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Taxonomical and bionomical notes on the Sicilian endemic water beetle *Ochthebius (Cobalius) biltoni* (Coleoptera: Hydraenidae)

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Abstract

In this paper we present additional information on taxonomy, ecological preferences and conservation biology of the rare and poorly known Sicilian endemic *Ochthebius biltoni* Jäch & Delgado, 2017. It represents one of the most outstanding endemic elements of the Sicilian and Italian water beetle fauna.

Key words: water beetles, marine rock pools, biological conservation.

Introduction

Ochthebius (Cobalius) biltoni Jäch & Delgado, 2017 is the most recently described species of Italian water beetles of the family Hydraenidae (Jäch & Delgado 2017). Most of the new hydraenid species recently discovered from southern Europe were found in two quite different aquatic habitats, as small streams in mountain areas, and hypersaline coastal habitats. These aquatic ecosystems evidently represent a not still exhausted source of unknown biodiversity in Europe (Jäch 1989, 1997; Audisio et al. 1996, 2010; Trizzino et al. 2011, 2013a, 2013b; Sabatelli et al. 2016; Jäch & Delgado 2017).

Ochthebius (Cobalius) biltoni was described on a male collected (2012) along a rocky shore of Cefalù (NW Sicily), and on a few specimens collected in marine rock pools of the SW Sicily (Jäch & Delgado 2017). Several vain attempts were made (2014-2017) to collect again this species at the type locality, suggesting that *O. biltoni* represents an exceedingly rare and elusive taxon. The present note is aimed to add information on the poorly known biology and taxonomy of this species, basing on material and data collected during recent expeditions to Sicily.

Taxonomy. *Ochthebius (Cobalius) biltoni* represents the smallest (1.4-1.6 mm long) Mediterranean species of the subgenus *Cobalius*, and it is also characterized by a series of specific traits (Fig. 1) not evidenced by Jäch & Delgado (2017): the convex posterior portion of elytra, more convex and more abruptly sloping posteriad than in all other *Cobalius*; the series of large sharp projections along the outer

elytral sides; the nearly cylindrical, narrow, and strongly pointed distad last maxillary palpomeres. The male genitalia of this species are not markedly distinguished from other species of *Cobalius* (Fig. 2 in Jäch & Delgado 2017). The apical lobe is dilated distad, recalling the condition presented by *O. (Cobalius) celatus* Jäch, 1989. Genetically, *Ochthebius (C.) biltoni*, recently analyzed by our research team, is confirmed to occupy an isolated position, external to most other known members of its subgenus. An upcoming paper (Sabatelli et al. unpubl. data) is aimed at summarizing the genetic relationships among *Cobalius*.

Ecology. All specimens of *O. biltoni* from SW Sicily were found in small (15-40 cm wide) and shallow (2-5 cm depth) marine rockpools with a yellowish-brown bottom layer of Diatoms, placed along wide rocky calcareous platforms surrounding the littoral road between Mazara del Vallo and Sciacca, about 2 m above the sea level (Fig. 2). In the same localities, larger and deeper rock pools resulted to be only inhabited by other widespread sympatric species of *Ochthebius*. Among these, *O. quadricollis* and *O. subinteger* were collected in company of *O. biltoni*. Our observations allow us to hypothesize that adults and larvae of this species are present throughout the year, even if they are more active in Autumn and Spring.

Conservation. *Ochthebius (Cobalius) biltoni* is an exceedingly rare taxon, exhibiting selective habitat preferences. Despite the poor available data, it is likely that this species represents a taxon with a small and ecologically fragmented geographic range, and poor connectivity be-

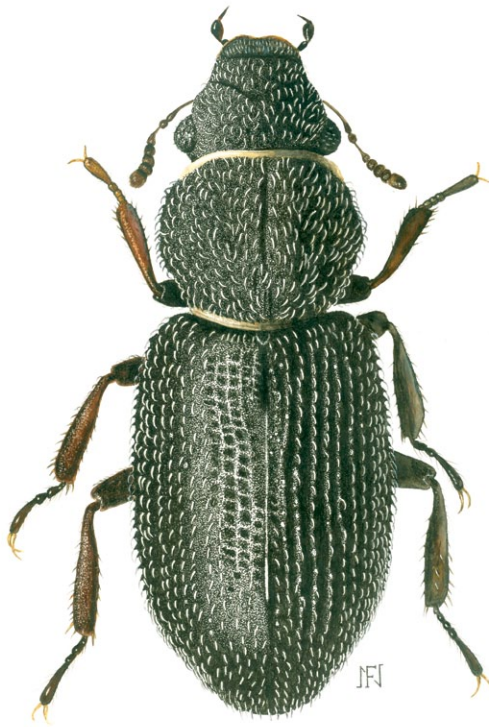


Fig. 1 – Habitus of *Ochthebius (Cobalius) biltoni*, male paratype from Sicily, Mazara del Vallo. Body length: 1.5 mm.

tween the different populations. Most marine rock pools areas where the species could potentially be present at least in the past in Sicily have been, and continue to be, exposed to severe anthropogenic pressures, including the increasing impact of coastal urbanization, and the frequent use of marine rock pools as trash wastes by tourists. This species therefore matches most criteria necessary for being considered in the IUCN risk Category EN [IUCN criteria B2 (*a,b,c*); see IUCN, 2013].

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Fig. 2 – The marine rock pools near Mazara del Vallo, Sicily, where most known specimens of *Ochthebius (Cobalius) biltoni* were collected. Photo by M.A. Bologna.

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