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Revision of the tribe Nolini of Africa and the Western Palaearctic Region (Lepidoptera, Noctuoidea, Noctuidae, Nolinae)

by

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Contents

Summary

The Nolini (Lepidoptera, Noctuidae sensu lato, Nolinae, Nolini) of Africa, Madagascar and the Western Palaearctic Region are reviewed and described.Their status and relationships are discussed in diagnoses of each genus, subgenus or species. The treatment covers 427 species distributed over 8 genera. For each species type specimen, type series and all available specimens, distributed over numerous museums and private collections, have been checked. A diagnosis and the geographical range are given, and where known, habitat preference and biology.

All species are presented with their full name and references to the original description, fully referenced synonyms; special emphasis is given to the descriptions of genitalic features. For each species colour photos of adults, figures of male and female genitalia, and in many cases distribution maps are provided. For a complete list and synopsis of all specific taxa of Africa, Madagascar and the Western Palaearctic Region see the *Checklist of species/subspecies/species-groups* given at the beginning of the specific treatment.

Descriptions of 2 genera, 2 subgenera, 253 species and 14 subspecies are given.

Key words: Revision, Nolidae, Nolini, Africa, Madagascar, Western Palaearctic Region, taxonomic and faunistic revision, distribution, bionomics, figures of species and genitalia, descriptions of species.

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Introduction

The Nolinae are represented here as a subfamily of the family Noctuidae, which is the largest family of Lepidoptera, with about 50.000 described species and numerous subfamilies, including Arctiinae, Lithosiinae, Syntominae and Lymantriinae, which were formerly treated as separate families (Lafontaine & Fibiger, 2006). The concept and interpretation of the monophyletic Nolinae has been changed several times. Hampson (1900, 1914-1915) treated them either as an arctiid subfamily or a separate family, which was the general use for a long time, most recently by Inoue et al. (1982). Kitching (1984) and Franclemont & Todd (1983), and earlier van Son (1932; as tribe Nolini) included them in the Noctuidae. Later on, Kitching & Rawlins (1999), Holloway (2003) and Fibiger & Lafontaine (2005) upgraded the three relatively compact groups Nolinae, Sarrothripinae and Chloephorinae to the family Nolidae as a single phyletic unit. Fibiger & Lafontaine (2005) moved the families Nolidae, Arctiidae and Lymantriidae to a position before the Noctuidae to reflect their close association with the quadrifid noctuids (the "Erebidae"). Later, Lafontaine & Fibiger (2006) placed the Nolinae as a subfamily of Noctuidae, including the tribus Nolini Bruand, 1846, Chloephorini Stainton, 1859, Westermaniini Hampson, 1918 and several others, because recent morphological and molecular studies had provided evidence for a more inclusive definition of the family Noctuidae (Noctuoidea).

Despite their systematic position as family Nolidae as defined by Holloway (2003) or subfamily Nolinae of the family Noctuidae (Fibiger et al., 2009) this large group with world-wide distribution is defined here as an undoubtedly monopyletic unit, known in the Palearctic Region by the well-known major genera *Nola* Leach, [1815] 1830 and *Meganola* Dyar, 1898.

Fibiger et al (2009) placed the subfamily Nolinae within Noctuidae, among the "middle ancestral groups of the trifine Noctuidae, where some have quadrifine and some trifine hindwing venation within the same subfamily, e.g. Acronictinae and Eustrotiinae". They gave the totally fused tympanic bullae found in all Nolinae (cf. Fibiger & Lafontaine, 2005) as strong character for their placement among the trifine Noctuidae, while the bullae of the quadrifine Noctuidae are completely separated. We follow their explicit statement given in Noctudae Europaeae vol. 11, in placing the Nolinae just before Acontiinae.

Definition of subfamily Nolinae

The Nolinae are characterised by the following autapomorphies:

1) In all known examples, the cocoons are boat-shaped, at the head-end with a vertical slit.
2) The unique method of construction of the cocoon by the larva: at first from outside making a tight, boat-shaped and often well camouflaged construction, starting with the walls of two sides, then crawling in to seal them dorsally. The method is described in detail by Steiner (1994) and referred to by Holloway (1998) as "two walled method".
3) The distal end of the abdomen of the pupae of the Nolinae is posteriorly rounded, lacking any cremaster.
4) The labial palps of all Nolinae are porrect and thus different from all other noctuoid (?B) subfamilies, which have a third, short and more or less upturned segment.
5) The uncus in true sense is absent in all Nolinae. Instead of an uncus, which is able to move independently from the tegumen, most of the genera (e. g. *Meganola*) have a so-called pseudouncus, which is developed from the 10th abdominal segment. This pseudouncus is normally completely membranous, but often also developed as sharply pointed hook and hardly distinguishable from a normal uncus. In *Nola* and some other related genera the pseudouncus is also absent. To replace the function of the uncus (to hold the tip of the female abdomen dorsally) these species have a bilobed cucullus which is able to tightly clasp the female abdomen from both sides, even without help of the uncus.
6) Speidel et al. (1996) mentioned a heavily sclerotised, short or very short transtilla in all Nolinae.

Two further autapomorphies are mentioned by Fibiger et al. (2009), regarding the muscles of the male genitalia and their position, as detailed by Tikhomirov (1979) and Speidel et al. (1996).

In addition, Nolinae show other typical and important features, which are not apomorphic, but nevertheless noteworthy; similar characters are also known in various other subfamilies/genera and by themselves not useful to characterise the Nolinae:

Habitus

- The hindwing venation is variable, with both trifine and quadrifine venations; the quadrifine venation is more common, e.g. in *Meganola*, while trifine venation prevails in *Nola*.
- Eyes large, semi-globular, naked; with exception of *Nolini* generally with ocelli.

Male genitalia

- Scaphium present, weakly sclerotised, in *Nola* with spreading setae.
- The fultura inferior (juxta) of the Nolinae is usually large, semi-globular, posteriorly arched, centrally membranous, but heavily sclerotised throughout, except by the spiculed, dorsal anellus. According to Fibiger et al. (2009) this part of the juxta gives the impression of a sclerotised band between the two valvae and vinculum and has led Holloway (2003) to designate it as 'saccular shield' and a further autapomorphy of the Nolinae.

Female genitalia

- Bursa copulatrix with a bulged cervix.

The subfamily Nolinae is subdivided into nine distinct tribes (Fibiger et al., 2009):

- Nolini Bruand, 1846 (with two subtribes Nolina Bruand, 1846 and Roeseliidina Walker, [1865])
- Chloephorini Stainton, 1859
- Collomenini Kitching & Rawlins, [1998]
- Sarrothripini Hampson, 1894
- Eligmini Mell, 1943
- Afridini Kitching & Rawlins, [1998]
- Blenini Mell, 1943
- Risobini Mell, 1943
- Westermanniini Hampson, 1918

Definition of the tribus Nolini Bruand, 1846

The tribus Nolini Bruand, 1846 contains as far as we know about 3.000 species and differs from the other tribes by the following characters:

Habitus

- Wingspan of the imagines usually around 20 mm; the smallest African members less than 10 mm, the largest above 30 mm.
- Colouration inconspicuous, usually grey/grey-brown, blackish, whitish of a mixture of all of them. Of central importance for determination are the crosslines of the forewings, which are usually complete, though often faint, but invariably different between the species.
- Fresh specimens of both sexes often show three patches of raised scales on the forewing upperside along the subcostal vein, one at the base, the other two close to the orbicular and reniform stigmata.
- Antennae of male fasciculate, bipectinate or doubly bipectinate; lamellae usually short in the subtribus Nolina Bruand, 1846, and longer in the subtribus Roeseliidina Walker, [1865]. Antennae of female usually filiform, particularily also ciliate with short lamellae.
- Ocelli absent.
- Hindwing venation cf. also under the subfamily: trifine in the subtribus Nolina Bruand, 1846, and quadrifine in most of the subtribus Roeseliidina Walker, [1865].

Male genitalia

- Pseudouncus present in Roeseliidina, absent in Nolina.
- Scaphium with two dorso-lateral setose patches; according to Fibiger et al. (2009) this character appears in very different character states in various groups and genera and might by a 'valid apomorphic feature for the generic subdivision of *Meganola*'.
- The eight autapomorphies given by Fibiger et al. (2009), the 'presence and position of a large, broad, triangular, ventrally directed and often pointed digitus, positioned medially or submedially on the valva, usually anterior to the ampulla' is appropriate to the European and most of the Palearctic species, but not to all of the African ones.
- Sacculus often small, unmodified; valva simple with the typical noctuid clasper-harpe system in Roeseliidina, bilobed in Nolina; aedeagus rather normal, often with apical projection; often with little more than one cornutus.

Female genitalia

- Antrum membranous and very short in Nolina, absent in many species of Roeseliidina.
- Corpus bursae usually pyriform, often with two transverse signa; in many cases the signa are very large or of different size and shape.

Bionomics

The larvae are characterised by the reduction of the anterior pair of the abdominal prolegs (i.e. with only three

pairs of prolegs). As far as known, the larvae are found on a wide range of trees, shrubs, and herbaceous plants. The bionomics of the African species are mostly unknown, therefore this section is usually omitted.

History of exploration

So far, 73 species of Nolini have been described or reported from the African mainland by a small number of authors. Van Son (1933) was the first to attempt a broad scope revision of the South African Nolini, and included a description of five genera and 19 species. Fletcher (1958) summarized the records of the British Museum expedition to East Africa 1934-35 and to the Ruwenzori Mountains 1952. The same author also chronicled the Nolini in collections made by Christa Lindemann and Nina Pavlitzki in Tanzania. Both papers include descriptions of new species and distributional information on already known species. The foundations for the exploration of the African Nolini were laid, as in other groups of the Noctuoidea, in the decades from about 1890 to 1920 by Hampson, who elaborated the huge amount of material collected in the British Empire at that time, and preserved in the British Museum (Natural History), London.

The exploration of the Madagascan fauna was made mainly by French explorers and scientists in the five decades from 1950 to 2000. Toulgoët (1954-84) lists altogether 59 species from Madagascar and the Archipelago of the Comores, all of them endemic, and most of them also described by him.

An up to date revision of the European Nolini was made by Fibiger et al. (2009), with 17 *Nola* and 6 *Meganola* species, published in Noctuidae Europaeae vol. 11. An inventory of species occuring in North Africa, Near and Middle East has never been published and that fauna awaits a fundamental revision. Only Ebert (1973) gave a short list, with the description of *Celama parwana*, collected during the second Deutsche Afghanistan-Expedition 1966 der Landessammlungen für Naturkunde, Karlsruhe. All other information on the Nolini of the huge area covered in this book is scattered across numerous papers with particular reports, often with isolated and little-known descriptions of species.

Material and Methods

Material and data given in this revision are from all collections with specimens from the area concerned. These are British Museum (Natural History), London, Museum National d'Histoire Naturelle, Paris, Musée Royal de l'Afrique Centrale, Tervuren, Museum Witt, München, Naturhistorisk Museum, Oslo, Naturhistorisches Museum der Humboldt-Universität, Berlin, Naturhistorisches Museum, Wien, Staatliches Museum für Naturkunde, Karlsruhe, Forschungsinstitut Senckenberg, Frankfurt, Transvaal Museum, Pretoria and Zoologische Staatssammlung, München, and also from a large number of private collectors, who are listed under 'Acknowledgements'.

The majority of the specimens were located in separate drawers or boxes containing unidentified material. Accurately determined material was found in the Madagascan collection in the Museum National d'Histoire Naturelle, Paris (elaborated by Mr. Toulgoët), and partly the British Museum (Natural History), London and the Transvaal Museum, Pretoria, which contained a larger number of type specimens.

For the present revison efforts have been made to examine and figure all relevant type specimens. Most of them were located in the collections mentioned above. In contrast to other volumes of 'Die Gross-Schmetterlinge der Erde', Seitz (1926) did not validate infrasubspecific names by Strand based on the unnamed 'ab.' categories of Hampson and therefore it is unnecessary to take them into account.

The holotypes of the species described here are deposited in the current collections except where indicated to the contrary; if collected by the authors in the Zoologische Staatssammlung München.

Photographs of the specimens were usually taken before dissection. Because of the immense number of species treated here and their often striking similarity, it was necessary to make more than 2500 male and female genitalia dissections, applying the standard procedure for Noctuoidea (Fibiger, 1997). The nomenclature of internal features, mainly parts of the male and female genitalia follows the series Noctuidae Europaeae and earlier publications of the senior author (especially Hacker, 2004; Hacker et al., 2008). The definition of the processes of the inner surface of the valva of the male genitalia varies in different publications, especially between those of the New and the Old World. Therefore the features clasper, harpe, digitus and ampulla are defined again here to avoid ambiguity.

DNA barcodes for the majority of the species treated here were obtained by sampling dry legs from each specimen. The DNA extracts are stored at the CCDB and the DNA-Bank facility of the ZSM. Data of the specimens, e. g. images, voucher deposition, GenBank accession number, GPS coordinates, sequence and trace file are stored in the BOLD in the GZPPL and GZPPT projects. The sample IDs (Museum IDs) of the specimens (voucher deposition) are listed each, such as "BC ZSM Lep 48145"; the samples used for this revision are purple highlighted

and underlined.

The handling of the sequence divergences for the barcode region follows Ratnasingham & Herbert (2007) using the Kimura 2 Parameter model, employing the analytical tools on BOLD (cf. Hausmann, 2011). The genetic distances between genera and species shown in figures 1-15 are reported as minimum pairwise distances (cf. also Hausmann, 2011).

Unfortunately the results of DNA sequencing become less clear in old specimens, and also because of the tiny size of many Nolini. Therefore matchable results have only been possible for species of which newly collected material was available.

Generic classification of the African Nolini

The generic arrangement of the African Nolini is not unlike to that in the Palaearctic and Oriental Regions, everywhere characterized by the two major genera *Nola* and *Meganola*. Some other endemic genera occur in Africa, one of them endemic to the Cape Region of South Africa. For a brief classification, the characters of male and female genitalia are figured here.

Genus *Nola* Leach, [1815]

Antennae of male usually fasciculate, otherwise ciliate or bipectinate (*N. cucullatella* species-group); fore- and hindwing venation reduced; hindwing venation trifine.

Male genitalia

Pseudouncus absent, scaphial structures reduced. Valva bilobed with characteristic cleavage: the ventral arm with clasper-harpe system; harpe often developed as small and inwardly bent spine. Aedeagus small, usually lacking larger cornuti.

Female genitalia

Antrum membranous and very short; ductus and corpus bursae very variable; corpus bursae usually with signa, which are formed by horn-like invaginations.

Distribution

Worldwide, with numerous African species.

Genus *Nolidia* van Son, 1933

In habitus, *Nolidia* species are more like those of *Nola* than *Meganola*. Antennae of male fasciculate, those of female filiform or with short cilia. Although the type species of *Nolidia* is rather large, many of the species are among the smallest African nolids.

Male genitalia

Pseuduncus present, very small; scaphial structures reduced. Valva bilobed as in *Nola*, with characteristic cleavage: the ventral with clasper-harpe system; harpe often developed as small and inwardly bent spine. Aedeagus usually lacking larger cornuti; caecum tiny with an anterior, cartilaginous border.

Female genitalia

Antrum membranous and very short; ductus and corpus bursae very variable; corpus bursae usually with signa, which are formed by horn-like invaginations.

Distribution

The genus includes a larger number of African species; a few reach the southern Arabian Peninsula.

Usambaranola Hacker **gen. nov.**

Male genitalia

Pseudouncus present; valva lacking cleavage into two sections, relatively simple, elongated, with long clasper and costal process, which resembles that in *Evonima*.

Distribution

One species, known from the Usambara and Eastern Arc Mountain system in East Africa which is known for high

rates of endemism and the existence of ancient and archaic form.

Genus *Evonima* Walker, 1865

In contrast to *Meganola*, hindwing venation trifine, forewing markings and coloration differing from typical nolids.

Male and female genitalia

Similar to those of *Meganola*.

Distribution

A number of South East Asian tropical-subtropical species, two species also from Africa.

Meganola Dyar, 1898

The species of this genus are usually larger than those of *Nola*. Antenna of male doubly bipectinate; that of female filiform or shortly ciliate; hindwing venation quadrifine.

Male genitalia

Pseudouncus present, scaphium with two dorso-lateral setose patches. Valva elongated, simple; cucullus rounded, sacculus elongated, flat; clasper-harpe system large and heavily sclerotised, tip of the harpe bent inwards; Aedeagus normal, often with cornuti.

Female genitalia

Ductus bursae tubular, parts often sclerotised; bursa copulatrix membranous, ovoid, often with cervix and with 1 - 2 signa, sometimes also with sclerotised band(s).

Distribution

Worldwide. The majority of African nolids belong to this genus.

Vandamia van Son, 1933

Antennae of the male doubly bipectinate with short lamellae, those of the female filiform. Wings rather broad and short; forewings characteristically striped by the strongly marked ante- and postmedian fasciae.

Male genitalia

Pseuduncus present, with strong hair tufts on both sides; valva asymmetrically bilobed: the more ventral lobe, with the strong clasper-harpe system short, broad, posteriorly semicircularily terminated; the more dorsal half as long, slender with a strong hair tuft in central position; aedeagus slender, without cornuti.

Female genitalia

Abdominal segments 8 and 9, including papillae anales and apophyses normal; antrum small and short, sclerotised; ductus bursae moderately long, tubular, slender, membranous; bursa copulatrix ovoid, lacking signa.

Distribution

Endemic to South Africa and more or less restricted to the Cape Floral Kingdom.

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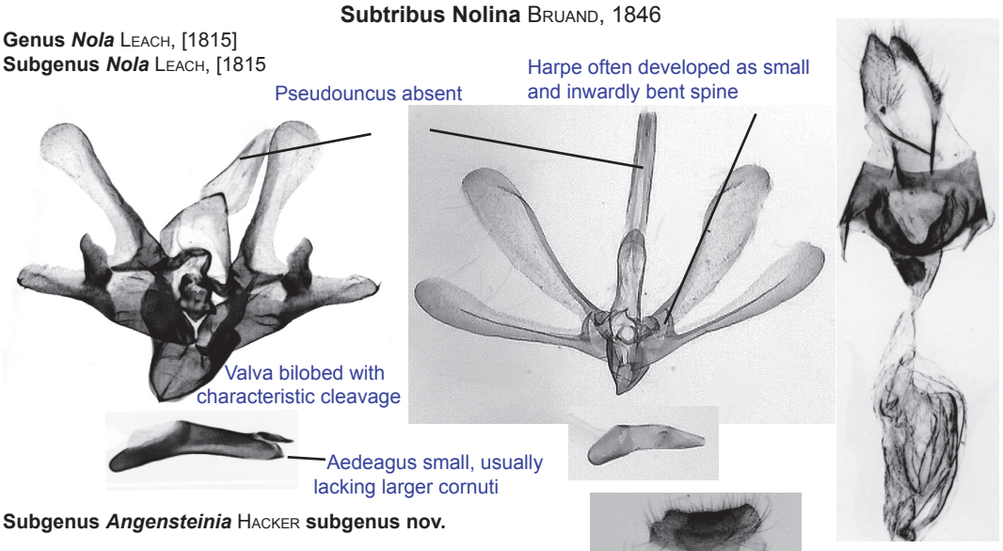
Abbreviations

BMNH	British Museum (Natural History), London
CM	Carnegie Museum of Natural History, Pittsburgh
NHMB	Naturhistorisches Museum, Basel
NMK	National Museums of Kenya, Nairobi
HNHM	Hungarian Natural History Museum, Budapest
MNHN	Museum National d'Histoire Naturelle, Paris
MNVD	Museum für Naturkunde und Vorgeschichte, Dessau, Germany
MRAC	Musee Royal de l'Afrique Centrale, Tervuren
MW	Museum Witt, München
NHMO	Naturhistorisk Museum, Oslo
NHMU	Naturhistorisches Museum der Humboldt-Universität, Berlin
NHMW	Naturhistorisches Museum, Wien
NMNH	National Museum of Natural History, Sofia
NRM	Naturhistoriska Riksmuseet, Stockholm
SAM	South African Museum, Capetown
SMNK	Staatliches Museum für Naturkunde, Karlsruhe
SNG	Forschungsinstitut Senckenberg der Senckenbergischen Naturforschenden Gesellschaft, Frankfurt
TMP	Transvaal Museum, Pretoria
USNM	United Staates National Museum, Washington, DC
ZMH	Zoologisches Museum Hamburg
ZMUK	Zoological Museum of the University, Copenhagen
ZSM	Zoologische Staatssammlung, München

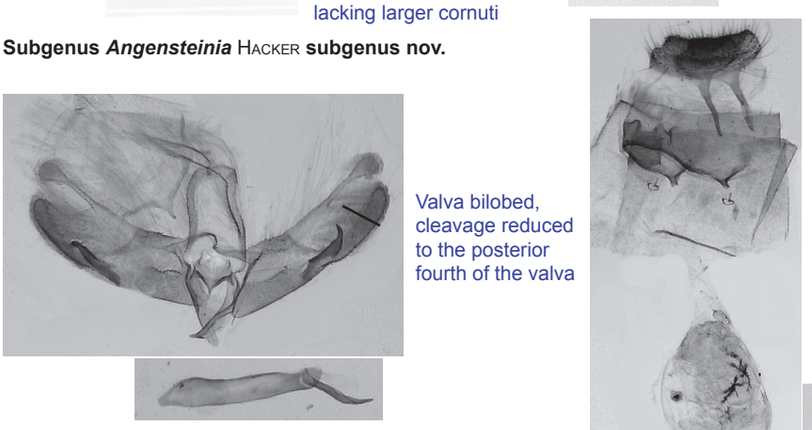
BOLD	Barcode of Life Data Systems
CCDB	Canadian Centre for DNA Barcoding
RCA	Central African Republic
RSA	Republic of South Africa
UAE	United Arab Emirates

Subtribus Nolina Bruand, 1846

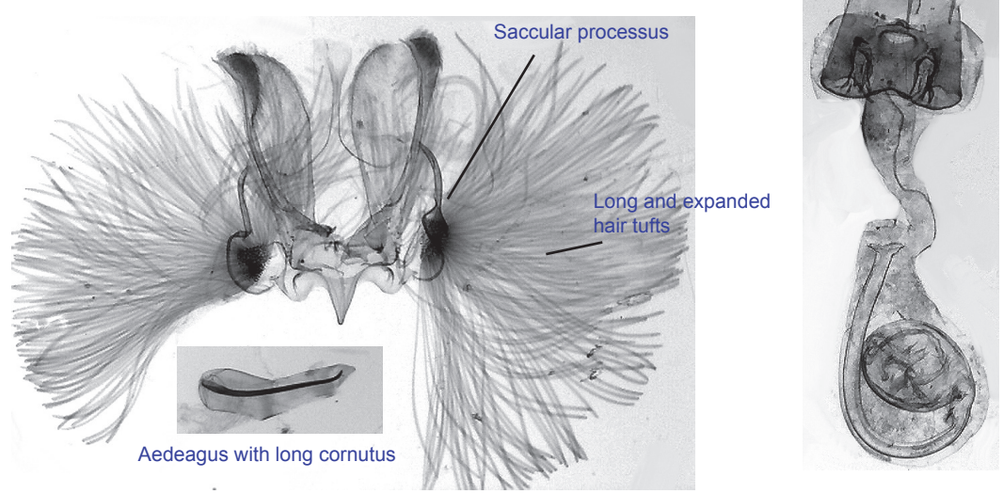
Genus *Nola* Leach, [1815]
Subgenus *Nola* Leach, [1815



Subgenus *Angensteinia* Hacker **subgenus nov.**

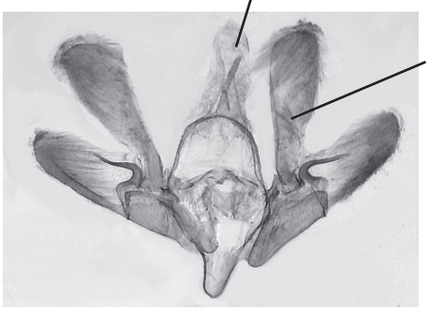


Subgenus *Mecothrix* Hacker **subgenus nov.**



Genus *Nolidia* van Son, 1933

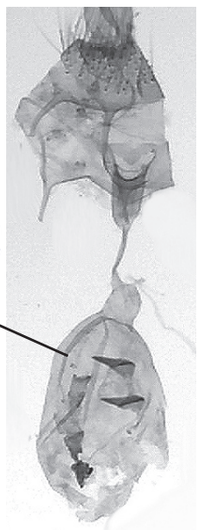
Pseudouncus present, very small



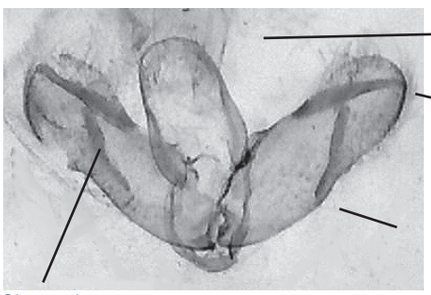
Valva bilobed

Aedeagus usually lacking larger cornuti; caecum tiny with an anterior, cartilaginous border

Corpus bursae usually with signa, which are formed by horn-like invaginations



Genus *Usambaranola* Hacker **gen. nov.**



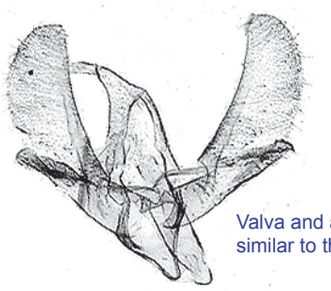
Pseudouncus present

Costal process

Valva lacking cleavage into two sections, relatively simple

Clasper long

Genus *Evonima* Walker, 1865

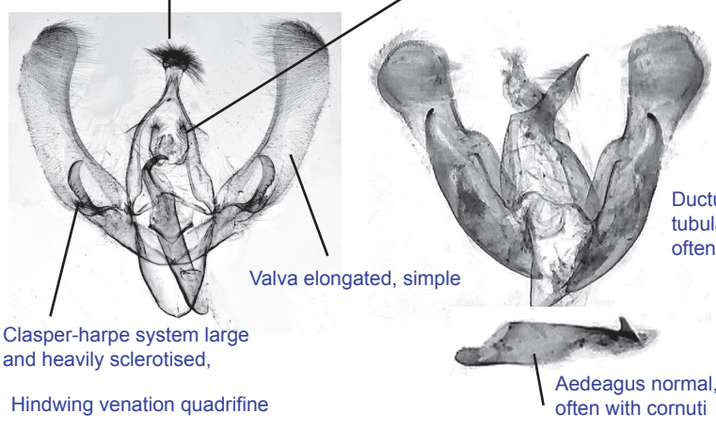


Valva and appendages similar to those of *Meganola*

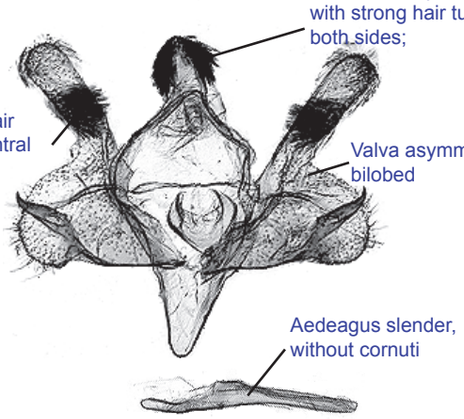
Hindwing venation trifine

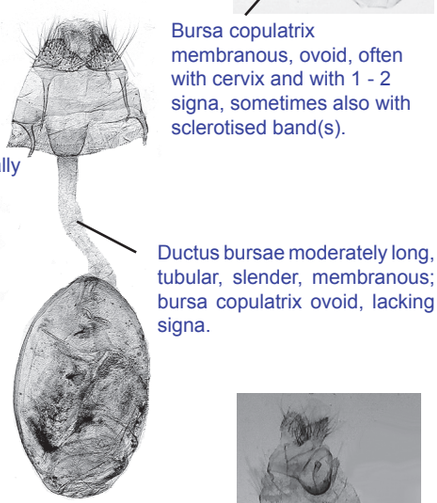
Subtribus Roeseliidina Walker, [1865]

Genus *Meganola* Dyar, 1898

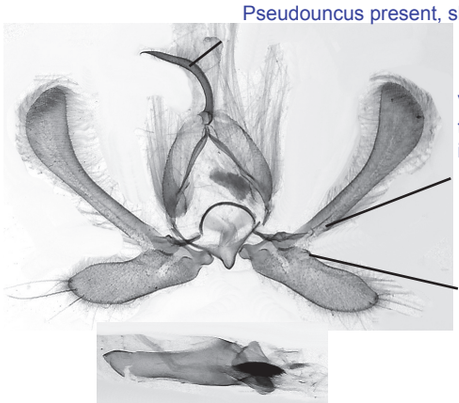


Genus *Vandamia* van Son, 1933

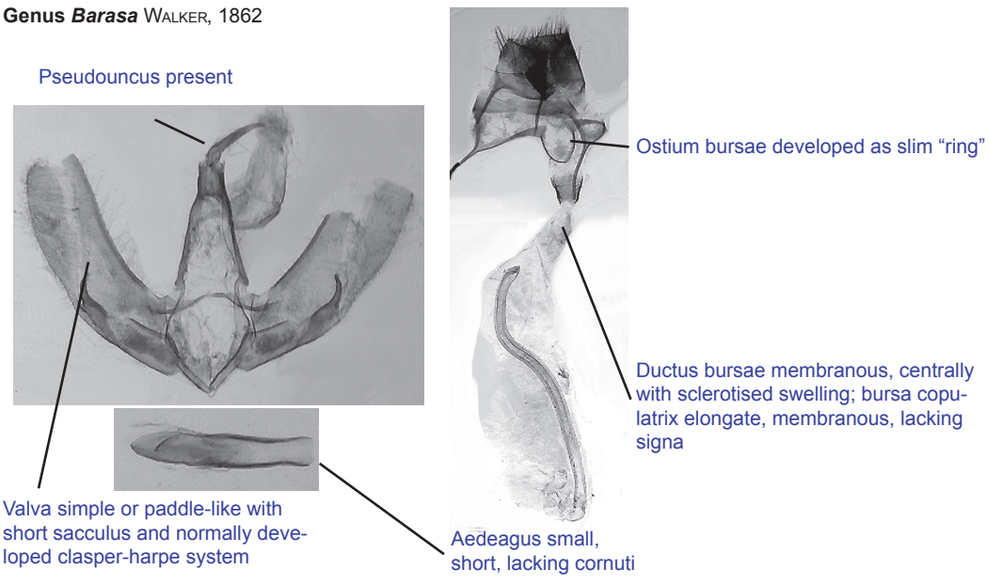




Genus *Madanola* Hacker **gen. nov.**



Genus *Barasa* WALKER, 1862



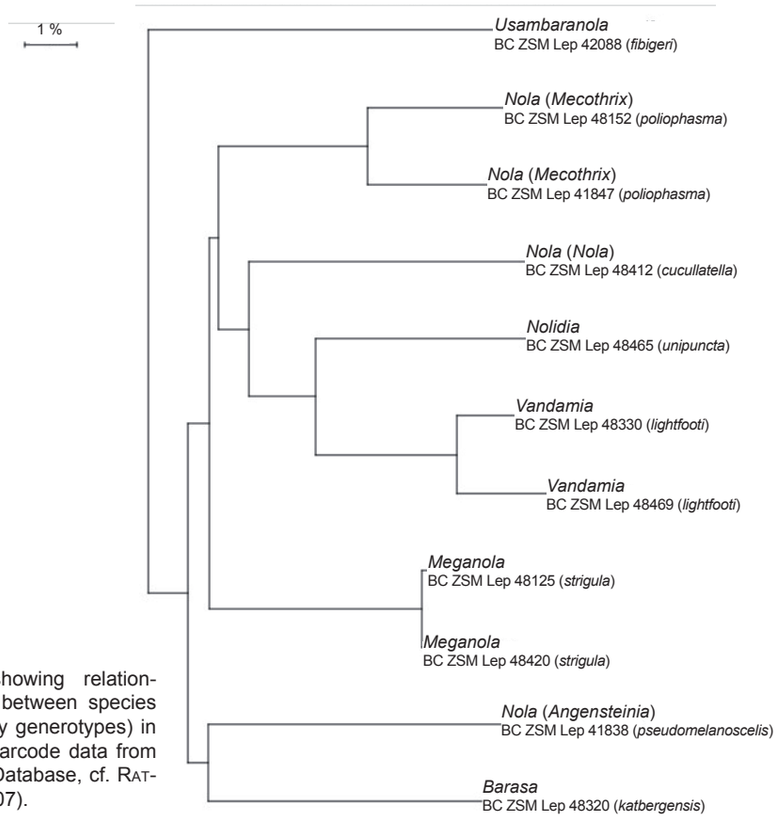


Fig. 1 Dendrogram showing relationships: genetic distance between species of distinct genera (mostly generotypes) in percent. Source: DNA Barcode data from BOLD (Barcode of Life Database, cf. RATNASINGHAM & HERBERT (2007).

Checklist of species/subspecies/species-groups

Subtribus Nolina Bruand, 1846

Systematic Part

Subfamily Nolinae Bruand, 1846

Nolites [Nolinae] Bruand, 1846, Memoires de la Société d' Emulation du Doubs **2**: 113. Type-genus: *Nola* Leach, [1815]

Tribus Nolini Bruand, 1846
Subtribus Nolina Bruand, 1846

Genus *Nola* Leach, [1815]

Nola Leach, [1815], New Edinburg Encyclopedia **9**: 135. Type-species *Noctua palliola* [Denis & Schiffermüller], 1775 [junior syn. of *Nola cucullatella* (Linnaeus, 1758)]

= *Lira* Billberg, 1820. Type-species: *Noctua palliola* [Denis & Schiffermüller], 1775 (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Chlamifera* Hübner, [1825]. Type-species: *Noctua palliola* [Denis & Schiffermüller], 1775 (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Roeselia* Hübner, [1825]. Type-species: *Phalaena Tinea cucullatella* Linnaeus, 1758 (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Necla* Walker, 1863. Type-species: *Necla canioralis* Walker, 1863. L. t.: Borneo: Sarawak (synonymy cf. Fibiger et al., 2009)
= *Automala* Walker, [1863]. Type-species: *Automala semidolosa* Walker, [1863] 1864. L. t.: Borneo: Sarawak (synonymy cf. Fibiger et al., 2009)
= *Celama* Walker, 1865. Type-species: *Celama liparisalis* Walker, 1865. L. t.: Borneo: Sarawak (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Pisara* Walker, 1865. Type-species: *Pisara opalina* Walker, 1862. L. t.: Borneo: Sarawak (synonymy cf. Fibiger et al., 2009)
= *Aradrapha* Walker, [1866]. Type-species: *Aradrapha partitalis* Walker, [1866] 1854. L. t.: [RSA] Natal (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Lebena* Walker, 1866. Type-species: *Lebena trinotata* Walker, 1866. L. t.: North America (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Selca* Walker, [1866]. Type-species: *Selca latifascialis* Walker, [1866] 1865. L. t.: Borneo: Sarawak (synonymy cf. Poole, 1989)
= *Tribunta* Walker, [1866]. Type-species: *Tribunta biguttalis* Walker, [1866] 1865. L. t.: Australia (synonymy cf. Poole, 1989)
= *Minnagara* Walker, 1866. Type-species: *Minnagara fasciata* Walker, 1866. L. t.: [Indonesia] Sula (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Argyrophyes* Grote, 1873. Type-species: *Argyrophyes cilicoides* Grote, 1873. L. t.: [USA] New Jersey (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Sorocostia* Rosenstock, 1885. Type-species: *Eromene vetustella* Walker, 1866. L. t.: [Australia] Moreton Bay (synonymy cf. Poole, 1989)
= *Epizeuctis* Meyrick, 1889. Type-species: *Nola innocua* Butler, 1880. L. t.: [Taiwan] Formosa (synonymy cf. Poole, 1989; Fibiger et al., 2009)
= *Stenola* Möschler, 1890. Type-species: *Stenola bistriga* Möschler, 1890. L. t.: Puerto Rico (synonymy cf. Poole, 1989)
= *Deltapterum* Hampson, 1894. Type-species: *Deltapterum peguense* Hampson, 1894. L. t.: [Burma] E. Pegu (synonymy cf. Fibiger et al., 2009)
= *Neonola* Hampson, 1900. Type-species: *Neonola mesosticta* Hampson, 1900. L. t.: [Indonesia]: Pulo Laut (synonymy cf. Fibiger et al., 2009)
= *Poliothripa* Hampson, 1902. Type-species: *Poliothripa niphostena* Hampson, 1902. L. t.: [Australia]: Port Victor (synonymy cf. Poole, 1989)
= *Celamoides* van Eecke, 1920. Type-species: *Celamoides pseudastigma* Eecke, 1920. L. t.: [Indonesia] Java, Preanger (synonymy cf. Fibiger et al., 2009)
= *Idiocyttaea* Turner, 1944. Type-species: *Sorocostia tornotis* Meyrick, 1888. L. t.: Australia: Queenlsland, Duaringa (synonymy cf. Fibiger et al., 2009)

Diagnosis of *Nola* Leach, [1815]

Antennae of male usually fasciculate, otherwise ciliate or bipectinate (*N. cucullatella* species-group); fore- and hindwing venation reduced; hindwing venation trifine.

Male genitalia

Pseuduncus absent, scaphial structures reduced. Valva bilobed with characteristic cleavage: the ventral arm with clasper-harpe system; harpe often developed as small and inwardly bent spine. Aedeagus small, usually lacking larger cornuti.

Female genitalia

Antrum membranous and very short; ductus and corpus bursae very variable; corpus bursae usually with signa, which are formed by horn-like invaginations.

The eponymous genus *Nola* Leach is together with *Meganola* Dyar the most widespread genus of Nolini, with world-wide distribution. Type specimens and genitalia of a few of the numerous junior synonymous generic taxa are figured here:

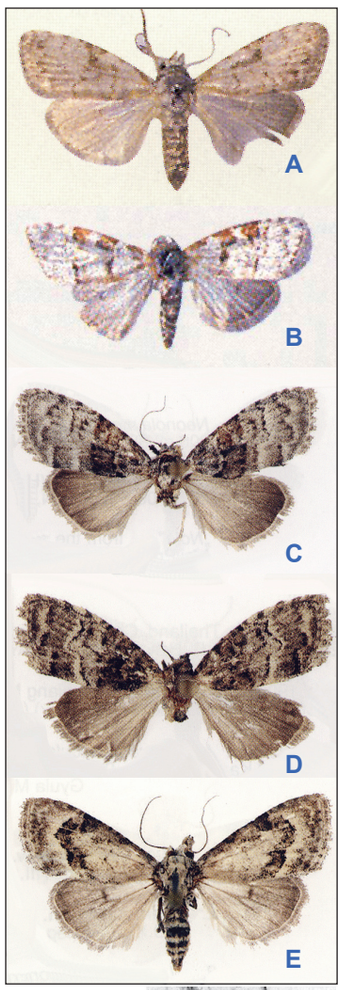
Automala Walker, [1863], type-species: *Automala semidolosa* Walker, [1863] 1864
Holloway, 2003, pl. 1, fig. 41 (Borneo) **(A)**

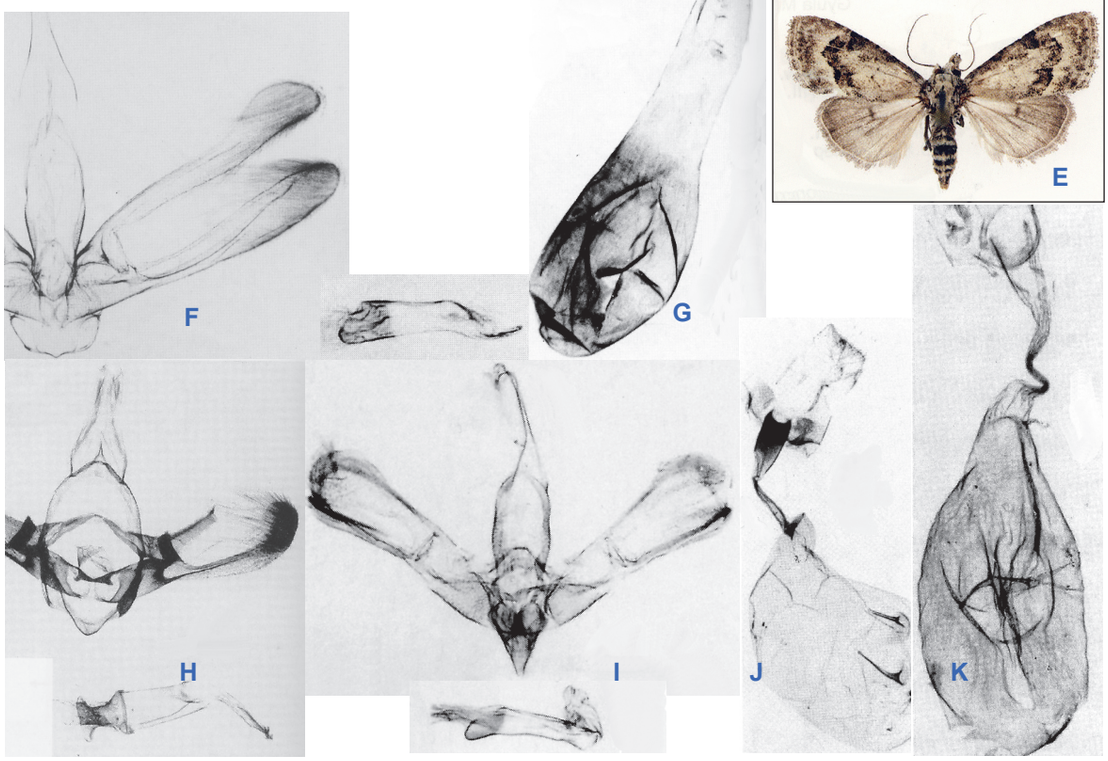
Necla Walker, 1863, type species: *Necla canioralis* Walker, 1863
László et al., 2010, pl. 9, fig. 6 (Thailand) **(C)**
Male genitalia: Holloway, 2003, fig. 89♂ **(H)**
Female genitalia: Holloway, 2003, fig. 87♀ **(K)**

Celama Walker, 1865, type species: *Celama liparisalis* Walker, 1865
Holloway, 2003, pl. 2, fig. 33 (Borneo) **(B)**
Male genitalia: Holloway, 2003, fig. 101♂ **(I)**

Pisara Walker, 1865, type-species: *Pisara opalina* Walker, 1862
László et al., 2010, pl. 9, fig. 5 (Thailand) **(D)**
Female genitalia: Holloway, 2003, fig. 86 ♀ **(J)**

Minnagara Walker, 1866, type-species: *Minnagara fasciata* Walker, 1866
László et al., 2010, pl. 10, fig. 3 (Taiwan) **(E)**
Male genitalia: Holloway, 2003, fig. 114♂ **(F)**
Female genitalia: Holloway, 2003, fig. 116♀ **(G)**





Subgenus *Nola* Leach, [1815]

The *N. cucullatella* species-group

The *N. cucullatella* species-group cpmprises four species with mainly West Palaearctic distribution; it is characterised by typical facies and compact male genital capsule with short valva and strong and heavily sclerotised clasper-harpe system. Antennae of male doubly bipectinate or fasciculate.

cucullatella (Linnaeus, 1758)
tutulella Zerny, 1927
thymula Millière, 1867
venusta (Brandt, 1938)

Nola (*N.*) *cucullatella* (Linnaeus, 1758)

Phalaena Tinea cucullatella Linnaeus, 1758, Systema Naturae (Edn 10) **1**: 537. L. t.: [Europe]

Location of type material

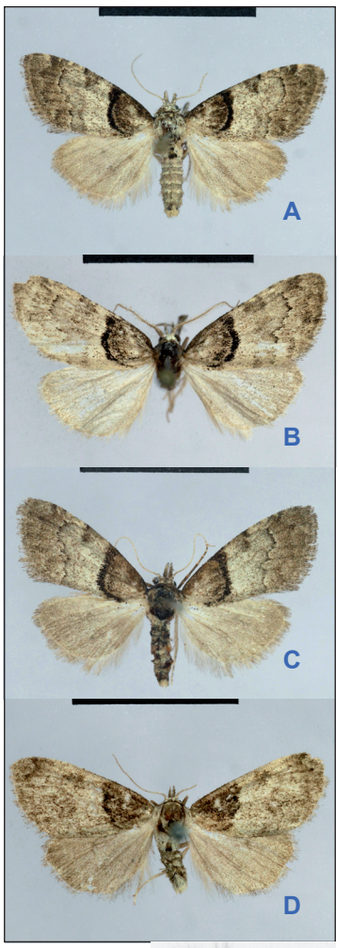
Lectotype: ♀, "[Europe]" (NRM) (designated by Robinson & Nielsen, 1983);

Material checked:

Germany 1 ♀, "Nordbayern, Zeil am Main, Kapellenberg, 28.vi.1981 (gen.prep. H. Hacker 18678♀ **(G)**) (leg. H. Hacker)" (coll. H. Hacker), ZSM); 1 ♀, "Nordbayern, Umgebung Staffelstein, Frauendorf, 25.vi.1980 (leg. H. Hacker)" (coll. H. Hacker), ZSM); 1 ♀, "Nordbayern, Rödental, Wildeheid, 5.viii.1978 (leg. M. Gick)" **(A)** (coll. H. Hacker), ZSM); 1 ♂, "NW Mecklenburg, Klützer Winkel, Dünen, nördl. Barendorf/Ostsee, 11.vii.2010 (leg. H. Hoppe)" (BC ZSM Lep 48412) (coll. H. Hoppe); 1 ♀, "Süddeutschland, Matting/Donau b. Regensburg, 24.-29.vii.1978 (leg. L. Weigert)" **(C)** (coll. L. Weigert), ZSM);

Greece 1 ♂, "Prov. Florina, Triklarion-Gebirge, ca 25 km sw Florina, 4 km w Vatochorion, 1000m, 40º45'N, 21º07'E, 8.vii.1985 (gen.prep. H. Hacker 18687♂ **(F)**) (leg. H.-P. Schreier)" **(B)** (coll. H.-P. Schreier);

Iran 1 ♀, "Persia sept., Elburs mts. c. s., Tacht i Suleiman, Särdab-Tal (Vandarban), 19-2200m, 10.-14.vii.[19]37 (leg. E. Pfeiffer & W. Forster)" **(D)** (ZSM);

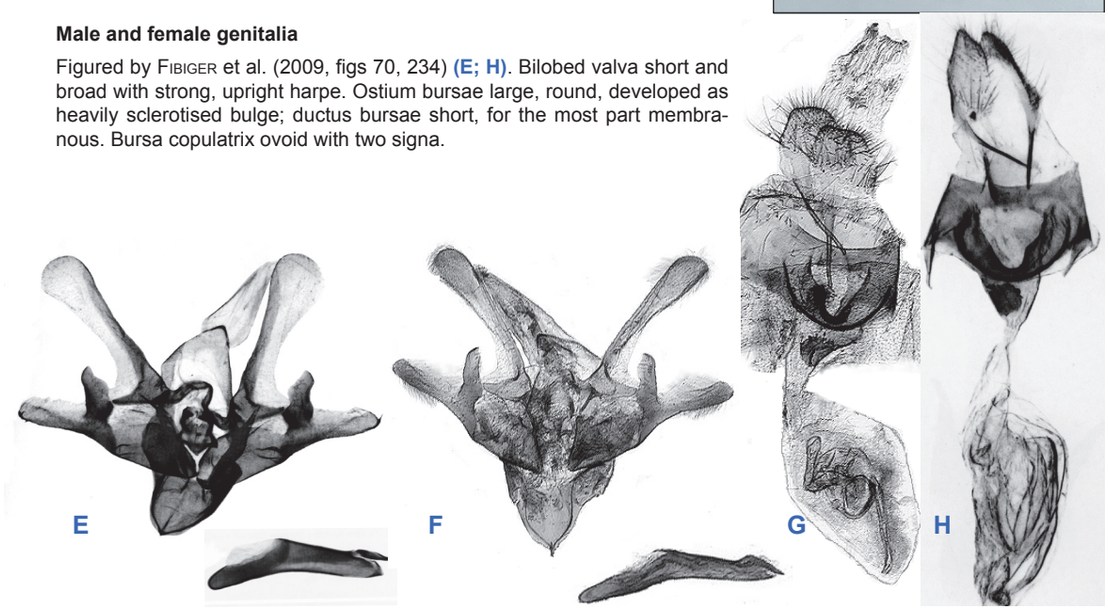


Diagnosis

Figured by Fibiger et al. (2009, pl. 6, figs 67-70) and numerous other authors. Basal area of the forewings inside the prominent black antemedian fascia dark grey-brown (basal area of *N. tutulella* paler greyish, line especially by costa more curved). Median area between antemedian and postmedian fasciae broader, when compared with that of *N. tutulella*, postmedian fascia less distinct and less jagged. Antennae of male doubly bipectinate.

Male and female genitalia

Figured by Fibiger et al. (2009, figs 70, 234) **(E; H)**. Bilobed valva short and broad with strong, upright harpe. Ostium bursae large, round, developed as heavily sclerotised bulge; ductus bursae short, for the most part membranous. Bursa copulatrix ovoid with two signa.



Distribution (Distribution map 1, p. 30)

Ponto-Mediterranean, known from most of Europe (distribution map cf. Fibiger et al., 2009), Near and Middle East, eastward to Iran, southward to SE Turkey and Israel. De Freina & Witt (1987) reported *N. cucullatella* from „Marokko, Nordtunesien, vermutlich auch in Algerien“, while Fibiger et al. (2009) supposed that some of the records, especially those in NW Africa, might refer to *N. tutulella* Zerny, 1927. According to Vives (1990) the distibution of *N. cucullatella* excludes Central and South Spain and North Africa. Our investigations confirmed the absence of *N. cucullatella* in the Magreb countries.

N. cucullatella is rather widespread in Turkey: Brussa (Staudinger, 1879); Provinces Antalya (de Freina, 1994), Belikesir, Bolu (de Freina, 1981); also known from the Northern Caucasus (Poltavsky et al., 2010) and adjacent territories of the south of Russia (Rost-on-Don, Volgograd, Saratov and Uljanovsk Districts; S Ural - Miass) (Anikin et al., 2000; Nupponen & Fibiger, 2002, Poltavsky, 2010). In the year 1989 *N. cucullatella* was collected in Israel in the vicinity of Jerusalem (Müller et al., 2005).

The species has also been introduced to North America (Lafontaine & Schnidt, 2010).

Bionomics

N. cucullatella inhabits open forest edges, parks, bushland with bushes of *Prunus*, *Sorbus*, *Malus*, *Crataegus*, which are usual the food-plants of the larvae. Univoltine from vi - viii. The larvae and the boat-shaped cocoon of this well-known species have often been described in detail.

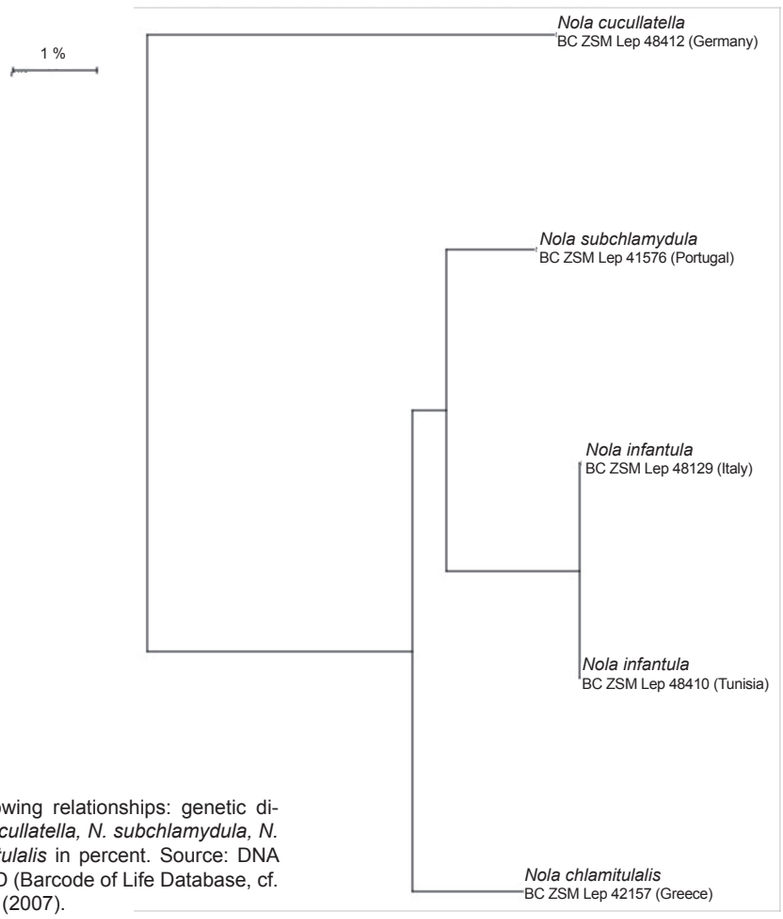
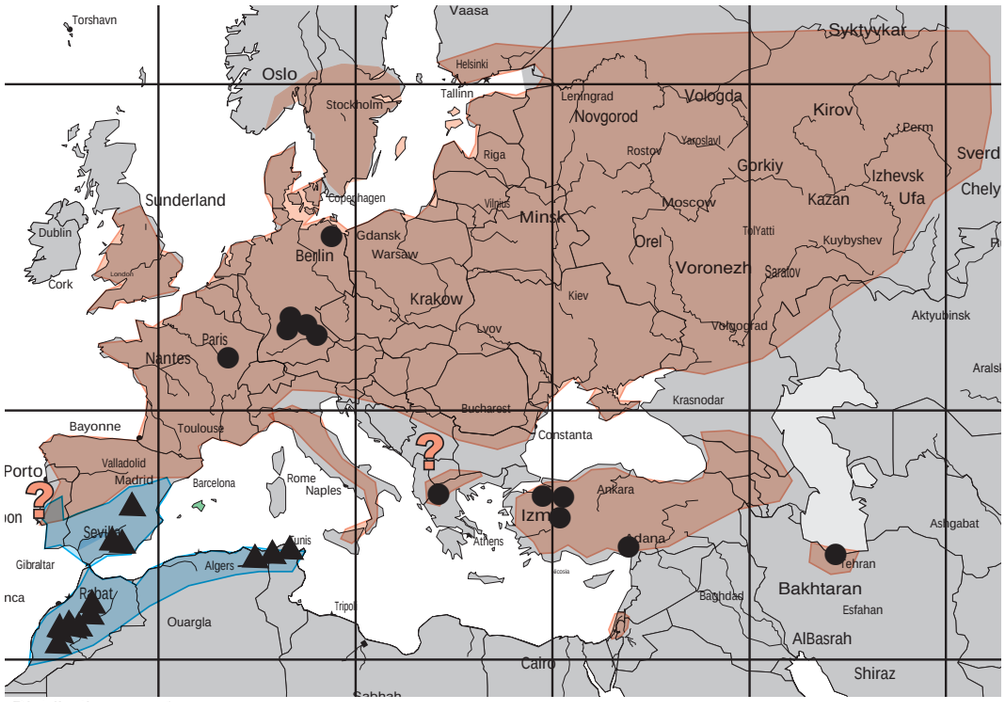


Fig. 2 Dendrogram showing relationships: genetic distance between *Nola cucullatella, N. subchlamydula, N. infantula* and *N. chlamitulalis* in percent. Source: DNA Barcode data from BOLD (Barcode of Life Database, cf. Ratnasingham & Herbert (2007).

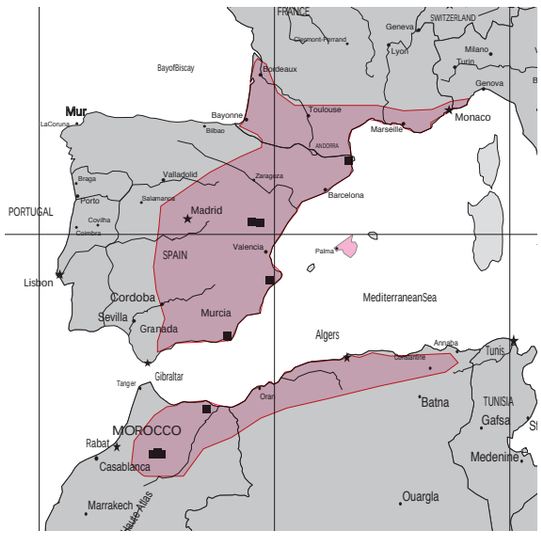


Distribution map 1

Genus *Nola* LEACH, [1815]

cucullatella (LINNAEUS, 1758) (red) ●

tutulella ZERNY, 1927 (blue) ▲



Distribution map 2

Genus *Nola* LEACH, [1815]

thymula MILLIÈRE, 1867

Distribution map 3

Genus *Nola* LEACH, [1815]

venusta (BRANDT, 1938)

Nola (*N.*) *tutulella tutulella* Zerny, 1927

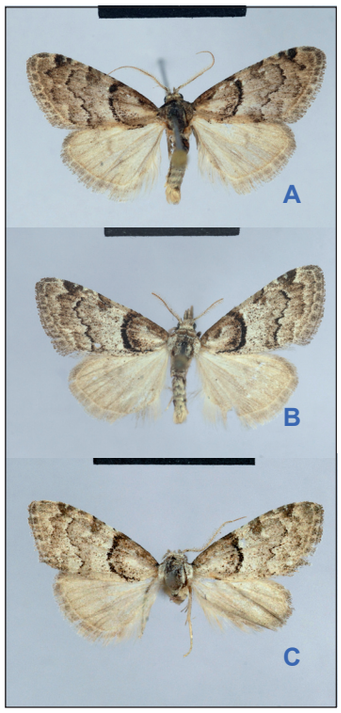
Nola tutulella Zerny, 1927, Eos **3**: 433, pl. 10, fig. 39, text fifg. 7. L. t.: Spain, Aragon, Albarracin

Location of type material

Holotype: ♂, "Spain, Aragon, Albarracin" (NHMW);

Material checked:

Spain 1 ♂, "Aragon, Albarracin, 20.vi.1930 (leg. Predota)" (ZSM); 1 ♂, "Aragon, Albarracin, 1100m, 6.vii.1980 (leg. H. Hacker) (gen.prep. H. Hacker 18523♂)" (coll. H. Hacker, ZSM); dto 1 ♀, 18.-25.vii.1982 (leg. L. Weigert)" (coll. L. Weigert); 1 ♂, "Sierra Nevada, Veletastrasse, 1900-2300m, 17.vii.1932 (leg. K. Sattler)" (ZSM); 3 ♂♂, "Sierra Nevada, Veleta, 1500m, 13.vii.1980 (gen.prep. H. Hacker 18456♂ **(E)**) (leg. H. Hacker)" (BC ZSM Lep 41571) **(A, B)** (coll. H. Hacker, ZSM); dto 1 ♂ (gen.prep. A. Vives 1-89♂ **(D)**) (leg. G. Derra)" **(C)** (coll. G. Derra);



Diagnosis

Figured by Zerny (1927, pl. 10, fig. 39), Fibiger et al. (2009, pl. 6, figs 72-76); very similar to the preceding species - differences cf. *N. cucullatella*. Antennae of male doubly bipectinate.

Male and female genitalia

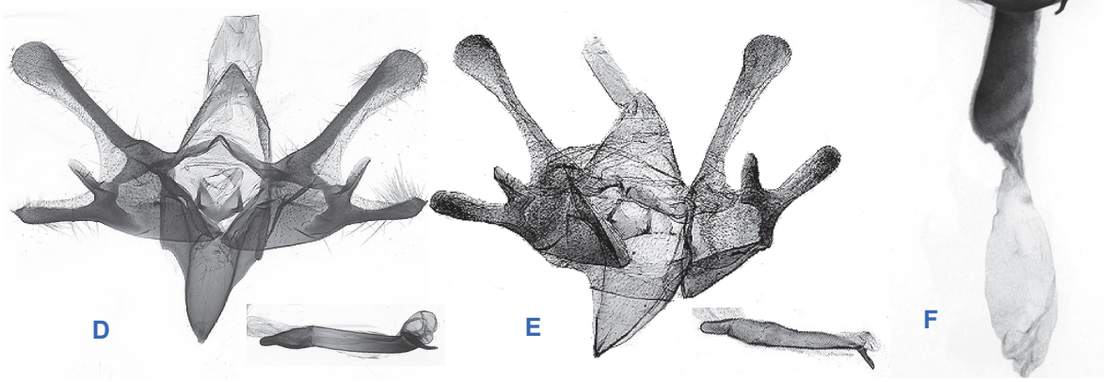
Figured by Zerny (1927, text fig. 7), Fibiger et al. (2009, figs 71, 235 **(F)**); in contrast to their very similar habitus the genitalia of both sexes are remarkably different in the two species.

Distribution (Distribution map 1, p. 30)

Palaearctic species with Atlanto-Mediterranean distribution, known from Spain, Portugal, Morocco, Algeria, Tunisia (cf. Vives, 1990; Corley et al., 2000). *N. cucullatella* (Linnaeus, 1758) and *N. tutulella Z.* have an allopatric distribution, but it might be that they overlap in the contact zone in North Spain.

Bionomics

Arboreal species, which inhabits forests, parks, semi-open forest edges, bushland. The larvae are still unknown, but probably similar to those of the well-known *N. cucullatella*.



Nola (*N.*) *tutulella viedmai* (Vives, 1990)

Nola viedmai Vives, 1990, Sesión Hemenaje al Profesor García de Viedma: 92, figs 3, 4, 9, 10. L. t.: Morrocco: Xauen, El Ajma, Yebala, 300m **stat. nov.**

Location of type material

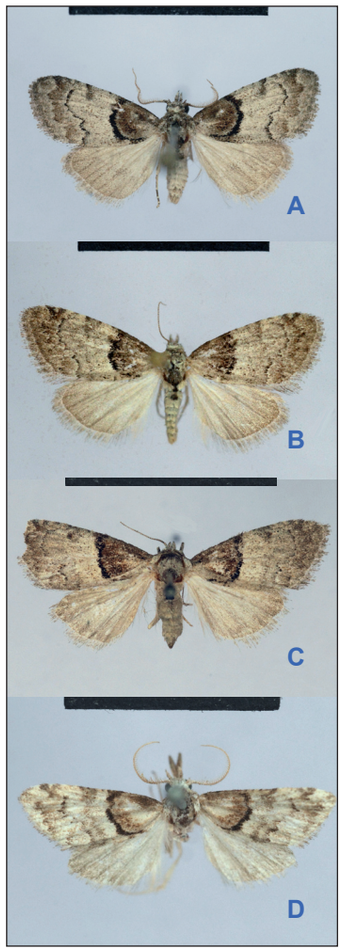
Holotype: ♂, "Morocco: Xauen, El Ajma, Yebala, 300m, vi 1932 (gen.prep. Vives 57.529) (leg. C. Bolivar)" (Museo Nacional de Ciencias Naturales, Madrid);

Material checked:

Morocco 1 ♂, "Ifrane, vii.1966 (ex coll. P. Buckwell)" (MNHN); further 7 ♀♀, "Ifrane; Ait Tshag; A. Sidi Ali; Aguelmane Si Ali (ex coll. P. Buckwell)" (MNHN); 1 ♀, "Moyen Atlas, Azrou, Cedre Gouraud, 1700m, 8.viii.1994 (leg. D. Stengel)" (coll. H. Hoppe); 1 ♀, "Anti Atlas, 1 km N Tifgfalt, 1500m, 16 km N Tafraoute, 30.v.2002 (leg. H. Hoppe)" (coll. H. Hoppe); 2 ♂♂, "Fes-el-Bali, 600m, 80 km nördl. Fes, 24.v.1995 (BC ZSM Lep 48412) (leg. H. Hoppe)" **(A)** (coll. H. Hoppe); 1 ♂, 2 ♀♀, "Moyen Atlas, Foret des Cedres, 1700m, 8.vii.1994 (leg. Stengel)" **(B)** (ZSM); 1 ♀, "Hoher Atlas, 2350m, 48 km ssö Marrakesch, 5 km nö Oukaimeden, 31°14'03''N, 07°49'34''E, 10.vii.1994 (gen.prep. H. Hacker 19741♀) (BC ZSM Lep 41598) (leg. H.-P. Schreier)" **(C)** (coll. H.-P. Schreier); 1 ♀, "Mittlerer Atlas, 1750m, Forêt de Cêdres, 8 km s Azrou, 33°24'N, 05°10'E, 8.vii.1994 (gen.prep. H. Hacker 19740♀) (leg. H.-P. Schreier)" (coll. H.-P. Schreier); 1 ♀, "Ifrane, 11.vii.1952 (ex coll. P. Buckwell)" (MNHN);

Tunisia 1 ♂, "Umg. Tunis, El Gouina, 14.ix.1960 (leg. R.P. Müller)" (ZSM); 1 ♂, "Tunis, 3.vi.[19]11 (coll. Dannehl)" (ZSM); 1 ♀, "Umg. Tunis, El Gouina, 14.ix.1960 (gen.prep. H. Hacker 18701♀ **(G)**) (leg. R.P. Müller)" (ZSM);

Algeria 1 ♂, "Mauritania, Philippeville [Skikda], vi.1903 (gen.prep. H. Hacker 18297♂ **(F)**) (leg. H. Dietze)" **(D)** (ex coll. Püngeler, NHMU);



Diagnosis

Described and figured by Vives (1990, fig.3, 4) in species rank. Our investigations have shown that there is some variation in length and sclerotisation of the ductus bursae of the female genitalia, which, according to Vives, 1990, is the main difference between *viedmai* and *tutulella*. For this and zoogeographic reasons we therefore prefer to treat *viedmai* as a subspecies of *N. tutulella*.

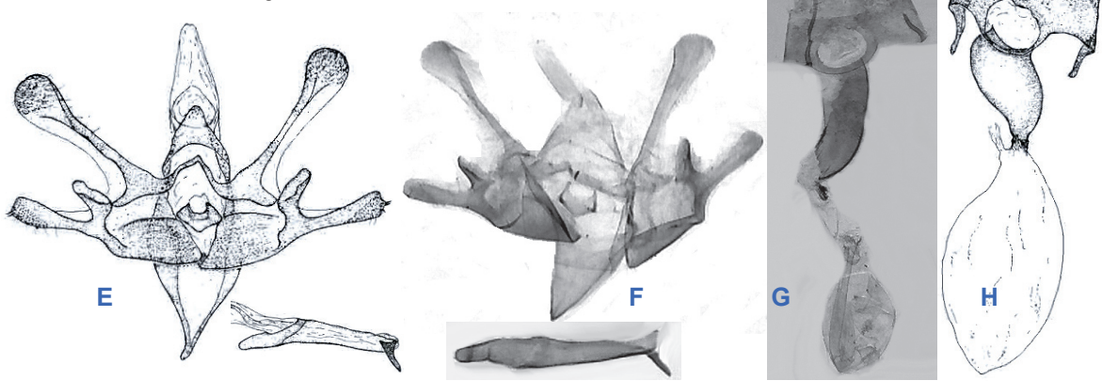
Specimens of *viedmai* are usually distinctly smaller in size, but similar in facies, partly also similar to small specimens of *N. cucullatella*. The taxon *Nola viedmai* was overlooked by Fibiger et al. (2009).

Male and female genitalia

Figured by Vives (1990, fig.9, 10) **(E; H)**. The male genitalia of typical *tutulella* and *viedmai* are hardly separable, although the harpe of *viedmai* is rather large and posteriorly blunt. Referring the figure 10 by Vives (1990) the ductus bursae is shorter and broader than that of *tutulella.* Further preparations show a rather large variation of that character.

Distribution

Viedmai is the Northwest African subspecies of the Southwest European *N. tutulella;* it occurs in the Magreb countries from Morocco to Tunisia.



Nola (*N.*) *thymula* Millière, 1867

Nola thymula Millière, 1867, Iconogr. Descr. Chenilles Lépid. inédits **2**: 337, 361, pl. 85, figs. 11-16; Ann. Soc. Linn. Lyon **16** (1868): 9, 33, pl. 85, figs 11-16. L. t.: [France, Cannes]

Note

The date given for the publication of Millière´s original description follows Sattler & Tremewan (1973).

Location of type material

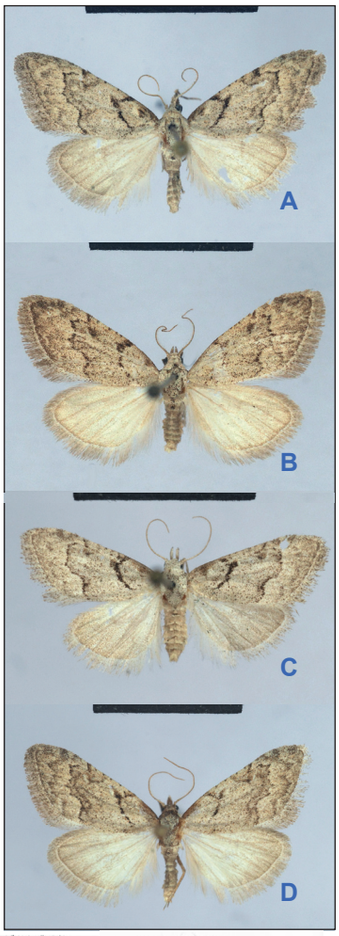
Type material lacking.

Material checked:

Spain 1 ♀, "Aragon, Albarracin, 20.vi.1930 (leg. Predota)" **(C)** (ZSM); dto 4 ♂, "16. iv.1970, 23.iv.1970, 25.iv.1970 (leg. J. Lukasch)" **(D)** (ZSM); 1 ♀, "Sierra Alta de Albarracin, 1700m, 5.-25.vii.1935 (gen.prep. A. Vives 39-89♀ **(H)**) (leg. H. Noack)" (coll. G. Derra); dto 1 ♀, 20.vi.1930 (leg. Predota)" (ZSM); 1 ♀, "Prov. Almeria, Cabo de Gata, 29.ix.1981 (gen.prep. A. Vives 38-89♀ **(G)**) (leg. G. Derra)" (BC ZSM Lep 42159) (coll. G. Derra); 1 ♂, "Prov. Gerona, Llansa, M. iii 1985 (leg. M. Pavlas)" (BC ZSM Lep 41572) **(A)** (coll. Th. Witt, ZSM); 1 ♀, "Prov. Alicante, Parcent, 1.xii.2006 (leg. Rietz)" (BC ZSM Lep 48419) (coll. H. Hoppe);

Morocco 1 ♀, "Ifrane, iv.1941 (ex coll. P. Buckwell)" **(B)** (MNHN); 1 ♂, "MA: Ajallal, 17.iv.1946 (leg. Ch. Rungs)" (MNHN); 1 ♂, "O-Marokko, Montes de Beni, Snassen Ain Almou, 1014m, N34°49'53",W 02°09'25", 14.x.2010 (leg. D. Stadie & Th. Drechsel)" (coll. D. Stadie);

Algeria numerous ♂, "El Kantara, Guelt-es-Stel, Bebdou (Prov. Oran), Batna (ex coll. Rothschild)" (BMNH);



Diagnosis

Figured by Zerny (1927, pl. 10, fig. 39), Fibiger et al. (2009, pl. 6, figs 72-76). According to Fibiger et al. (2009) the systematic position of *N. thymula* has been changed regularily in the literature; according to the structure of the male and female genitalia they placed it within the *N. aerugula* species group. Antennae of male fasciculate.

Male and female genitalia

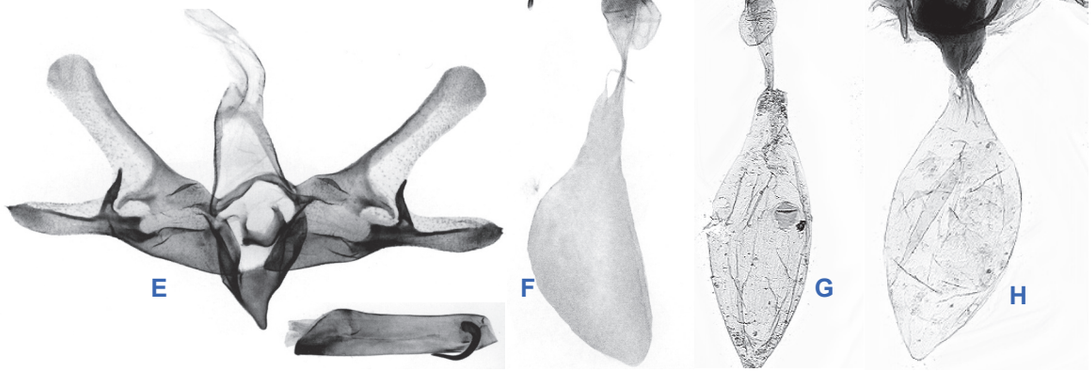
Figured by Zerny (1927, text fig. 7), Fibiger et al. (2009, figs 71, 235) **(E, F)**.

Distribution (Distribution map 2, p. 30)

Palaearctic species with Atlanto-Mediterranean distribution, known from South France and the adjacent part of the Mediterranean coast of NW Italy, East Spain, Morocco (mid-Atlas mountains); N Algeria, not yet known from Portugal, Tunisia or further east.

Bionomics

Arboreal species, which inhabits forests, parks, semi-open forest edges, bushland. The larvae are still unknown, but probably similar to those of the well-known *N. cucullatella* L. Univoltine with partial second generation iii-vii, viii-x.



Nola (*N.*) *venusta* (Brandt, 1938)

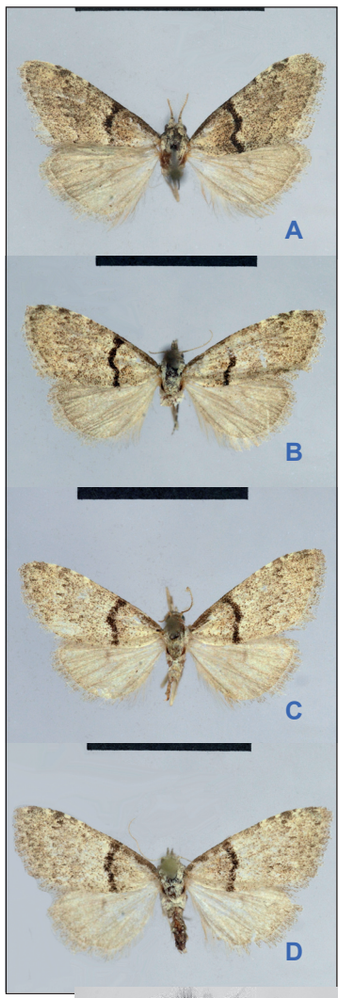
Roeselia venusta Brandt, 1938, Ent. Rundschau **55**: 673, pl. V, fig. 45. L. t.: Iran, Sine-Sefid, Comèe

Location of type material

Holotype: ♂, "Iran, Sine-Sefid, Comèe (leg. Brandt)" (NRM) **(A)**

Material checked:

Iran 1 ♂, "Fars, Strasse Chiraz-Kazeroun, Fort Sine-Sefid, 2200m, 1937 (gen.prep. G. Derra 8561♂ **(E)**) (leg. Brandt)" **(A)** (SMNK); 4 ♀♀, "S-Iran, Khusestan, 15 km SE Yassudi, 2050m, 15.vi.1972 (gen.prep. H. Hacker 18964♀, 19160♀, 18962♀, 19733♀ **(F)**) (leg. Ebert & Falkner)" **(B)** (SMNK); 1 ♂, 1 ♀, "S-Iran, Fars, 50 km NW Ardekan, Tange Surkh, 2250m, 16.vi.1972 (gen.prep. H. Hacker 18963♂, 19736♀) (leg. Ebert & Falkner)" (SMNK); 1 ♂, 1 ♀, "S-Iran, Fars, 50 km NW Ardekan, Tange Surkh, 2250m, 12.-15.vi.1975 (leg. Ebert & Falkner)" **(C, D)** (SMNK);



Diagnosis

Wingspan 15.5 to 19 mm; antennae of male doubly bipectinate; antennae of female very shortly ciliate; labial palps moderately long, porrect. The facies of the species is most like that of *N. cucullatella*; the ground colour is generally paler creamy beige-grey, basal area of the forewing slightly more brownish. The distinguishing mark of *N. venusta* is the slightly convex, definite dark chocolate-brown antemedian fascia, while the dentate postmedian fascia is only faintly indicated, the subterminal fascia completely absent.

Male genitalia

Most like to those of *N. thymula*; harpe shorter and blunt; carina of the aedeagus also shorter, spine-shaped.

Female genitalia

8th to 10th segments short, broad; apophyses, especially apophyses anteriores short. Ostium bursae large, developed as narrow, but heavily sclerotised bulge. Ductus bursae moderately long, tubular, posterior 1/5 heavily sclerotised; bursa copulatrix elongated, membranous.

Distribution (Distribution map 3, p. 30)

Endemic species of SW Iran.

The *N. impudica* species-group

The *N. impudica* species-group includes only the eponymous species.

impudica Christoph, 1893

Nola (*N.*) *impudica impudica* Christoph, 1893

Nola impudica Christoph, 1893, Dt. Ent. Z. Iris **6**: 88. L. t.: [Azerbaijan] Ordubad

Note

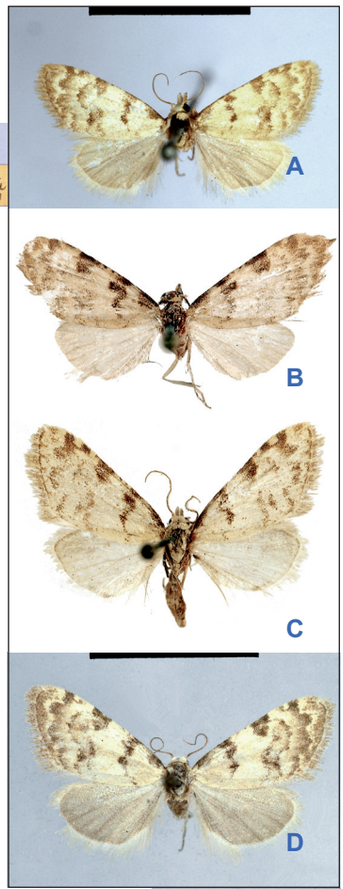
According to Poole (1989) the syntypes of this species are said to be in ZIN, St. Petersburg). Gyula Laszlo (pers. comm. 9. Jan. 2011) was so kind to inform us that they could not been found there even after several requests. According to him, one further female of the original syntype series is kept in the BMNH and designated here as lectotype. All information about *N. impudica*, included the figures given here, are based on that of Gyula Laszlo and various Hungarian expeditions to Turkmenistan and Iran during the past 15 years.

Location of type material

Lectotype: ♀, [Azerbaijan] "Ordubad, A. v [18]83 (gen.prep. BMNH Arct. 914♀ **(G)**)" **(A)** (ex coll. Christoph) (BMNH);

Material checked:

Azerbaijan	1 ♂, "Ordubad, A. v [18]83 (gen.prep. BMNH Arct. 914♀ **(G)**)" **(A)** (ex coll. Christoph) (BMNH);
Turkmenistan	1 ♂, "Turkmenistan (gen.prep. LGN 319♂ **(E)**) (coll. G. Laszlo) **(B)**;
Iran	1 ♀, " N-Iran, Elburs-Mts., Prov. Tehran, Arangeh, 25 km N Karadj, 1550m, 1.-6.vi.1972 (gen.prep. H. Hacker 18952♀) (leg. Ebert & Falkner)" **(D)** (SMNK); 1 ♀, "Iran (gen.prep. LGN 323♀ **(F)**)" **(C)** (coll. P. Gyulai);



Diagnosis

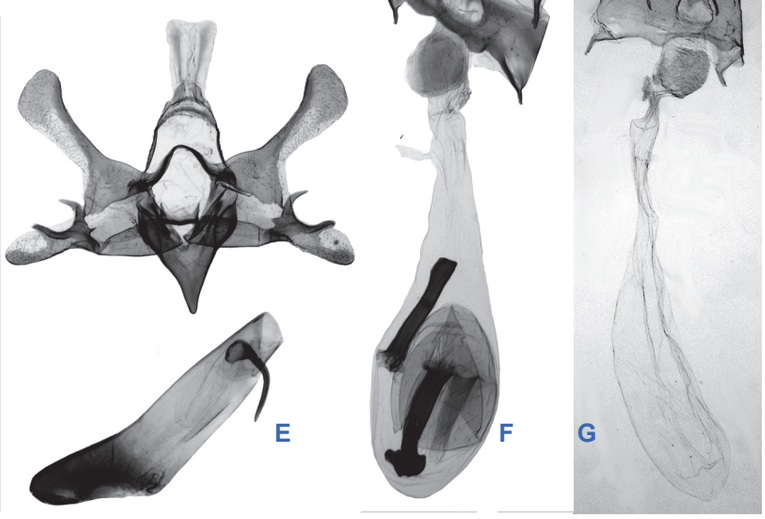
The original description of *N. impudica* was given in Latin, lacking any figure. The illustration of the species corresponds to that of the Turkish subspecies described here, but the ground colour is much paler, whitish beige with brown-grey tinge.

Male genitalia

Similar to those of *N. cucullatella* L.; tegumen as long as vinculum. Valva relatively short, basal half uncommonly broad; sacculus flat. Cucullus bilobed with a semicircular cleft; inner margin of the valva from the sacculus outwards heavily sclerotised. Harpe large, bilobed, inner tip semicircularily curved. Aedoeagus large, straight; caecum short; posterior part with a single long, spine-shaped and curved carina.

Female genitalia

Ovipositor, apophyses posteriores and anteriores short. Bursa copulatrix large, formed as an elongated sac, anteriorly with a colloidal oval secondary part inside (this part is easily lost during the preparation). Ductus bursae very short, membranous, but with a large central, more strongly sclerotized and globular bulge.



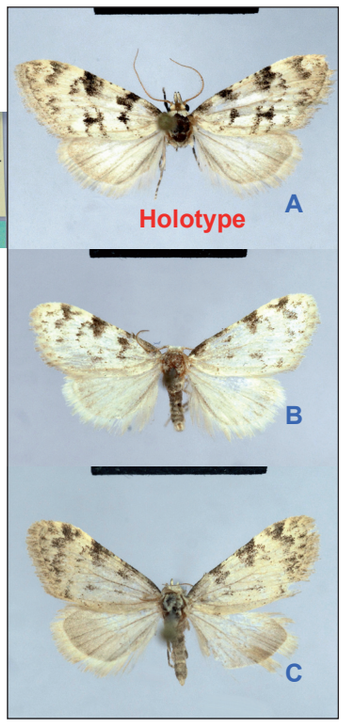
Distribution (Distribution map 4, p. 37)

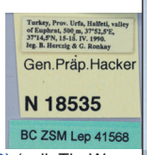
Palaearctic arboreal element, known from Azerbaijan (Christoph, 1893; Didmanidze, 1978), Iran, Turkey and Turkmenistan. Kaspian.

Bionomics

Univoltine, on wing in spring and early summer.

Nola (*N.*) *impudica herczigi* Hacker **subspec. nov.**





Type material

Holotype: ♂, "Turkey, Prov. Urfa, Halfeti, valley of Euphrat, 500m, 37°52.5'E, 37°14.5'N, 15.-18.iv.1990 (gen.prep. H. Hacker 18535♂) **(E)** (leg. B. Herczig & G. Ronkay)" (BC ZSM Lep 41568) **(A)** (coll. Th. Witt, ZSM);

Paratypes: 2 ♂♂, "Turkey, Prov. Urfa, Bireçik, valley of Euphrat, 350m, 37°52.5'E, 37°13.5'N, iv.1990 (leg. M. Hreblay & V. Markó) **(B)** (coll. Th. Witt, ZSM); 1 ♂, "Turkey, Prov. Urfa, 2 km N of Halfeti, 400m, 38°03.5'E, 37°38'N, 11.-12.iv.1994 (gen.prep. H. Hacker 18534♂ **(D)**) **(C)** (leg. Csóvári & Hreblay) (coll. Th. Witt, ZSM);

Derivatio nominis: This subspecies is dedicated to Béla Herczig (Hungary, Tata), one of the first collectors.

Locus typicus: Turkey, Prov. Urfa, Halfeti, valley of Euphrat, 500m.

Diagnosis and description

The western subspecies of *N. impudica* is generally paler, lacking the creamy orange-beige ground colour of the nominate subspecies.

Wingspan of the holotype 19 mm, of the paratypes 17-18 mm. Antennae of the male bipectinate with short lamellae, those of the female filiform. Labial palps short, porrect. Coloration somewhat like that of *N. ronkayorum,* whitish grey throughout, but paler and mixed with creamy beige. Drawings of the forewing resemble both the well-known Palaearctic species *N. confusalis* (Herrich-Schäffer, 1847), and the Himalayan *N. angulata* (Moore, 1888). Antemedian, postmedian and subterminal fasciae well marked, grey-brown; additionally a distinct median line from the centre of the inner margin to the reniform stigma. Reniform and orbicular stigmata both dark filled, towards the costa with prominent grey-brown blotches. Similar, but smaller patches at the claviform and the sub-reniform stigmata. Fringes of all wings concolorous. Hindwings of the ground colour, with broad, indistinct terminal shade of slightly dark coloration; discal spot absent.

Male genitalia

Similar to those of the nominotypical subspecies, aedeagus (compared with the genital capsule) distinctly smaller, carina shorter.

Distribution

Only known from the SE Turkish Province Urfa, close to the Euphrates river.