

Yellow-winged digging grasshopper, *Acrotylus longipes* (Acrididae: Oedipodinae), confirmed in Croatia

DORA PAPKOVIĆ¹, ANTUN JELINČIĆ²

¹ Petrova 12, 10000 Zagreb, Croatia.

² Ćire Truhelke 15, 10000 Zagreb, Croatia.

Corresponding author: Dora Papković (dora.tosamja@gmail.com)

Academic editor: Daniel Petit | Received 21 October 2018 | Accepted 4 December 2018 | Published 13 February 2019

<http://zoobank.org/E7E8AFE8-21F8-4947-A921-690700E7F67C>

Citation: Papković D, Jelinčić A (2019) Yellow-winged digging grasshopper, *Acrotylus longipes* (Acrididae: Oedipodinae), confirmed in Croatia. Journal of Orthoptera Research 28(1): 1–2. <https://doi.org/10.3897/jor.28.30736>

Abstract

We present the first confirmed record of the threatened yellow-winged digging grasshopper, *Acrotylus longipes* (Acrididae: Oedipodinae), from Croatia, from the island of Mljet, in Blace Bay. The yellow-winged digging grasshopper was found on sandy dunes covered with psammophytic vegetation characteristic of this type of habitat. Previously, only two localities of this species were reported from Croatia, both from photographs. This confirmed locality opens the possibility of a wider distribution of this species on similar habitats throughout Croatia.

Key words

Adriatic island, geographic distribution, Mljet, new record, Vulnerable

Introduction

The yellow-winged digging grasshopper, *Acrotylus longipes* (Charpentier, 1845), is a xerophilic and thermophilic species of the Acrididae family, subfamily Oedipodinae (Bounechada et al. 2006). The species inhabits coastal and riverine sand dunes in the Mediterranean, from the Canary Islands to Ukraine (Hochkirch et al. 2016). In addition to the Mediterranean area, the species has also been reported from similar habitats inland in the Balkans, from the Pannonian Plain on the border of Serbia and Romania, and from Macedonia, close to the border with Greece (Grebenschikov 1947).

In Croatia, the species is known only from two localities, Zaton in Dubrovnik Area and the island of Šolta, both recordings being doubtful as they are based solely on photographs (Skejo et al. 2018). In Italy, the grasshopper is also found living in highly disturbed sandy habitats (Fontana and Kleukers 2002). In addition to its coloration, the species is adapted to sandy conditions by alternating use of its legs so just three of them are touching the hot sand at a time, and it can also dig itself into the sand on cold or windy nights (Fontana and Kleukers 2002).

Since its subpopulations are severely fragmented, the species was listed on the IUCN Red List as Vulnerable (VU) in the 28 countries of the European Union EU28 and Near Threatened (NT) in Europe (Hochkirch et al. 2016). The largest threats to

their habitats are river regulations and the development of tourism, which could lead to further fragmentation of habitats and a more pronounced edge effect (Hochkirch et al. 2016, Fontana and Kleukers 2002).

Methods

Blace Bay is located in the south-east part of the island of Mljet (Fig. 1; 42°41'29"N, 17°44'32"E), one of the southernmost Croatian Adriatic islands. D.P. and A.J. visited Blace Bay on August 28th, 2018, between 17:00 and 18:00. It was a hot and sunny day with a temperature of 34 °C. Specimens of *A. longipes* were recorded in notable abundance here (about 40 specimens were observed in one hour). The species was identified by diagnostic characters in the field from the keys of Harz (1975), Massa et al. (2012), and Willemse et al. (2018), and compared to *A. patruelis* and *A. insubricus*.

Results and discussion

On the habitat of the species on the island of Mljet.—Blace is a small bay with a narrow passage to the open sea. Therefore it is protected from the heavy impact of waves and wind which allows unobstructed sedimentation of sand. The silicate sand stretches along the coast for about 500 m. This sand contains vegetation from the classes *Ammophiletea* Br.-Bl. et Tx. ex Westhoff, et al. 1946 and *Cakiletea maritimae* Tx. et Preising in Tx. ex Oberd 1952 (Alegro et al. 2004). The soil formed from this sand can be classified as arenosol and represents the very first stage of soil development from this substrate. Because the Adriatic coast is mostly karstic, this type of habitat is rare and the psammophytic vegetation that is present on the sandy shores is fragmented and exists only in a few localities in Croatia. Mljet contains the largest contiguous area covered with this type of vegetation. Mljet includes Blace, Mala Saplnunara and Velika Saplnunara Bays (Alegro et al. 2004).

On the new record of Acrotylus longipes.—We found a notable abundance of *A. longipes* jumping between sedges (*Cyperus capitatus*) and other plants (Fig. 2). Altogether, about 40 specimens

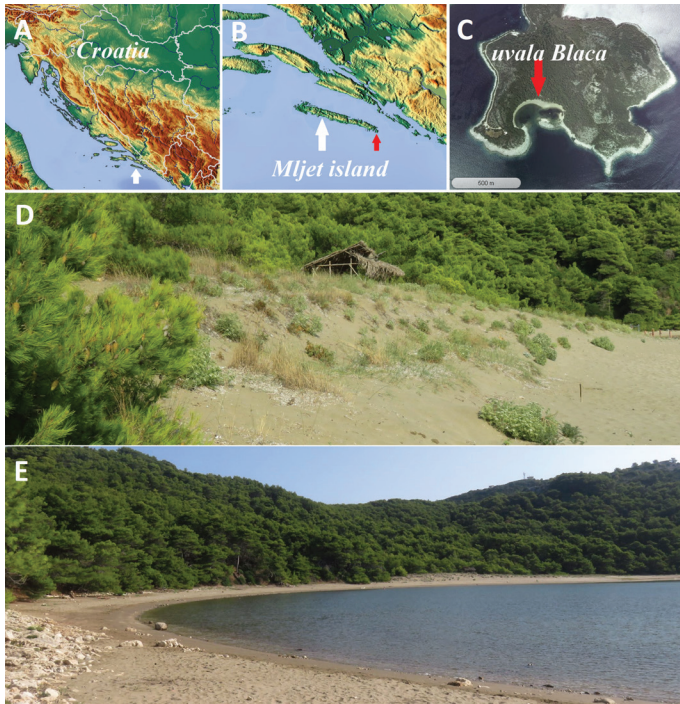


Fig. 1. Images of the study site: A–C. The location of Blace Bay in Croatia in the southeast of the island of Mljet; D. The psammo-phytic vegetation where the species was found; E. Blace Bay.



Fig. 2. *Acrotylus longipes* male specimen in its natural sandy habitat. A. Lateral view; B. Dorsal view.

were observed of both males and females. Because of its fine, cryptic coloration as an adaptation to the structure of the sand, it is barely visible on the sand surface, especially for potential predators. The insect is mostly visible when jumping. The yellow-winged digging grasshopper is distinguishable from other *Acrotylus*

species, as its common name proposes, by its yellow, rarely orange, hind wings. These hind wings lack a black band that is present in both *A. insubricus* and *A. patruelis*. Another helpful character is the long and slender legs lacking setae, while both *A. insubricus* and *A. patruelis* have legs with many setae. In Croatia, *A. patruelis* is known from the Adriatic part, while *A. insubricus* has been recorded on continental sands (Skejo et al. 2018).

The yellow-winged digging grasshopper was previously known from Croatia from two photographs, which were likely to represent this species – one from Zaton taken by F. Chladek (Biolib 2018), and one taken by D. Sule on Šolta island (Skejo and Sule 2015, Skejo et al. 2018). Those records were never confirmed, and the latter was published as *Acrotylus* cf. *longipes*. In conclusion, the knowledge on this species is scarce and here we contribute new knowledge of its geographic distribution. Although the records of this species in Croatia are few, it is assumed that its distribution could be wider. Since the Pannonian Plain where the species' presence was confirmed extends into north-eastern Croatia along the Drava River, there is a possibility of the presence of *A. longipes* there. This record confirms the species presence in Blace Bay and increases the possibility of a wider distribution of this species on the island of Mljet because of the abundance of sandy habitats suitable for this species.

Acknowledgements

We thank Josip Skejo for confirming the identification, checking the manuscript, and proofreading.

References

- Alegro A, Biljaković M, Bogdanović S, Boršić I (2004) Psammo-halophytic vegetation on the largest sand area on the Croatian coast: the island of Mljet, southern Adriatic. *Biologia* 59: 435–445.
- Biolib (2018) *Acrotylus longipes*. <https://www.biolib.cz/en/taxonomie/id177709/?taxonid=397066> [accessed 1 September 2018]
- Bounechada M, Doumandji SE, Çiçek B (2006) Bioecology of the Orthoptera species of the Setifian Plateau, North-East Algeria. *Turkish Journal of Zoology* 30: 245–253.
- Fontana P, Kleukers RMJC (2002) The Orthoptera of the Adriatic coast of Italy (Insecta: Orthoptera). *Biogeographia* 23: 36–53. <https://doi.org/10.21426/B6110182>
- Grebenschikov O (1947) The occurrence of *Acrotylus longipes* (Charpentier, 1845) in Yugoslavia (Orthoptera, Acrididae). *Physiological Entomology* 22: 101.
- Harz K (1975) Die Orthopteren Europas II. / The Orthoptera of Europe II. Dr. W. Junk B.V., The Hague, 939 pp. <https://doi.org/10.1007/978-94-010-1947-7>
- Hochkirch A, Puskas G, Sirin D, Ivković S, Szovenyi G, Chobanov DP, Lemonnier-Darcemont M, Skejo J, Rutschmann F, Presa JJ, Kristin A, Willemse LPM, Kleukers R (2016) *Acrotylus longipes*. The IUCN Red List of Threatened Species 2016 (downloaded September 5th 2018). Available at: <https://www.iucnredlist.org/species/15431174/70826598>
- Massa B, Fontana P, Buzzetti FM, Kleukers RMJC, Odé B (2012) Fauna d'Italia – XLVIII – Orthoptera. Calderini, Bologna, 563 pp.
- Skejo J, Sule D (2015) Prvi doprinos poznavanju raznolikosti zrikavaca i skakavaca (Insecta: Orthoptera) Šolte // First contribution to the knowledge of crickets' and grasshoppers' diversity (Insecta: Orthoptera) on the Island of Šolta. *Baščina* 24: 19–24.
- Skejo J, Rebrina F, Szövényi G, Puskas G, Tvrtković N (2018) The first annotated checklist of Croatian crickets and grasshoppers (Orthoptera: Ensifera, Caelifera). *Zootaxa* 4533: 1–95. <https://doi.org/10.11646/zootaxa.4533.1>
- Willemse LPM, Kleukers RMJC, Odé B (2018) The grasshoppers of Greece. EIS Kenniscentrum Insecten and Naturalis Biodiversity Center, Leiden, 439 pp.