

## A new *Orzolina* Machado, 1987, from the Canary Islands (Coleoptera: Carabidae: Bembidiinae)

ANTONIO MACHADO

<sup>1</sup>c/ Chopin 1, 38208 La Laguna, Tenerife, Canary Islands, Spain

✉ [antonio.machado@telefonica.net](mailto:antonio.machado@telefonica.net);  <https://orcid.org/0000-0003-4685-5250>

### Abstract

*Orzolina kratkyi* **sp. nov.** is described from the island of Tenerife, in the Canarian archipelago. This endemic genus was known before from a single species in the eastern islands, *Orzolina thalassophila*. Both species live similarly, on the intertidal zone and are covered by the sea at full tide. A description and images of the imago and aedeagus are provided. The new species is characterized by its smaller size, more transverse pronotum and uniformly oval elytra. The mtCOI genetic distance between both species is 12.8%.

**Key words:** Ground-beetles, Tenerife, intertidal fauna, *Orzolina kratkyi*, new species, Barcode

### Introduction

*Orzolina* Machado, 1987 was established to harbour a peculiar Bembidini living in the intertidal zone of the island of Lanzarote, characterised by a narrow “waist”, short, pointed mandibles, pronotum lacking transversal basal impression and lateral fovea, elytral striae completely vanished, five discal setae along the 3<sup>rd</sup> interstria, an abrupt sinuation on the preapical edge, and no wings.

In the combined phylogram using seven genes provided in the review of Bembidini by Maddison *et al.* (2018), *Orzolina* takes a sister position to *Ocys* Stephens, 1828, and is accepted as a separate genus, being the extra setae clearly a convergent character that repeats in some extreme intertidal species.

*Orzolina thalassophila* Machado, 1987 was originally found in May 1986 at Mareta de la Novia, near the village of Orzola in the north of Lanzarote. Posteriorly, it was sampled in the southern part, near El Golfo (Montaña Pelada, 6-3-2002 leg. Müller-Motzfeld) and the Salinas de Janubio, as well as on the islet of Montaña Clara (Oromí *et al.* 2003), not without repeated sampling efforts, after the declaration of the species as “Specially protected” by the Canarian Conservation Authorities<sup>1</sup> (González Betancort & Martín de Abreu 2002). However, it’s “rareness” is likely linked to its living habits and phenology than to real conservation problems, likely living on the other islets and on Fuerteventura, which forms a single island-block with Lanzarote, and both were united in the near past (Fernández-Palacios *et al.* 2011).

In 2021, my Czech colleague Jiří Krátky found one specimen of *Orzolina* at the end of October in a narrow cove on the northern coast of Tenerife. After a few unsuccessful attempts, it proved to be there in November 2024, fortunately in numbers. It was collected by night, when the tide was lowest, in the strip where the *Monodonta* mollusks appear, and the rocks and walls are covered with a thin mat of green algae. Marine white-reddish acari—probably their prey—were scurrying around in abundance, as well as plenty of *Orzolina*.

The description of this novelty is the purpose of the present short contribution. The holotype has been deposited in the Natural History Museum of Santa Cruz de Tenerife (TFCM).

<sup>1</sup> Ley 4/2010, de 4 de junio, del Catálogo Canario de Especies Protegidas



FIGURE 1. A. Type locality Charco del Viento, Tenerife. B. Collecting *Orzolina* at night during low tide.

***Orzolina kratkyi* sp. nov.**

urn:lsid:zoobank.org:act:683A3FA4-5D41-4CC4-A791-D05285E3A10A

Figs 2A, 3

**Type material.** HOLOTYPE • 1 ♂ SPAIN, Canary Islands, Tenerife, La Guancha, Charco del Viento, -1 m. (28°24'03"N 16°40'26.5"W) 3-11-2024 leg. A. Machado. Coll. TFMC-EN 4592.—PARATYPES. Same collecting data 35 exx (Collection A. Machado, La Laguna; 3 exx DNA extracted (BC3397, BC3398, BC3399 Coll. IPNA (Institute of Natural Products and Agrobiology (IPNA-CSIC)); 34 exx leg. R. Valle (30 exx Coll. R. Valle, La Laguna; 4 exx Coll. R. García, Santa Cruz de La Palma); 20 exx leg. A. Aguiar (18 exx Coll. A. Aguiar, La Laguna; 2 exx Coll. J. Krátky, Czech Republic, Hradec Králové); 1 ex same locality 30-12-2021 leg. J. Krátky (Coll. J. Krátky, Czech Republic, Hradec Králové).

**Description.** Body length 2.7–3.1 mm; integument glabrous, moderately shiny, with superficial isodiametric polygonal microreticulation, tawny in colour, somewhat infuscate on pronotum and elytra, paler on legs; antennae segments 4–11 infuscate.

Head about as long as wide; 0.75× narrower than pronotum; mandibles short, pointed inwards; frontal fovea almost obsolete; frontal lateral carinae moderate (shallower bordering eye); eyes oval ( $L/W = 1.2\text{--}1.3$ ), large, but not longer than antennomeres 1 and 2 together, little convex (20%); antennae ca. 3× length of pronotum, with pubescence starting at 4<sup>th</sup> segment.

Pronotum small, cup-like, transverse ( $L/W = 0.65\text{--}0.7$ ), narrowed behind, with maximum width before middle (0.65× width of elytra); anterior angles salient; posterior angles markedly obtuse, lacking prebasal sinuosity; lateral channel deep and broad; discal longitudinal line shallow.

Elytra uniformly oval ( $L/W = 1.43$ ), moderately convex, with apex slightly separate from each other; humeri smoothly curved (shoulders vanished); pre-apical sinuation abrupt (the edge forms a carinate plica at level of 7<sup>th</sup> interstria); lateral channel deep, narrowing apicad until reaching apical plica; striae obsolete (punctures sometimes visible by transparency as blackish dots); five long and stiff discal setae on the 3<sup>rd</sup> interstria; scutellar, apical, and subapical setae present; umbilical series with 10 setae variably aggregated (i.e., 4+2+4).

Legs slender; protarsomere ♂ 1–2 a little incrassate (particularly the first); mesotarsomeres 2–4 together not longer than onychium; metatarsomere 1 as long as onychium; claws rather long and thin (more than 1/3 length of onychium).

Aedeagus (Fig. 3) with curved median lobe, blunt apex, and a short basal bulb, poorly differentiated; inner sac with a pair of dorsal longitudinal sclerified folded pieces prolonged ring-like to the middle, and a saddle-like strongly sclerified middle-piece. Parameres with a single seta.

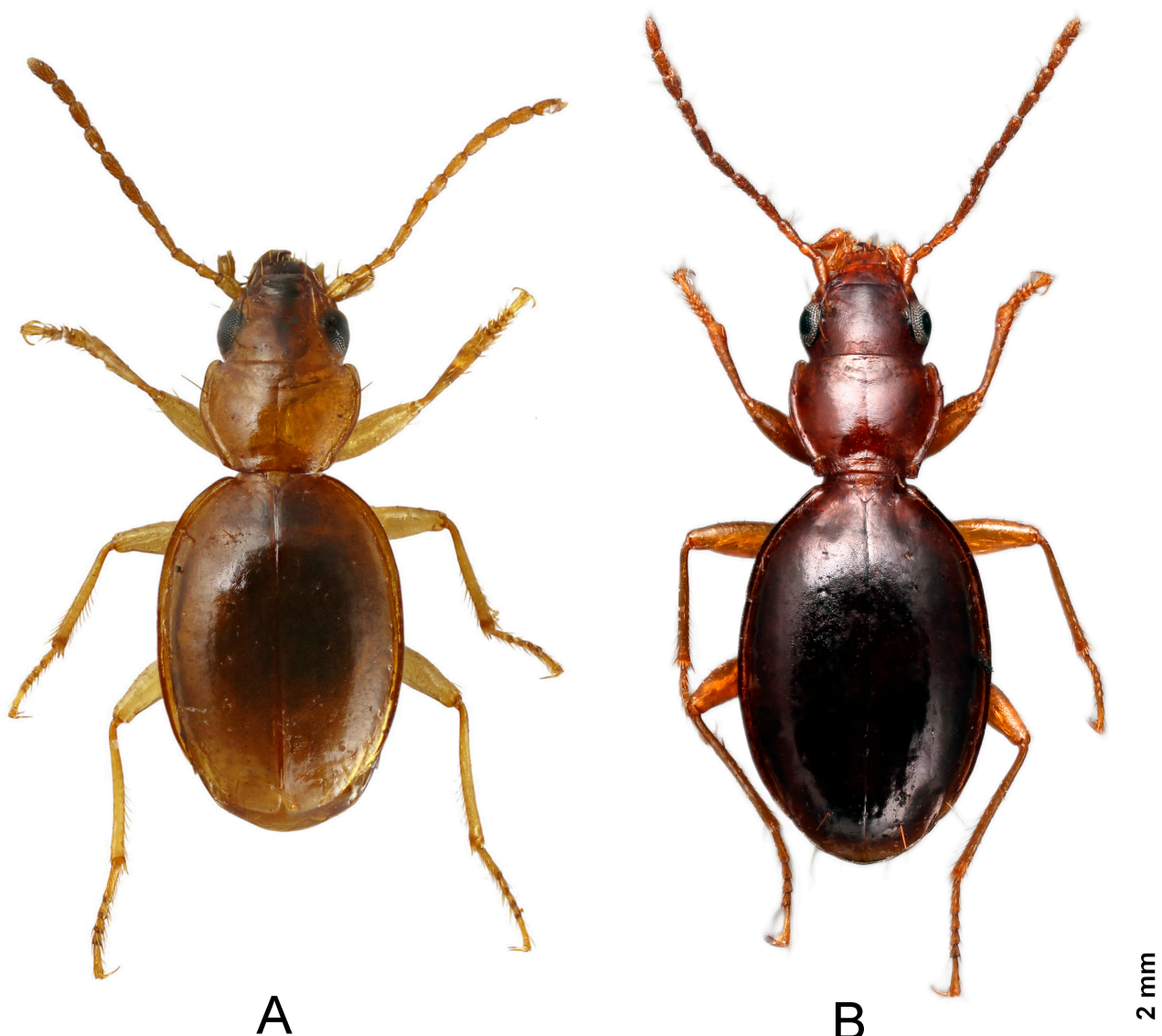


FIGURE 2. A *Orzolina kratkyi* sp. nov. (holotype). B *Orzolina thalassophila* Mach., 1987.

**Etymology.** The species is named after Jiří Krátky (Hradec Kralove), who is deeply interested in the Canarian coleoptera fauna and discovered this new ground-beetle.

### Final remarks

*Orzolina kratkyi* sp. differs from *Orzolina thalassophila* by its smaller size (2.7–3.1 mm compared to 3–3.5 mm), less shiny integument, tawny colour instead of reddish-brown; eyes slightly smaller and less convex; pronotum more transverse (0.65–9.7×), with markedly obtuse hind angles; elytra shorter ( $L/W < 1.4$ ), completely oval (sides not straight and sinuous when reaching base), and less convex. Median lobe of aedeagus plumper and curved (not straight), with shorter basal bulb, and parameres bearing a single seta.

The increased number of discal setae on the elytra and the abrupt sinuation on their preapical edge have evolved separately in several Bembidini lineages associated with intertidal habitat but have no obvious ecological advantages (Maddison & Maruyama, 2018). However, the very long claws of *Orzolina* are clearly useful to grasp the animal to the rocks, when the water splashes on them. Indeed, when collecting *Orzolina kratkyi* sp. nov. with the aspirator an extra sucking effort was needed to ungrasp them.

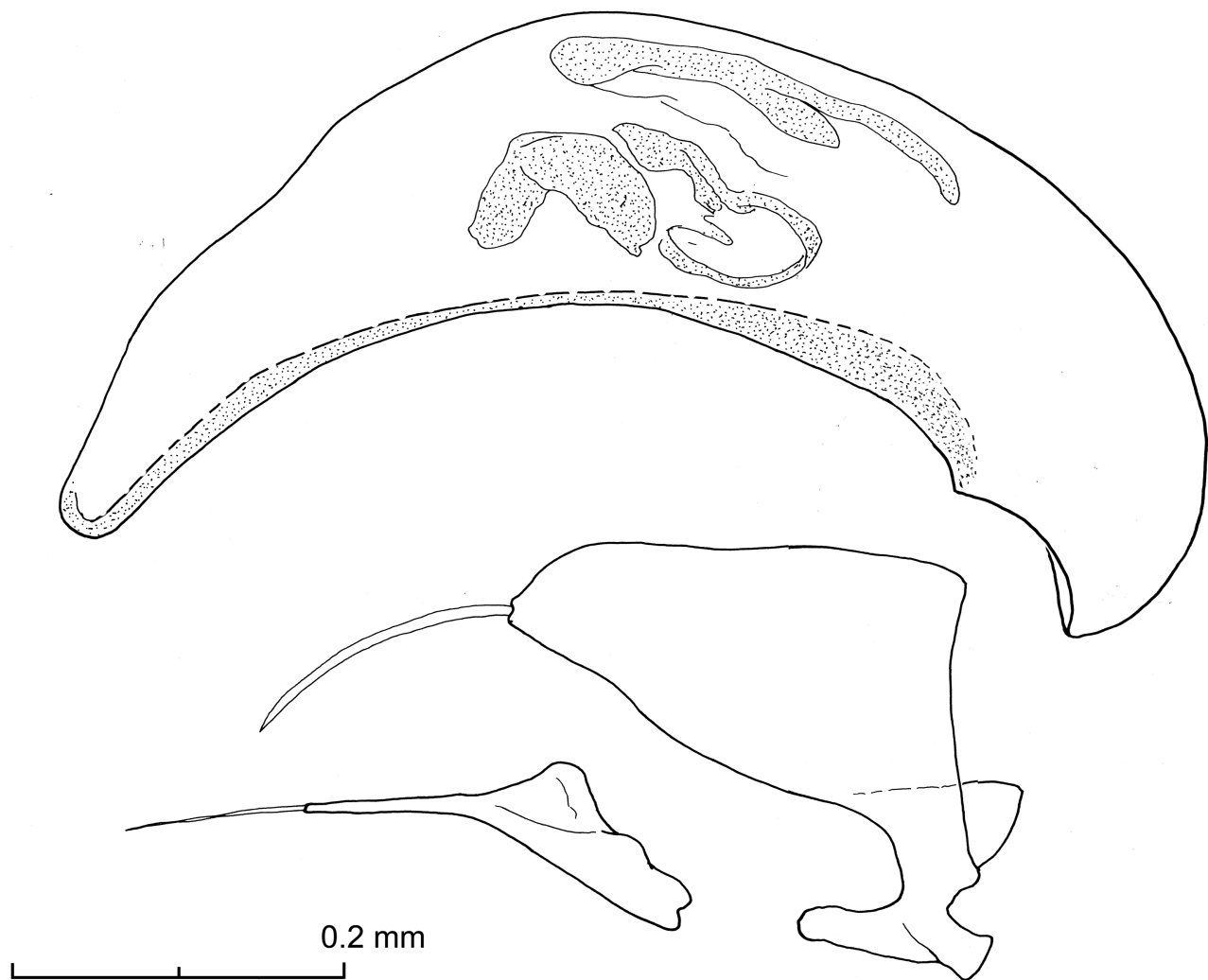


FIGURE 3. Aedeagus of *Orzolina kratkyi* sp. nov.

Three specimens (BC3397, BC3398, and BC3399) of the new species were sequenced for the mtCOI (680 pb) as part of the project *Canary Barcode: towards the genomic inventory of the Canary Islands biodiversity*, headed by Brent C. Emerson, at IPNA-CSIC (Genbank PV8282413–5). They show a p-distance of 12.8 % with the sequence provided by Maddison & Maruyama (2018) for *O. thalassophila* from Órzola, Lanzarote (Genbank MF616721.1).

### Barcode sequences

>*Orzolina kratkyi*\_Tenerife\_PV828413–5

```
AACCTTATATTTTATTTTGGAGCTTGATCTGGAATAGTAGGAACCTTCTTTAAGAATTTTAATTTCGAGCAGAATTA
GGAAATCCAGGATCTTTAATTGGAGACGATCAAATTTATAATGTAATTGTCACGCTCATGCTTTTGTAATAATTT
TTTTTATAGTAATACCAATTTTAATTGGAGGATTTGGAAATTGATTAGTACCTTTAATACTCGGAGCTCCAGATAT
AGCATTTCCACGAATAAATAATATAAGATCTGACTTTTACCTCCATCTCTAACCCTATTGCTTATGAGATCTATAG
TAGAAAAAGGAGCAGGAACAGGATGAACTGTATACCTCCTTTATCTTCTGTTATTGCTCATAGAGGAGCTTCTGT
AGATTTAGCAATTTTGTCTTTCATCTTGCCGGTGTATCATCAATTCTCGGAGCAGTAAATTTTATTACTACAATT
ATTAATATACGATCAATTGGAATAACATTTGATCGAATACCTTTATTTGTATGATCAGTTGGGATCACAGCTTTAC
TATTACTTTTATCTTTACCAGTTTAGCAGGAGCTATTACTATATTATTAACAGATCGAAATTTAAATACTTCATTT
TTTGACCCAGCAGGGGGAGGAGATCCTATTCTTTACCAACATTTATTT
```

>Orzolina thalassophila Lanzarote MF616721.1

AACTTTATATTTTATCTTTGGGGCTTGATCTGGTATAATTGGAACCTTCCTTAAGAATTTTAATTTCGAGCTGAATTA  
GGAAACCCAGGATCTTTAATTGGAGATGATCAAATTTATAATGTAATTGTAAGTCTCATGCTTTTGTAAATAATTT  
TTTTTATAGTAATACCAATTTTAATTGGAGGATTTGGAAATTGATTAGTACCTTTAATACTTGGGGCTCCAGATAT  
AGCATTTCCACGAATAAATAATATAAGATTTTGACTTTTACCTCCATCTTAACTTTATTACTAATAAGATCTATA  
GTAGAAAAAGGGGCTGGTACCGGATGAACAGTTTACCCCCCCTATCTTCAACTATTGCTCATAGAGGGGCTTCAG  
TAGATCTAGCAATTTTGTAGTCTTCATCTTGCAGGAGTATCATCAATTTTAGGAGCTGTAAATTTTATTACAACAAT  
TATTAACATACGATCAATAGGAATAACTTTTCGATCGAATACCTTTATTTGTATGATCAGTAGGAATTACAGCTTTA  
TTGTTATTATTATCACTTCCAGTTTGTAGCAGGAGCTATTACTATATTGCTAACAGATCGAAATTTAAATACTTCAT  
TTTTTGATCCGGCCGGAGGGGGGATCCAATTCTATACCAACATTTATTT

## Acknowledgments.

The author thanks Jiří Krátky, Agustín Aguiar, and Roberto Valle for submitting their material for study. Dr Heriberto López (IPNA-CSIC) facilitated the Barcode sequence of the new *Orzolina* species.

## References

- González Betancor, C. & Martín de Abreu, S. (2002) *Orzolina thalassophila*. Lanzarote. *Seguimiento de poblaciones de especies amenazadas*. Gestión y Planeamiento Territorial y Medioambiental S.A., Madrid, 21 pp. [Report, not published]
- Fernández-Palacios, J.M., De Nascimento, L., Otto, R., Delgado, J.D., García-del-Rey, E., Arévalo, J.R. & Whittaker, R.J. (2011) A reconstruction of Palaeo-Macaronesia, with particular reference to the long-term biogeography of the Atlantic island laurel forests. *Journal of Biogeography*, 38 (2), 226–246.  
<https://doi.org/10.1111/j.1365-2699.2010.02427.x>
- Machado, A. (1987) *Orzolina thalassophila*, n. gen., n. spec., a new Bembidiinae (Coleoptera) from the intertidal zone in Lanzarote (Canary Islands). *Entomologische Blätter für Biologie und Systematik der Käfer*, 83 (2–3), 151–156.
- Machado, A. (1992) *Monografía de los carábidos de las islas Canarias (Insecta, Coleoptera)*. Instituto de Estudios Canarios, La Laguna, 734 pp.
- Maddison, D.R. & Maruyama, M. (2018) Phylogenetic relationships and convergent evolution of ocean-shore ground beetles (Coleoptera: Carabidae: Trechinae: *Bembidion* and relatives). *Systematic Entomology*, 44, 39–60.  
<https://doi.org/10.1111/syen.12307>
- Oromí, P., López, H., Arechavaleta, M., Contreras, Díaz, H.G. & Rodríguez, B. (2003) Fauna de artrópodos de Montaña Clara (islas Canarias) I: Coleópteros. *Vieraea*, 31, 167–182.