

Dysgonia rogenhoferi (BOHATSCH, 1880) (Lepidoptera, Erebidae) in the Danube Delta (Romania): Westernmost record in Europe

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Summary: *Dysgonia rogenhoferi* (BOHATSCH, 1880) is recorded for the first time in Romania based on material collected in the Danube Delta (Chilia Veche, Tulcea County). This species has likely recently reached the Danube Delta, but it remains to be seen if it will develop stable populations in the region. Two hypotheses are formulated about the presence of this species in the Danube Delta: (1) Accidental introduction (involuntary transport by ships navigating the Danube), and (2) natural expansion. The latter is regarded as the most likely, based on recent faunistic data from Eastern Europe. The specimens from the Danube Delta represent the westernmost records of this species in Europe, approximately 600 km west of the most recent site discovered in south-eastern Ukraine.

Rezumat: *Dysgonia rogenhoferi* (BOHATSCH, 1880) este semnalată pentru prima dată în fauna României, pe baza unui material colectat în Delta Dunării (Chilia Veche, Județul Tulcea). Cel mai probabil, această specie a pătruns recent în Delta Dunării, însă rămâne de văzut dacă va dezvolta populații stabile în regiune. Sunt formulate două ipoteze cu privire la prezența acestei specii în Delta Dunării: (1) introducere accidentală (transport involuntar cu nave care tranzitează Dunărea), și (2) expansiune naturală. Cea din urmă este considerată cea mai probabilă, pe baza datelor faunistice recente din estul Europei. Exemplarele din Delta Dunării reprezintă cele mai vestice semnalări ale acestei specii în Europa, fiind situate la aproximativ 600 km vest față de locația recent descoperită în sud-estul Ucrainei.

Key words: *Dysgonia rogenhoferi*, Danube Delta, Romania, Europe, distribution.

Introduction

Dysgonia rogenhoferi (BOHATSCH, 1880) is an Irano-eremic species known to occur in the Levant, Iraq, Arabia, northern Iran, Azerbaijan and Central Asia (Turkmenistan, Uzbekistan, Pakistan) (GOATER *et al.* 2003). The species has also been recently recorded (1 female, 6 July 2018) from eastern Turkey,

near the Armenian border (SEVEN *et al.* 2019). Near the eastern borders of Europe, *D. rogenhoferi* has been reported from various sites in the south-western part of the Russian Federation (Dagestan, Kalmykia) (e.g. POLTAVSKY and ILYINA 2002, 2017, ABDURAKHMANOV 2012, ABDURAKHMANOV *et al.* 2013).

In Europe, the species is known based on very few specimens originating from the Astrakhan region of southern Russia (LVOVSKY 1971, LASTUCHIN 2009, FIBIGER *et al.* 2010, NUPPONEN and FIBIGER 2012). Interestingly, a very recent record (1 male, 21 August 2019) from south-eastern Ukraine (northern shore of the Sea of Azov) has considerably extended the potential distribution of *D. rogenhoferi* on the continent (SUCHKOV and GERYAK 2019).

Results

Material: 2 specimens, 27.VI.2020, Romania, Tulcea county, Danube Delta, Chilia Veche, 3 m (45.4252° N, 29.2912° E), on the Chilia branch of the Danube (leg & coll. Levente Csukás) (Figs 1, 2a,b).

Apart from the two specimens sampled, approximately ten more specimens have been observed during the same evening. The material was collected using a 250 W mercury vapor bulb placed in



Fig. 1. *Dysgonia rogenhoferi*, 27.VI.2020, Romania, Tulcea county, Danube Delta, Chilia Veche, 3 m. Scale bar is 10 mm. (Photo: L. Csukás)

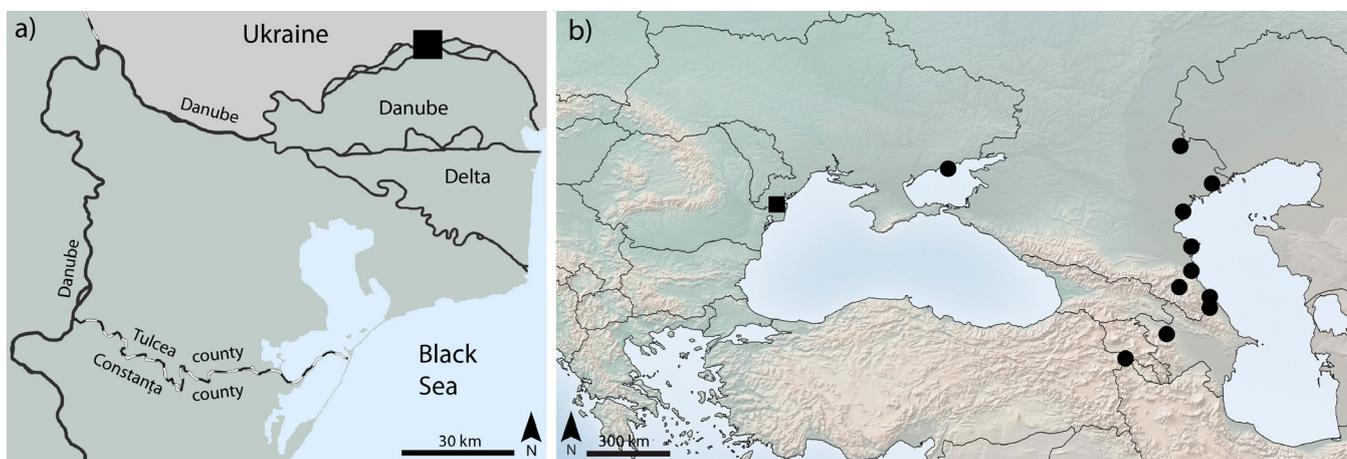


Fig. 2. a) Record of *Dysgonia rogenhoferi* (black square) in the Danube Delta (Tulcea county, Romania). b) Distribution of *D. rogenhoferi* around the Black Sea and the western coast of the Caspian Sea. Black square, record from the Danube Delta (Romania); black dots, records outside Romania.

front of a white house wall, only a few meters away from the shores of the Danube. The wingspan of the collected specimens is of 38 mm.

Discussion

Our records from the Danube Delta greatly extend westwards the potential range of *D. rogenhoferi*. The collection site (Chilia Veche) (Fig. 2a) is situated approximately 1400 km west of the Astrakhan region, which was, until very recently, known as the only European area of occurrence of the species (see the Introduction). Chilia Veche also lies circa 600 km west of the very recent record from south-eastern Ukraine (SUCHKOV and GERYAK 2019) (Fig. 2b).

This species is, most likely, a recent member of the entomofauna of the Danube Delta because the region has been fairly well studied from a lepidopterological point of view (e.g. SZÉKELY 2006 and references therein). According to WILTSHIRE (1951), the larvae of *D. rogenhoferi* feed on *Tamarix* sp. (Tamaricaceae) and a representative of this genus (*T. ramosissima* LEDEBOUR, salt cedar) is relatively widespread in the Danube Delta and other parts of (mostly) southern and eastern Romania (OPREA 2005). However, it is currently unclear if *D. rogenhoferi* was accidentally introduced to the Danube Delta (e.g. by ships navigating the Danube), or if it has naturally expanded its range. Although further research is needed to ascertain whether the species has established stable populations in the Danube Delta, we suspect that it has been naturally expanding westwards. This hypothesis is, to some extent, supported by the recent records from south-eastern Ukraine (SUCHKOV and GERYAK 2019) and eastern Turkey (SEVEN *et al.* 2019).

Dysgonia rogenhoferi can be reliably identified based on wing pattern and can be readily differentiated from the other two congenics known in Europe, *Dysgonia algira* (LINNAEUS, 1767) and *Dysgonia torrida* (GUENÉE, 1852). The most obvious diagnostic

feature is the presence of a white V-shaped line, the tip of which gets close to the distal margin of the forewing (Fig. 1).

The species is apparently multivoltine in the southern parts of its range (WILTSHIRE 1951), but its phenology in the northern range is insufficiently known in our opinion. For example, in Dagestan and the Astrakhan region, records range from mid-June to mid-September (e.g. POLTAVSKY and ILYINA 2002, 2017, LASTUCHIN 2009, NUPPONEN and FIBIGER 2012). The specimens from the Danube Delta were collected on 27 June, while the male from south-eastern Ukraine was found on 21 August. Further data are needed to determine whether the species is single or multi-brooded in such areas.

In desert regions of the southern range, the species is typically found in oases (GOATER *et al.* 2003), while in Europe and other parts of the northern range it seems to be associated with deltas (Volga Delta, Danube Delta) and other sandy coastal or riverside ecosystems, as well as sandy deserts (e.g. POLTAVSKY and ILYINA 2002, 2017, LASTUCHIN 2009, ABDURAKHMANOV 2012, NUPPONEN and FIBIGER 2012, this study).

In conclusion, *D. rogenhoferi* represents an unexpected addition to the Lepidoptera fauna of Romania and currently marks the western limit of distribution of this species in Europe. While current data suggest it is locally relatively common in the Danube Delta, further research is needed to ascertain whether the species has developed stable populations in the region and/or if it will further expand in Romania. Although the possibility of a human-mediated expansion cannot be fully excluded, we hypothesize that the species has naturally expanded its range to the Danube Delta, where suitable habitats, as well as the reported larval food plant (*Tamarix* sp.) are present. If this hypothesis is correct, then *D. rogenhoferi* represents yet another example of southern or eastern species that seem to be recently

reaching/expanding into the Romanian territory, such as *Grammodes bifasciata* (PETAGNA, 1787), *Schrankia balneorum* (ALPHÉRAKY, 1880), *Acontia candefacta* HÜBNER, [1831]), *Leucania punctosa* (TREITSCHKE, 1825) etc. (RÁKOSY and MIHAI 2011, SZÉKELY *et al.* 2011, SZÉKELY and DINCĂ 2012, SZÉKELY 2016, MANCI *et al.* 2018).

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