# Two New Cavernicolous Species of the Genus Trechus Clairv. from the Azores (Coleoptera, Carabidae)

By **António Machado**

*With 4 figures*

**SUMÁRIO.** Neste trabalho são descritas duas novas espécies para a Ciência, do gênero Trechus Clairv. *T. picoensis* n. sp. e *T. terceiranus* n. sp., coletadas nas fumarolas e grutas vulcânicas nos Açores.

An expedition of Dr. P. & Mrs. M. Ashmole (University of Edinburgh) and Dr. P. Oromi and J. L. Martín (University of La Laguna), sponsored by the National Geographic Society was undertaken in September 1987 to study the fauna of recent lava flows and caves in the Azores. Two new *Trechus* species were captured and I would like to express my gratitude to the collectors for sending them to me for description. Holotypes and paratypes are preserved in the University of La Laguna (Department of Animal Biology), other paratypes in the Museu Insular de Ciências Naturais (Santa Cruz de Tenerife), in the Museo de Zoología of Barcelona, in the British Museum (N.H.) and in my collection.

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Fig. 1. — Treclus (s.str.) plicornis n. sp. (Figs. 1, 2) 

T. plicornis n. sp. (Figs. 1, 2) 

Type locality: Island of Pico, Azores. 


Fig. 2. — Treclus plicornis n. sp. 

Type locality: Island of Pico, Azores. 

Description: Large size, length 4.5 - 5.4 mm, width 1.8 - 2.1 mm. Abdomen convex and broader than fore-body (= incipient physogastria). Rather depigmented, colour reddish-testaceous, appendages yellowish. Teguments subtiditous, reticulation in head and pronotum isodiometric, transverse and feeble in the elytra. Wingless.

Head small and narrow, narrower than prothorax. Eyes small, almost flat, same length as temples; the latter slightly curved and convergent, with microchaetae; frons convex, frontal furrows deep, curved; anterior margin of labrum concave; mandibles strong, elongate and sharp-pointed, with a tri-tuberculate retinaculum (two visible big teeth), fig. 2C; palpi slender and long; mentum bifid. Antennae very long (2.0 - 3.1 mm) and slender; the 3rd antennomere clearly longer than the 2nd (1.4 ×).

Pronotum slightly convex and transverse, about 1.16 × as broad as long; side-margins curved in front markedly narrowed backwards in slightly curved lines up to sharp and conspicuous protruding corners; basal margin moderately emarginate and sinuate. Lateral fovea developed but

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Fig. 2.—Penis of Trechus picoensis n. sp. A. — Penis in lateral view. B. — Idem in dorsal view. C. — Mandibles. D. — Lingua. E. — Mentum.
not very deep, micro-granulated; lateral furrows broad and somewhat reflexed. Median impression fine.

Elytra ovate with completely rounded shoulders, almost twice as wide as prothorax (1.9 x) and 1.4 x as long as broad; markedly convex (in some ♀♂, subglobose and with depressed anal field in discus). Elytral apex rounded. Lateral furrows moderately canaliculate; striae conspicuous, indistinctly punctured, the external ones more superficial; interstriae more or less convex. Recurrent stria short, connected to the 5th. Elytral setae as in Trechus s. str.; hind puncture of stria 3 situated slightly before middle; preapical puncture closer to the suture than to the apex.

Legs long and slender, thin femurs, setae yellowish and feeble; protibiae not carinated, with pilosity on its inner face; protarsal segments 1 and 2 clearly enlarged and spiny in ♂♂, segment 4 with well developed lamellate ventral appendage.

Penis as in fig. 2; apex of lamella slightly blunt.

Treichus (s. str.) terceiranus n. sp. (Figs. 3, 4)

Type locality: Island of Terceira, Azores.


Description: Medium size, length 3.6 - 4.3 mm, width 1.5 - 1.7 mm; subconvex, oblongus. Colour reddish-testaceous, depigmented, elytra and antennae in some specimens more or less infuscated; appendages yellowish. Tagmata nitidus, with isodiametric reticulation on head and pronotum, transverse and more superficial on elytra. Wingless.

Head normal, ovate, frontal furrows deep and curved; eyes small, subconvex, as long as temples, latter curved, with microchaetae. Mandibles as in previous species, long and sharp. Antennae (2.1 - 2.2 mm) normal, reaching the first third of elytra; 2nd antennomere almost as long as 3rd.

Pronotum subconvex, transverse, 1.22 x as broad as long; sidemargins little curved and convergent backwards, with no prebasal sinuation; hind angles obtuse with very small protruding corners. Base moderately emarginate, lateral fovea weakly developed, with microrugosity; marginal furrow narrowly canaliculate. Median impression fine.

Elytra oblong, subconvex, with moderately rounded shoulders; 1.5 x longer than wide and 1.49 x broader than prothorax. Apical angle sharp, apex of elytra forming a small protruding point; lateral furrow moderately canaliculate. Striae rather conspicuous all over, indistinctly punctured; interstriae more or less convex. Elytral setae as in previous species.

Legs slender, of normal length; setae yellowish and feeble; protibiae not carinated, with pilosity on its anterior face; protarsal segments 1 and 2 clearly enlarged and spiny in ♂♂, segment 4 with well developed lamellate ventral appendage.
Fig. 3. *Tetricus tocerdania* n. sp. Imago.

Penis as in fig. 4: apical lamella prolonged and spatulate; apex slightly curved downwards (hood).
out (Casale & Loneyrie, 1982) by two main characters: presence of pilosity in the anterior face of protibiae and tridentate mandibles. The first case is valid for T. picensis, and by quick examination, the mandibles may look tridentate; in fact, three teeth are very conspicuous. However, a detailed analysis (fig. 2C) shows that the third big tooth belongs to the retinaculum which has also a smaller incipient third tooth (trituberculate retinaculum) and cannot be considered as the premolar tooth of the "tridentate" condition in Trechinae, sensu Jeannel. Other characters confirm its separation from Iberotrechus: the labrum is not rectangular, mentum bifid (fig. 2E) instead of single-toothed, lingua (fig. 2C) not particularly protruding, the maxillary palpi have no cover of microsetae, etc.. Their similarity in body shape is probably due to a convergent cave adaption.

![A]  

**Fig. 4.** — Trechina treceiranus n. sp. A. — Lateral view. B. — Internal sac evaginated. C. — Dorsal view.

Pilosity in the anterior face of protibia is not a character exclusive to Iberotrechus, Duvalius, Anophtalmus and other mostly cavernicolous
Trechini, as remarked by Jeannel (op. cit.). In fact, this pilosity is well developed in Trechus picoensis n. sp. and T. terceiranus n. sp. and is also found in Trechus miniloculus Machado, although much more reduced. The latter is a hypogeous endemism living in the interstices of lava covered by earth and in lava-tubes in the mountainous regions of the island of Hierro, in the Canaries (Machado, 1987).

Both the described species are cavernicolous. The similarity in mouthparts and penis structures (internal sac, basal bulb, etc.), reflect a relationship which also includes Trechus torre-tassoi Jeannel, the only described Trechus species from the Azores (v. Serrano, 1982) which I know only from the description and figures of Jeannel (1937, p. 84, figs. 2-4). T. torre-tassoi has been found only in São Miguel, T. terceiranus n. sp. in Terceira and T. picoensis n. sp. in Pico, three separate islands. They all belong to the tigitanus group which is well represented in the Atlantic archipelagos of the Canaries, Madeira and Azores.

However, in the entrance of the Furna dos Montanheiros — a skylight in the lava tube — a pigmented Trechus was captured in a trap together with specimens of Bradyceillus and Agonum. Obviously these animals dropped in the skylight accidentally. This demonstrates that at least in Pico there is an epedaphic Trechus, from which the cavernicolous species may have derived. The single specimen at hand fits Jeannel's detailed description of T. torre-tassoi well. However, the description and figure indicate some differences in the shape of elytra and size of animal. Unfortunately the specimen collected is a female and a definite conclusion should include an examination of the male genitalia. It is clearly related to T. torre-tassoi (= apterous), but it may belong to a different subspecies or even species. Similar situations exist in islands of the Madeiran and Canarian archipelagos. For lack of further evidence, one may accept the idea of an insular lineage of epedaphic Trechus from which the cavernicolous species derived. T. picoensis n. sp. shows a stronger morphological adaptation to cave life (elongate appendages, incipient physogastria, etc.) than T. terceiranus n. sp.. Until further taxa are known, phylogenetical analysis of elytral characters may only suggest that T. picoensis n. sp. is more closely related to T. torre-tassoi, than to T. terceiranus.

It seems evident to me that more epedaphic Trechus should appear in other islands, at least in Terceira as well as in São Jorge which lies between the latter and Pico. Nature has been heavily transformed and surface species may be extinct, but entomological prospection has also been very poor, T. torre-tassoi, for instance, is known only from 4 specimens (Lindroth, 1960). The possibility of finding more subterranean or cavernicolous species should not be disregarded.
For separation of the described *Trechus* species of the Azores the following key may be used:

1 (4) Apical angle of elytra rounded
2 (3) Length 4.5 - 5.4 mm, depigmented; lateral margins pronotum markedly sinuated before base ... ... ... *Trechus picoensis* n. sp.
3 (2) Length 3.0 - 3.2 mm, dark brown; lateral margins of pronotum hardly sinuated before base ... ... *Trechus torre-tessol* Jeannel
4 (1) Apical angle of elytra sharp, forming a small protruding point. Size 3.6 - 4.3 mm, depigmented ... ... *Trechus tercelranus* n. sp.

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