

# First record of the subgenus *Cobalius* on Tenerife, Canary Islands

(Coleoptera, Hydraenidae, *Ochthebius*)

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*Ochthebius (Cobalius) lanthanus* Ribera & Foster, 2018 is recorded for the first time on Tenerife, Canary Islands. Identification was confirmed using both, morphological characteristics and the mitochondrial cytochrome *c* oxidase subunit I gene.

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## Introduction

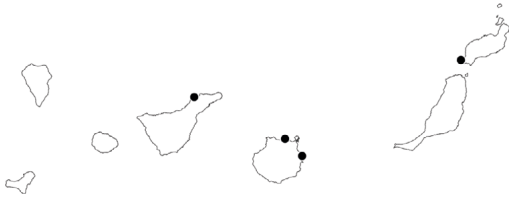
The subgenus *Cobalius* (Coleoptera, Hydraenidae, *Ochthebius*) was described by Rey (1886) and has undergone various status changes until it was finally restated as a subgenus by Villastrigo et al. (2019). Currently, it comprises 15 species and two subspecies, distributed along western Palaearctic coasts (Villastrigo et al. 2022, Sabatelli et al. 2023). These species exclusively inhabit coastal rockpools, with the exception of *Ochthebius serratus* Rosenhauer, 1856, which can be found in hypersaline wetlands in southern Spain and northern Morocco (Millán et al. 2014). *Cobalius* is comprised of three groups and two unassigned species so far (sensu Villastrigo et al. 2020): the *lejolisii* group includes species found in the Mediterranean that may extend to the Atlantic coast; the *biltoni* group, characterised by species with smaller body sizes and distinct morphologies that suggest potential terrestrial adaptations (Jäch & Delgado 2017, Villastrigo et al. 2020); the *algicola* group, which consists of species inhabiting in the Macaronesia region; finally *Ochthebius serratus* and *Ochthebius anzar* Villastrigo, Hernando, Millán & Ribera, 2020 which do not fit in any of the above.

The presence of the subgenus *Cobalius* in Macaronesia was long thought to be restricted to single-island endemics in Madeira (*Ochthebius algicola*

Wollaston, 1871), Cabo Verde (*Ochthebius balfour-brownei* Jach, 1989), and the Azores (*Ochthebius freyi* Orchymont, 1940). There was no evidence of its presence on the Canary Islands until the discovery of *Ochthebius lanthanus* Ribera & Foster, 2018. Ribera & Foster (2018) identified an old citation of *Ochthebius lejolisii* Mulsant & Rey, 1861 on Gran Canaria Island (Balfour-Browne 1958), leading to subsequent surveys to detect *Cobalius* in other Macaronesian islands. Since then, the genetically distinct *O. lanthanus* has been detected on the island of Lanzarote (Villastrigo et al. 2020), and two additional species have been described from Macaronesia: *Ochthebius gorgadensis* Villastrigo, Hernando, Millán & Ribera, 2020 from Cabo Verde and *O. anzar* from both Morocco and Lanzarote. However, further investigation is required of the latter, as it may represent two distinct entities, one restricted to Lanzarote Island (Villastrigo et al. 2020). Here, we report the first record of the subgenus *Cobalius* on the island of Tenerife, based on specimens collected in 2023 during a brief survey.

## Material and methods

We identified suitable coastal areas containing rockpools using Google Earth and selected five accessible locations: four on the northern coast and one on the



**Fig. 1.** Distribution of the subgenus *Cobalius* on the Canary Islands.

south (Table 1). Specimens were collected manually using forceps and brushes after visual assessment of their habitat, followed by preservation in absolute ethanol. To confirm species identification, DNA was extracted non-destructively from specimens collected at Punta Las Salinas (Table 1) using the NucleoSpin Tissue Kit (Macherey-Nagel) following the instructions of the manufacturers. We amplified the barcode fragment of cytochrome *c* oxidase subunit I (i.e., the 5' end) using HCO (TAAACTTCAGGGTGACCAAAAAATCA) and LCO (GGTCAACAAATCATAAAGATATTGG) primers (Folmer et al. 1994) and sequenced them at the Sequencing Service of the Biocenter, Ludwig-Maximilians-Universität, Munich.

### Results

In total, we collected 319 specimens, with only two belonging to the subgenus *Cobalius*. The remaining specimens were identified as the widespread *Ochthebius heeri* Wollaston, 1854. The sampling locations included volcanic substrates with varying levels of porosity along the supralittoral area, at different distances from the tide line. *Ochthebius lanthanus* was found in Punta Las Salinas (Figures 1 and 2), a location characterised by a wide rockpool area spanning multiple elevations.

DNA sequences of extracted specimens confirmed their assignment as either *O. heeri* or *O. lanthanus* (accession numbers OR793110 and OR793109, respectively). In both cases, pairwise comparison of DNA sequences against previously published data from NCBI (accession numbers LT991440 and

LR793162 for *O. heeri* from Tenerife and *O. lanthanus* from Gran Canaria, respectively) resulted in a maximum intraspecific divergence (*p* distance) of 0.46% for *O. heeri* and 0.15% for *O. lanthanus*.

### Discussion

This is the first record of the subgenus *Cobalius* on Tenerife, previously known from Gran Canaria and Lanzarote islands. Despite extensive sampling efforts on Tenerife, only two specimens were collected from a single location. This limited occurrence can be attributed to the scarcity of broad rockpool platforms that are gradually exposed to the sea. This trend aligns with previous findings (Balfour-Browne 1958, Ribera & Foster 2018, Ribera & Cieslak 2019), which noted that *Cobalius* species in both, Madeira and Gran Canaria, are generally underrepresented in rockpools very close to the sea, with a higher abundance in pools farther from the seashore. This pattern appears to be a common phenomenon in *Cobalius* (Villastrigo et al. 2022) and have been recently confirmed for another species in the Mediterranean coast of the Iberian Peninsula (García-Meseguer et al. 2024).

Our discovery could serve as a foundation for future sampling in Macaronesian islands currently lacking any recorded *Cobalius*. These beetles might go unnoticed due to their cryptic habitats and the high abundance of members of the *quadricollis* species group of *Ochthebius*.

### Acknowledgements

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**Table 1.** Sampled locations and number of collected specimens.

Locality name, Municipality	Date	GPS	<i>O. heeri</i>	<i>O. lanthanus</i>
Punta de Teno, Buenavista del Norte	19.ix.2023	28.344N 16.921W	70x	-
Charco Los Chochos, Los Silos	19.ix.2023	28.382N 16.815W	35x	-
Piscinas Naturales Los Abrigos, Los Abrigos	20.ix.2023	28.029N 16.583W	34x	-
Punta Las Salinas, Tejina	22.ix.2023	28.545N 16.385W	119x	2x
Ermita San Juanito, Punta del Hidalgo	22.ix.2023	28.579N 16.321W	59x	-



**Fig. 2.** Habitat of *Ochthebius (Cobalius) lanthanus* in Punta Las Salinas, Tenerife. **A.** Close-up photo of pools; **B.** overview of sampling location

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