METAMORPHOSIS

LEPIDOPTERISTS' SOCIETY OF AFRICA

Volume 31(1): 40–44

ISSN 1018–6490 (PRINT)
ISSN 2307–5031 (ONLINE)

A new species of *Nephopterix* Hübner, 1825 from the Canary Islands, Spain (Lepidoptera: Pyralidae: Phycitinae)

Published online: 15 July 2020
urn:lsid:zoobank.org:pub:D0318017-B3F0-4680-AF4E-1C8FFA66F6EE

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Abstract: A new species is described from the Canary Islands in the genus *Nephopterix* Hübner, 1796 (Lepidoptera: Pyralidae: Phycitinae), *Nephopterix subangustella* sp. nov. The new species is closely related to *Nephopterix angustella* (Hübner, 1796) but differs by its slightly smaller size, more narrow wings and paler inconspicuous markings on the wing. In the genitalia the sacculus is more bent and the spines in the bursa are much larger. The larvae are found in flowers and seeds of *Maytenus canariensis* ((Loes.) Kunk. & Sund.). The adult moths, male and female genitalia of the two *Nephopterix* species are illustrated, along with the type locality. New records of *N. angustella* from Turkey and mainland Africa are published.

Key words: Taxonomy, Phycitinae, Canary Islands.

Citation: A new species of *Nephopterix* Hübner, 1825 from the Canary Islands, Spain (Lepidoptera: Pyralidae, Phycitinae). *Metamorphosis* **31(1)**: 40–44. DOI: https://dx.doi.org/10.4314/met.v31i1.9

INTRODUCTION

In August 2018 the author visited various islands in the Canary Islands and during surveys for micromoths collected some specimens of *Nephopterix*. The genus *Nephopterix* used to consist of many species (Balinsky, 1994), but recently a number of these species were transferred to other genera (Plant & Richter, 2020; Slamka, 2019). Of the five *Nephopterix* species found in Algeria (Rothschild, 1915), two were transferred to other genera (Slamka, 2019). The descriptions of the remaining three species in Algeria clearly show that they do not represent the new species discovered on the Canary Islands. The colour of their forewings is brown or strongly striated with oblique bands more or less broad (Rothschild, 1915), and they probably do not belong to the genus *Nephopterix*. There are no other *Nephopterix* species mentioned from the west-palaearctic zoogeographical region (Leraut, 2014; Lepiforum, 2020). A complete list of *Phycitinae* species from the Canary Islands does not contain any *Nephopterix* species (Vives Moreno, 2014), neither do other later published papers on Pyralidae from the Canary Islands (Falck, Karsholt & Slamka, 2019). In Europe, only *Nephopterix angustella* (Hübner, 1796) is known, and as the specimens from the Canary Islands looked slightly different, it was surmised that they represented an undescribed *Nephopterix* species, described below. The description includes specimens from Fuerteventura in the Canary Islands received from a colleague in February 2019, and comparisons are made with the closely related *Nephopterix angustella* from mainland Europe. Some specimens collected from Morocco and Turkey are also included in this investigation.

Received: 11 May 2020
Published: 15 July 2020

MATERIAL AND METHODS

Specimens of the new species were collected using light traps with 8W super actinic black light tubes or 125W mercury vapour bulbs. The specimens from Fuerteventura were found as larvae and reared to adults. The genitalia slides were made in accordance with standard procedures (Robinson, 1976) and mounted in Euparal. The photographs of genitalia preparations were taken with a Toup Tek camera mounted on a Toup Tek binocular microscope. Adults were photographed with a Canon 50D 100 mm lens. All relevant literature and internet sources have been examined to avoid creating a synonym. The holotype, paratypes and the other mentioned specimens are deposited in the research collection of Knud Larsen (KL). The nomenclature for adults and genitalia follows Roesler (1993) and Slamka (2019).

DESCRIPTION OF NEW SPECIES

Genus *Nephopterix* Hübner, 1825

Type species: *Nephopterix angustella* (Hübner, 1796), by subsequent designation (Desmarest, 1857). *Samml. eur. Schmett.* **8**: 33, pl.10, fig.68.

Nephopterix subangustella Larsen sp. nov.

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Material examined

Holotype ♂: SPAIN, Canary Islands, La Palma, Barranco de las Nieves, 250 m, 13–16.viii.2018, legit K. Larsen; Genit. prep. 3546, Larsen; Coll. K. Larsen.

Paratypes 2♂1♀: same data as holotype. 1♂1♀: El Hierro, Frontera, El Sitio, 340 m, 10–12.viii.2018, legit K Larsen. 2♀: Fuerteventura, La Lajita, 28°11′03″N 14°09′49″W, 60 m, i.2019; ex larva from *Maytenus canariensis*, legit R. Paas; Coll. K. Larsen.

Description:

Male (Fig. 1):

Head Labial palpi twice the eye diameter, curved upwards, light grey with scattered dark scales distal. Antennae filiform, weakly pectinate with small flagellum.
Body Thorax light grey with darker tegulae; abdomen grey.
Wings Wingspan 18–20 mm. Forewing: very narrow, light grey, antemedial line consisting of a narrow stretch of raised black scales reaching two thirds from dorsum, this patch is surrounded by an irregular double line not reaching costa, small double discal spots, a weak postmedial line resolved to small dark lines, marginal line with dark dots, fringes light grey, underside grey, darker at area of raised scale. Hindwing: whitish grey with a fine marginal line, fringes light grey, darker at apex, underside whitish grey.

Figure 1 – *Nephopterix subangustella* sp. nov. Holotype ♂, 18 mm wingspan. La Palma : Barranco de las Nieves.

Female Wingspan 18–21 mm. Otherwise like male.
Male genitalia (Figs 2 & 3) Uncus broad, rounded, distal hairy, gnathos small, star shaped, transtilla long, curved and pointed, valve with parallel sides, cucullus pointed and strongly curved dorsally, vinculum processes elongate rounded. Phallus simple with three clusters of spines. Culcita simple, pointed.
Female genitalia (Fig. 4). Apophyses posterior longer than apophyses anterior, ostium and antrum very weak, ductus bursa broad, very strong signum ridge dividing superiorly and ending in cross tie of tiny spines, inferiorly the signum ridge is widening and with long strong spines, bursa copulatrix with rather strong curved signum.

Diagnosis

Nephopterix subangustella sp. nov. is separated from *N. angustella* by its slightly smaller size, narrower wings with straighter costa, lighter ground colour and the more diminutive tuft of raised scales and the diffuse postmedial line. In the male genitalia the shape of the gnathos, transtilla and the stronger curved costa of the cucullus distinguishes the species. In the female genitalia the broader and longer ductus bursa, the stronger spines and the strong curved signum are characteristic.

In *Phycitinae* morphological differences between species tend to be rather slight e.g. in *Asalebria* Amsel, 1953 (Slamka, 2019), but the combination of external characters and differences in the genitalia structure are generally conclusive for separating the species.

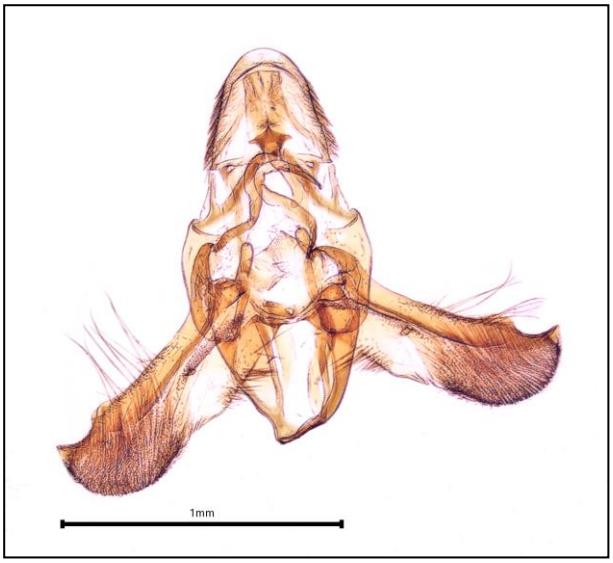

Figure 2 – *Nephopterix subangustella* sp. nov. male. La Palma. Genit. prep. 3546 ♂ KL.

Figure 3 – *Nephopterix subangustella* sp. nov. phallus & culcita. Genit. prep. 3546 ♂ KL.

Etymology

The species is named because of its similarity to *N. angustella*.

Ecology

The type locality is not far from the start of Barranco de las Nieves on the island of La Palma, where the thicket vegetation at the beginning of the Barranco transitions to mixed forest (Fig. 5).

The larvae can be found in flowers and seeds of *Maytenus canariensis* ((Loes.) Kunk. & Sund.) (Bramwell & Bramwell, 2001), spinning a web around the seeds and optionally adjacent leaves. It pupates outside the webs in the seeds or in another spun cocoon. Larvae have only been found in January and hatched from eggs after two weeks. The larvae are brown-green with a dark green line with darker points at each side of the abdomen. The adults have been recorded in two broods (February and August). (R. Pass, pers. comm.).

Figure 4 – *Nephopterix subangustella* sp. nov. Fuerteventura, La Lajita female. Genit. prep. 3538 ♀ KL.

The host plant is endemic to the Canary Islands. It is a shrub/ small tree growing in the transition zone from thermophile forest to cloud forest. It is rare but widespread on all western islands of the Canary Islands. The plant is very rare on the island of Fuerteventura and it does not grow on the island of Lanzarote. (Bramwell & Bramwell, 1990).

Nephopterix angustella (Hübner, 1796)
(Figs 6, 7, 8a & b, 9)

Material examined

1♀: DENMARK, LFM, Vindeholme, 2.ix.2005; Genit. prep. 3539 KL. 1♀: LFM, Liselund, 30.viii–11.ix.2019; Genit. prep. 3548 KL. 1♂: NEZ: Søborg, 3.viii.2006; Genit. prep. 3545 KL. 1♀: B, Rønne, 11.ix.2003 Gen. prep. 3550 KL. 28♂ & ♀: DENMARK, Districts WJ, LFM, SZ, NEZ & B; Coll. KL. (Buhl, ed., 2018).
1♂: TURKEY, Konya, Taşkent, 1500 m, 20–21.vii.1994, legit K Larsen; Genit. prep. 3549 KL (new to district Konya in Turkey).
1♂: MOROCCO, Agadir, 2 km E Tagherat Anekrim, 31 km E Aouir, 30°35′56″N 09°29′49″W, 635 m, 25–30.i.2017, legit C Hviid & K Larsen; Genit. prep. 4201 KL (new to Morocco and mainland Africa).

Figure 5 – *Nephopterix subangustella* sp. nov. Type locality. La Palma, Barranco de las Nieves.

Figure 6 – *Nephopterix angustella* (Hübner) male 21 mm wingspan. Morocco, Agadir, Tagherat Anekrim.

Distribution

Nephopterix angustella is a widespread, common and well-known European species (Leraut, 2014). It is spreading slowly to northern Europe following its host plant (*Euonymus europaeus* L.), and it is now known from most of the Danish districts and all Nordic and Baltic countries except Estonia. (Aarvik *et al.*, 2017). In southern Europe it is known from Portugal and Madeira (Meyer, 1997; Vives, 2014). It is also mentioned from two Russian districts: Middle-Volga region and West-Caucasian region. (Sinev, 2008). Outside Europe it is only mentioned from eastern Turkey, from two localities in the Bitlis province (Koçak & Kemal, 2017 & 2018).

Genitalia

Genitalia images can be found on the website Lepiforum

(www.lepiforum.de/lepiwiki.pl?Nephopterix_angustella) and new photos are shown in Figs 7, 8 & 9 to improve the understanding of the diagnostic characters of this new species.

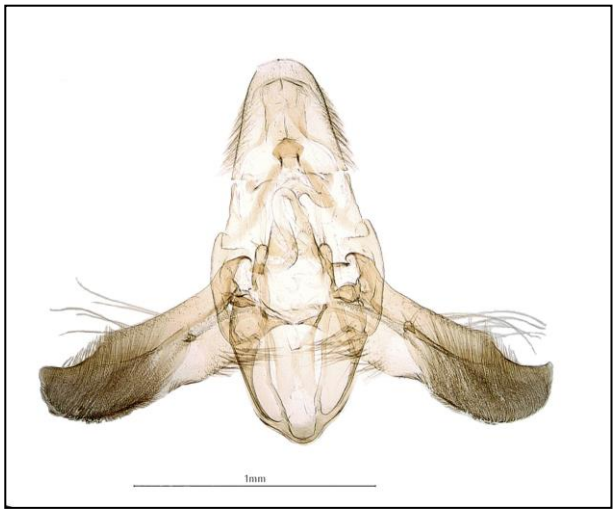

Figure 7 – *Nephopterix angustella* (Hb.) male. Denmark, Søborg. Genit. prep. 3545 ♂ KL.

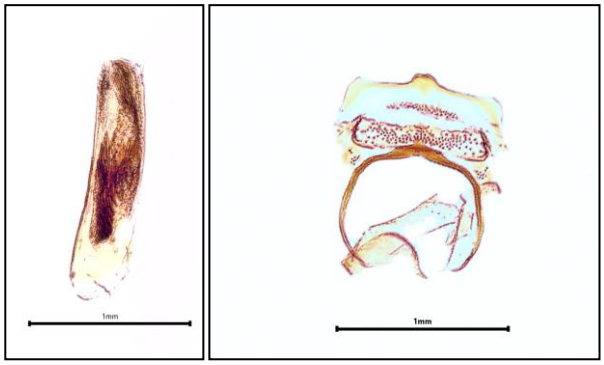

Figure 8 – *Nephopterix angustella* (Hb.) male. Denmark, Søborg Phallus (left side) & culcita (right side). Genit. prep. 3545 ♂ KL.

DISCUSSION

The discovery of the new *Nephopterix* species is another example of the Canary Islands hosting endemic and isolated species. This process has continued for thousands of years and has been stimulated both by the isolation of the islands and the period ice ages in the northern hemisphere. Since the drying out of North Africa created the Sahara, the Canarian laurisilva forest ecosystem has been isolated for thousands of years (Bramwell & Bramwell, 2001). *Nephopterix subangustella* sp. nov. is presumed to be an old relict connected with the occurrence of the floristic endemics of the Canary Islands. *M. canariensis* and *E. europaeus* are both Celastraceae, and closely related, so therefore the host plant of *N. subangustella* supports the placement of the new species as a close relative of *N. angustella*.

ACKNOWLEDGEMENTS

A special thanks is given to my colleague Morten Mølgård, Ålborg, who was very helpful during the expedition to the islands and also for the locality photo from La Palma. Mr. Reinhard Paas, Morro Jable, Fuerteventura is also thanked for the specimens of the new species and for the very valuable information about its biology. Mr. Tony Kingston, Shropshire, UK has kindly provided linguistic assistance to the manuscript. The author is likewise grateful for the help and support of the editor of *Metamorphosis* and the reviewers.

Figure 9 – *Nephopterix angustella* (Hb.). Denmark, Vindeholme female, Gen. prep. 3539 ♀ KL.

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