel, 1910 and *Speonomus* Jeannel, 1908); they are all considered to be highly adapted to the subterranean environment (i.e. anophtalmous, depigmented, long antennae, modified life cycle), living exclusively in the deepest part of caves with total darkness and very constant temperature and humidity (Salgado *et al.* 2008). The genus as currently understood is distributed in two disjunct areas: some mountain systems south of the central area of the Pyrenees, and the coastal karstic formations between Tarragona and Barcelona (Salgado *et al.* 2008; Rizzo *et al*. 2013).

In a recent molecular phylogeny (Rizzo *et al*. 2013) the age of the stem lineage of *Troglocharinus* was estimated at ca. 10 Ma, while the last common ancestor of the Pyrenean and coastal clades was estimated to have occurred ca. 4 Ma, at the beginning of the Pliocene. The ancestor of the extant coastal *Troglocharinus* expanded its range from the central Pyrenees to the coastal area of Catalonia in the Early Pliocene, while the three main recognised clades within the coastal lineage diversified at the end of the Pliocene or the beginning of the Pleistocene (Rizzo *et al*. 2013).

During an exploration in the southern distribution area of the coastal clade in summer 2013 a new species was discovered, and the study of the collections of the Museu de Ciències Naturals de Barcelona (MCNB) revealed

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