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MICRONOLA WADICOLA AMSEL, 1935 (EREBIDAE HYPENODINAE
MICRONOCTUINI) FROM PANTELLERIA ISLAND, A NEW GENUS AND
NEW SPECIES FOR THE EUROPEAN FAUNA

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Timossi G., Coviello M., Lo Verde G., Ragusa E., Zilli A. - *Micronola wadicola* Amsel, 1935 (Erebidae Hypenodinae Micronoctuini) from Pantelleria Island, a new genus and new species for the European fauna.

Micronola wadicola Amsel, 1935 is recorded for the first time from Europe based on a single male collected in the island of Pantelleria (Strait of Sicily, Italy), near Bagno dell'Acqua lake. The species was previously known from Jordan, SW Iran, SW Saudi Arabia, Oman, and Yemen. Identification hints, information and illustrations are provided. The finding of this species shows that the inventorying of the lepidoptera fauna of Pantelleria, from where 151 species have so far been recorded, is still far away from completion and needs further efforts.

KEY WORDS: Lepidoptera, Erebidae, moths, new record, Pantelleria, Italy, Europe.

INTRODUCTION

Pantelleria (Italy) is a volcanic island located in the Strait of Sicily. Despite a large part of the island is intensively cultivated, it is characterized by a variety of peculiar environments due to its volcanic origin, size (84.53 km²), Mediterranean climate, and elevation, Montagna Grande being with its 836 m a.s.l. the highest relief among the circum-Sicilian islands. The vegetation on Pantelleria is characterised by typical mediterranean maquis, with dominance of *Quercus ilex* and other woody plants such as *Phillyrea latifolia*, *Arbutus unedo*, *Pistacia lentiscus*, and *Myrtus communis*, to which *Daphne gnidium*, *Lonicera implexa* and *Rubus ulmifolius* further add as main plants of the undergrowth (GIANGUZZI, 1999).

The island is currently undergoing an active exhalative-hydrothermal volcanic phase, with several surface vents emitting gases and steam. A typical example is lake Bagno dell'Acqua, where water from springs filled an ancient caldera and gas emissions bubble in numerous places. This lake hosts a rich assemblage of halophilous plants and stands of common reed (*Phragmites australis*). The high diversity of habitats in the island led to the establishment in 2016 of the National Park "Isola di Pantelleria", whose administration promoted in the last years numerous surveys to assess the local insect diversity.

During one of these surveys dedicated to the Lepidoptera, *Micronola wadicola* Amsel, 1935, a new genus and new species for the European fauna, was recorded. The genus *Micronola* Amsel, 1935, originally established in the subfamily Nolinae of the then family Arctiidae (AMSEL, 1935), has recently been transferred by FIBIGER

(2011) to Micronoctuidae, a family which has since been reduced to tribal status within Erebidae Hypenodinae as Micronoctuini (ZAHIRI *et al.*, 2011), though its greatly divergent autapomorphies still leave some doubts about such positioning. The genus *Micronola* currently includes four species from the Near East and Africa (FIBIGER, 2011), and two species from Southeast Asia recently described by HAN & KONONENKO (2021), who also provided an updated identification key. The only other European species of Micronoctuini is *Micronoctua karsholti* Fibiger, 1997, recorded from Greece (Crete, Rhodos, Kos, Kapathos, and Samos), Turkey, Cyprus, Lebanon, Syria, and Israel (FIBIGER, 2007, 2011; FIBIGER & KONONENKO, 2008). However, the two species can be easily distinguished by examination of the male genitalia.

MATERIALS AND METHODS

During a survey carried out in February 2024 on Pantelleria, a nocturnal sampling session was run near the shore of Bagno dell'Acqua lake, using LED attraction lights of different wavelengths placed inside a light tower. The singleton of the species detailed herein was prepared in the laboratory according to the techniques indicated by PARENTI (2000). Digital pictures of the specimen were taken with a Nikon D600e digital camera (full frame) mounting Micro-Nikkor AI-s 105 mm lenses on a macro repro stand with Nikon pk extension tubes, at ISO100, and f8 aperture. White calibrations have been performed for each picture by using a X-Rite M50103 ColorChecker GreyScale 3-Step balance card. Wingspan has been measured at the tip of forewings including fringes with a calliper (precision 0.05 mm).

Slide mounting of the genitalia was arranged following the procedure described by ROBINSON (1976), with some modifications. Abdomen was detached and put in boiling 10% KOH solution (10-20 minutes). Afterwards, it was washed in distilled water with the addition of a few drops of glacial acetic acid and then soaked again in distilled water. Genital structures were dissected and dehydrated through immersion in ethanol at increasing concentrations (50%, 70%, 90%, 95% and 99%), then mounted in Euparal onto a standard slide with an 8 mm diameter coverslip. Slide photograph was taken with a Nikon Eclipse E100 trinocular microscope equipped with a Sony Color CCD 5.1 Mp TP 5100 microcamera managed by X-Entry software.

The species identification was carried out using the re-description provided by FIBIGER (2011) and the key provided by HAN & KONONENKO (2021). The voucher specimen and slide are preserved in the Giovanni Timossi Research Collection (GTRC) (Preganziol, Treviso, Italy).

RESULTS

Micronola wadicola Amsel, 1935

There are currently no known synonyms for this species, though after careful examination of the illustration of the adult and genitalia of *Medius fibigeri* Hacker, 2016, erected on the basis of a single male specimen from Yemen (HACKER, 2016), where also *wadicola* is recorded, we strongly suspect that this nominal taxon is based on a slightly aberrant specimen of *Micronola wadicola*.

MATERIAL EXAMINED

1♂, Italy, Sicily, Pantelleria Island, lago Bagno dell'Acqua, 36.81538 N - 11.98945 E, 2 m a.s.l., 16.II.2024, leg. G. Timossi, genitalia preparation no. 2181, in GTRC.

DESCRIPTION OF THE SPECIMEN

Male (Fig. I). Wingspan 10.2 mm. Ground colour beige grey; labial palpus slightly upturned, paler on inner side, 2nd palpomere elongated, ventrally rimmed with longer scales; 3rd palpomere thin, subcylindrical. Patagium large, tegulae flimsy, notum with flat scaling; forewing elongated with oblique termen and costa slightly concave at middle; ante- and postmedial lines dark grey; reniform stigma irregular dot-like, vivid yellow, lined black; fringe comparatively long, slightly paler than ground colour. Hindwing pale beige grey, slightly darker along veins and at termen; apex rounded, and outer margin distinctly concave at middle; fringe long, concolorous with ground colour, paler yellowish beige at very base and along anal margin. Abdomen beige. Underside pale beige.

Male genitalia (Fig. II). Tegumen long, broadly ovoid in outline, thin; vinculum similar but shorter. Valvae slightly asymmetrical, right one broader [see note below]; valva basally narrow, then greatly expanded at middle with sacculus greatly swollen dorsally and ending into subtriangular plate, left sacculus with some short bristles at base along inner margin and long ones



Fig. I - Adult male of *Micronola wadicola*, Pantelleria, 16.II.2024 (scale 3mm).

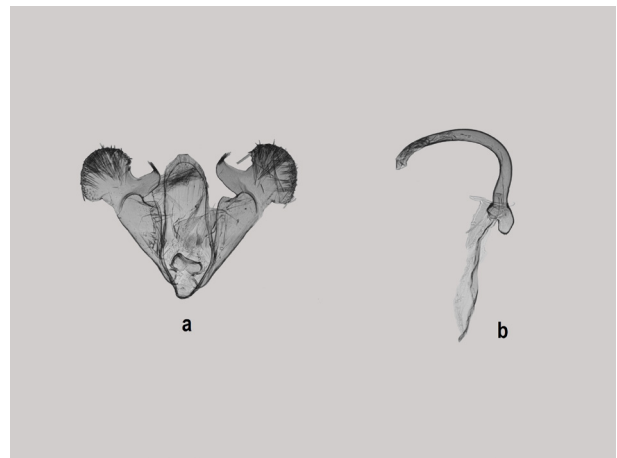


Fig. II - *Micronola wadicola*, male genitalia: a) apparatus; b) phallus (100x magnification).

distally, right one with similar albeit more sparse bristles; costa with broad, greatly expanded plate-like process between sacculus and cucullus, the process broad at base and slightly tapered apically, perpendicular to costa and apically tipped by outwardly projected bundle of short stiff bristles; cucullus short but broadly stalked, large, semicircular, with thick corona of long acicular spines. Juxta short and wide, saddle-like; anellus long, constricted at middle. Phallus with short coecum, shaft long and slender, strongly arcuate dorsally, appearing as an almost semicircular hook in side view.

NOTE.

In his redescription of the species, also FIBIGER (2011) noted a slight asymmetry in the valvae, though it is difficult to exactly match his observations with those of ours, partly because it is likely that the picture of his preparation was taken dorsally by his helper with genitalia illustrations, thus inverting the left with the right side; this circumstance also affects several pictures in the book series “Noctuidae Europaeae” edited by Fibiger himself (A.Z., pers. obs.).

DIAGNOSTIC REMARKS

The only other European species with which *Micronola wadicola* can be confused is *Micronoctua karsholti*. The latter is very similar but smaller-sized (wingspan

6.2-8.6 vs 9-16 mm) and with somewhat more strongly enhanced pattern, the bright yellow reniform stigma being in particular more evident and more strongly contrasting with the usually darker ground colour, but the two species look essentially so resembling, especially if specimens are worn or pale, that a sure identification should better be achieved after examination of the genitalia (see FIBIGER, 2011: pl. 11 fig. 4-5, pl. 12 fig. 3 - 5, pl. 27 fig. 2, 6). In the male ones, the massive subrectangular cucullus, short thorn-like costal process, and stout, almost straight phallus of *Micronoctua karsholti* represent easy diagnostic characters to distinguish this species from *Micronola wadicola*.

BIOLOGY

The larval hostplant of *Micronola wadicola* is unknown. According to FIBIGER (2011), the species occurs in very hot and dry areas, such as desert-like grassland and rocky biotopes with sparse trees. The Bagno dell'Acqua biotope hosts a peculiar halophilous vegetation attributable to the EU priority habitat no. 1510* (Mediterranean salt steppes-Limonietalia), which is dominated in such site by the restricted endemic *Limonium secundirameum* (Lojac.) Brullo (Plumbaginaceae). Mediterranean scrub is instead the prevailing formation in the surroundings of the lake (BRULLO *et al.*, 2020).

DISTRIBUTION

The species is reported from Palestine (geographic), Jordan, SW Iran, SW Saudi Arabia, Oman, and Yemen (FIBIGER, 2011). Of the various records from Israel present on the platform iNaturalist (2024), some seem attributable indeed to *Micronola wadicola*, others to *Micronoctua karsholti*. Our record from Pantelleria Island (Italy, Sicily) is the first for Europe.

DISCUSSION

From the second half of the 1800s, Pantelleria attracted the attention of entomologists but, after a first contribution on the insect fauna by RAGUSA (1875), a further account on the Lepidoptera of the island would only appear more than a century later, when a first comprehensive checklist was published by ROMANO & ROMANO (1995) in a volume on the Arthropoda of Lampedusa, Linosa e Pantelleria edited by MASSA (1995). More recently, the checklist of Lepidoptera from Pantelleria was updated by ROMANO (2020), who summarised also a number of papers that appeared in the meantime and listed 123 species as a whole; to this are added *Cnephisia bizensis* Real, 1953 and *Cnephisia amseli* (D. Lucas, 1942) of Tortricidae (TREMATERRA, 2003).

During the last years, BARBERIS *et al.* (2022) recorded 5 species of Geometridae as new to Pantelleria, whereas BARBERIS & NEL (2023) added a further 20 species of microlepidoptera from the island. The present record brings to 151 the number of Lepidoptera species known

from Pantelleria. Knowledge on the lepidopteran fauna of the island is very poor, in particular for the micromoth families Autostichidae, Blastobasidae, Coleophoridae, Cosmopterigidae, Elachistidae, Gelechiidae, Plutellidae, Tineidae, Psychidae, Pterophoridae, Pyralidae, Crambidae, and Tortricidae. Moreover, several families are not reported for the island yet. Its 151 species so far known represent approximately 2,90% of the Italian fauna, which includes about 5,200 species (BALLETO *et al.*, 2023).

Currently two endemic species are known for Pantelleria; *Thaumetopoea mediterranea* Trematerra & Scalerio, 2017 and *Anomalotinea cossyrella* Barberis & Nel, 2023 (TREMATERRA *et al.*, 2017; BARBERIS & NEL, 2023).

Considering the extension of the island, its flora (c. 600 species, BRULLO *et al.*, 2020) conditioned by a volcanic substrate, and the variety of peculiar environments, it is very likely that the limited number of species known from Pantelleria is due to the lack of systematic studies on the island. The discovery of *Micronola wadicola* in Pantelleria remarkably expands the distribution of this species to the West. It is likely therefore that the species will eventually be discovered in other parts of the Eastern Mediterranean such as South-east Europe, Turkey, and North-east Africa, though the possibility of confusion with sympatric *Micronoctua karsholti* in this wide area should from now be always taken into account.

ACKNOWLEDGEMENTS

The research in Pantelleria was carried out as part of the Pantelleria National Park Pollinator Biodiversity Conservation Project assigned to the University of Palermo (University of Palermo, SAAF Department, G. Lo Verde). We are very grateful to the director of the Park Dr. Sonia Anelli and to the biologist Dr. Andrea Biddittu for research support. Thanks for the photo of the adult are due to Davide Vallotto (Spinea, Italy). For the sourcing of useful literature we are indebted to Giacomo Masato of the scientific library of the Natural History Museum of Venice "G. Ligabue".

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