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A new cave-dwelling *Trechus* Clairville, 1806 from the north of the Iberian Peninsula (Coleoptera: Carabidae: Trechinae)

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Abstract

A new species of ground beetle, *Trechus comasi* sp. nov., is described from a cave in the Sierra de Lokiz, Navarra, in the north of the Iberian Peninsula. The species seems to be the sister of *T. brucki* Fairmaire, 1862, from which can be separated mainly by its smaller size, slender appendages, and characteristics of the male genitalia. Notes on the ecology and distribution of the species are given.

Key words: Taxonomy, cave-dwelling, Iberian Peninsula, *Trechus*, Carabidae, new species.

Resumen

Un nuevo* Trechus *Clairville, 1806 cavernícola del norte de la Península Ibérica (Coleoptera: Carabidae: Trechinae)

Se describe un nuevo carábido cavernícola, *Trechus comasi* sp. nov., de una cueva situada en la Sierra de Lokiz, Navarra, en el norte de la Península Ibérica. La nueva especie es próxima a *T. brucki* Fairmaire, 1862, del que se diferencia con facilidad, por el tamaño algo más pequeño, los apéndices más largos y la estructura de la genitalia. Se aportan datos sobre la ecología y la distribución de la especie.

Palabras clave: Taxonomía, cavernícola, Península Ibérica, *Trechus*, Carabidae, nueva especie.

Laburpena

Iberiar Penintsularen iparraldeko* Trechus *Clairville, 1806 haitzulotar berri bat (Coleoptera: Carabidae: Trechinae)

Trechus comasi sp. nov. karabido haitzulotar berria deskribatzen da, Lokiz Mendikatean (Nafarroa), Iberiar Penintsularen iparraldean. *T. brucki* Fairmaire, 1862 espezietik gertu badago ere, erraz bereiz daitezke biak, espezie berriaren tamaina pixka bat txikiagoa, apendize pixka bat luzeagoak eta genitaliaren egitura kontuan harturik. Espeziearen ekologia eta banaketari buruzko datuak ere aurkezten dira.

Gako-hitzak: Taxonomia, haitzulotarra, Iberiar Penintsula, *Trechus*, Carabidae, espezie berria.

Introduction

In the north of the Iberian Peninsula the genus *Trechus* has a high diversity, both in number of species and in the types of habitat it can inhabit, from alpine forests to the subterranean medium (caves and MSS, mesovoid shallow stratum) (Juberthie *et al.*, 1980). There are at least nine species of *Trechus* found in the subterranean medium, with different degrees of morphological modification: from anophthalmic or microphthalmic to species with well developed eyes and only slightly unpigmented. Independently of the extent of the morphological modifications, all species seem to be exclusive of the subterranean medium, with the only possible exception of some of them which show a disjoint distri-

bution (alpine and subterranean, the latter at lower altitudes or latitudes) (Hernando *et al.*, 1999).

The species here described can be interpreted as being a relatively recent coloniser of the subterranean medium, based on the extent of its morphological modifications (small, but not microphthalmic eyes) and their habitat (the areas of the cave closer to the entrance). It also seems a typical example of the disjoint distributions typified in Hernando *et al.* (1999).

Results and discussion

Trechus comasi sp. nov. (Figs. 1-2)

Type locality:

Cave Basaura, hall at 150 m from the entrance, sierra de Lokiz, in the canyon of the river Itxako, Barín-dano, UTM coordinates X572100/Y4734400/Z530, near Lizarra/Estella, Navarra/Nafarroa, Spain.

Type material:

Holotype (♂) (Museu de Zoología, Barcelona): «Cueva Basaura, sierra de Lokiz, Baríndano nr Lizarra-Estella, Navarra/Nafarroa, Spain, 04-1995, C. Hernando leg» and holotype label.

Paratypes (Museu de Zoología, Barcelona, and author's collection): four specimens, same data as holotype, with paratype labels. All males are dissected, with the aedeagus mounted on the card.

Description:

Habitus as in Fig. 1. Length = 4,3 mm, width = 1,6 mm. General colour reddish-testaceous, with exception of antennae, legs and palpi, which are yellow. Appendages long and slender. Head and pronotum finely reticulated.

Head with the eyes reduced, flat, not protruding from cranium. Two supra-orbital setae, the anterior inserted in a small depression. Frontal sulci well developed, deeper in the anterior half, complete. Labrum emarginated, with six setae in the anterior margin. Antennae long, surpassing pronotum from the 5th segment. Dorsal surface covered by a strong reticulation formed by polygonal isodiametric meshes. Pronotum cordiform, anterior angles round, posterior acute; lateral margins finely bordered; disk with a longitudinal sulcus; two lateral setae, anterior shortly before middle, posterior close to posterior angle. Elytra smooth and shiny, semitransparent; margins finely bordered; five series of poorly impressed punctures, 5th almost imperceptible in the disk; interstriae only slightly convex; two discal pores on 3rd stria, anterior at level of start of 4th stria, posterior on second half of elytron. Recurrent stria joining 5th stria. Apterous.

Aedeagus as in Fig. 2, long and slightly curved, apex forming a hook. Internal piece triangular, with acute apex. Parameres short and robust, with three apical setae.

Males with anterior tarsi slightly dilated.

Distribution:

So far known only from the type locality.

Ecology:

The cave Basaura has two main levels. The galleries in the lower level are generally flooded, and in rainy times the water level can reach above 15 m, inundating the upper level. The entrance to the cave is in the upper level, where the population of *Trechus comasi* sp. nov. is found, in a small hall 150 m from the entrance, sharing it with a numerous colony of bats. The floor of the cave does not have large accumulations of guano, due to the periodical floods in the rainy season. Twelve species of Collembola have been found in this area of the cave (Beruete, 2000), which are likely to be the main prey of *Trechus comasi* sp. nov. Other Coleoptera found in the same area are *Laemostenus (Pristonychus) terricola* (Herbst) (Carabidae) and several species of unidentified Aleocharinae (Staphylinidae). All of them are typical cave species associated to the presence of guano.

Etymology:

This new species is named after my good friend Jordi Comas, excellent biospeleologist and first collector of the species.

Remarks:

Trechus comasi sp. nov. has to be included in the *Trechus grenieri* Pandellé, 1867 species group (*sensu* Casale and Laneyrie, 1982). According to the morphology of the aedeagus it seems to be close to *Trechus brucki* Fairmaire, 1862, which has four subspecies distributed along the Hautes Pyrenees and Pyrenees Atlantiques (Bonadona, 1971). The two species can

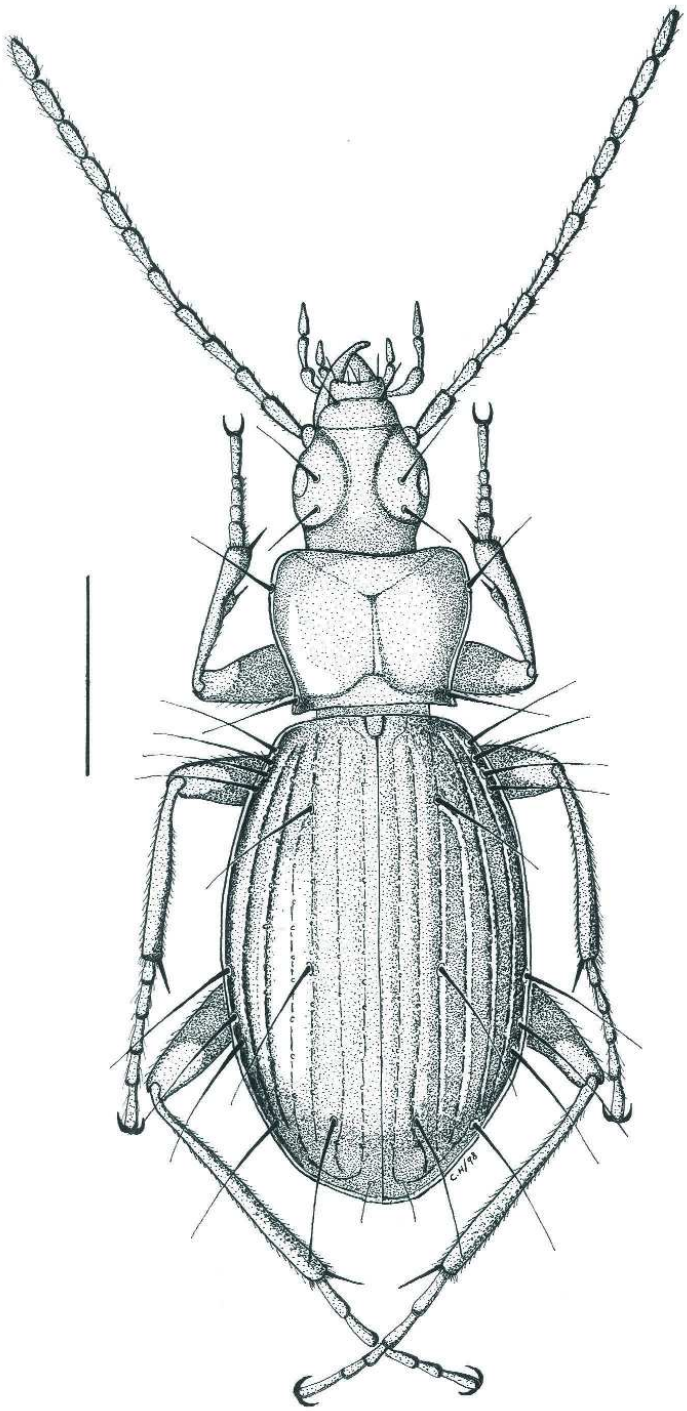

FIGURE 1. *Trechus comasi* sp. nov., habitus (Scale bar = 1 mm).

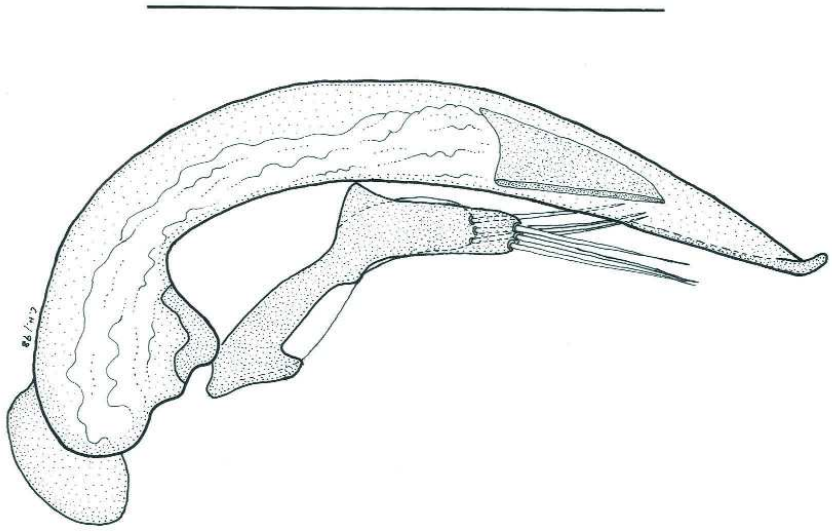

FIGURE 2. *Trechus comasi* sp. nov., aedeagus, lateral view (Scale bar = 0,5 mm).

be clearly separated by (1) the longer and slender antennae of *T. comasi* sp. nov.; (2) the poorly defined depressions on the base of the pronotum in *T. comasi* sp. nov., which also has posterior angles clearly marked; (3) the elytra oval and convex (depressed, oblong and slightly acuminate at the apex in *T. bruckí*); and (4) the longer setae of *T. comasi* sp. nov., with the second pore behind the middle of the elytra (in the middle in *T. bruckí*). The aedeagus of the two species is also clearly different: in *T. comasi* sp. nov. the median lobe is slightly curved (straight in *T. bruckí*) and the apex has a not strongly marked hook-shape, the parameres have three apical setae (four in *T. bruckí*) and are short and robust (longer and slender in *T. bruckí*) (see Jeannel, 1927, p. 229).

The close morphological relationship between these two species, despite the relatively large geographical distance, together with the differences in habitat, suggest a clear example of the disjoint distributions typified in Hernando *et al.* (1999) (see also: Hasselmann and Molenda, 1999; Hernando, 1999; Molenda, 2000). In the north, *Trechus bruckí* is found at high altitudes (between 2000 and 2400 m), associated with snowfields, while its likely vicariant species in the south is found inside caves at lower altitudes (530 m), in the Sierra de Lokiz. No intermediate populations are known at present.

The absence of strong morphological modifications in *T. comasi* sp. nov. suggests a recent colonisation of the subterranean environment. However, there is the possibility that the high abundance of prey in the cave allowed the maintenance of structures that, due to their high cost, are the first to disappear when resources are scarce (in such a case nothing could be said about the age of the species).

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