

<https://zoobank.org/urn:lsid:zoobank.org:pub:789931C7-5667-4258-9986-121A74B53B9B>

On the taxonomy of *Meganola cretacea* (Hampson, 1914) with description of two new species (Lepidoptera, Nolidae, Nolinae)

GYULA M. LÁSZLÓ

The African Natural History Research Trust (ANHRT), Street Court, Leominster-Kingsland, HR6 9QA, United Kingdom; E-mail: gyula@anhrt.org.uk

Received 21 March 2020 | Accepted by V. Pešić: 15 April 2020 | Published online 18 April 2020.

Abstract

The taxonomic position of *Meganola cretacea* (Hampson, 1914) is clarified and the species is transferred to the hitherto monotypic Oriental genus *Ezishnola* László, Ronkay & Witt, 2010: *Ezishnola cretacea* (Hampson, 1914) **comb. nov.** The male and female genitalia of *E. cretacea* are illustrated and described for the first time. Two new species from Zambia (*E. inopinata* **sp. nov.**) and Uganda (*E. carcassoni* **sp. nov.**) are described. 14 colour and 10 black and white diagnostic figures and a distribution map are provided.

Key words: *Ezishnola*, new combination, Afrotropics, Zambia, Uganda.

Introduction

The peculiar Noline species *Roeselia cretacea* Hampson, 1914 has long been known from its two female syntype specimens housed in the collections of NHMUK. One of the two syntypes is missing its abdomen and is therefore inadequate for morpho-taxonomic studies. In his revision of the Afrotropical Nolini, Hacker illustrated a male specimen from Ivory Coast, collected at Danane as the third known specimen of the taxon (Hacker *et al.* 2012). The external appearance of the male specimen indeed matches well with that of the female syntypes and though Hacker illustrated the male genitalia of the species, he did not provide information on the female genitalia. As the main characters of the male genitalia of the illustrated specimen considered to be *M. cretacea* by Hacker (Hacker *et al.* 2012) fit well with the general ground plan of *Meganola*, he transferred the species to this genus. During the course of studying Heterocera materials recently collected in West Africa, numerous specimens of *M. cretacea* have been found in the collections of ANHRT and HNHM. Despite the fact that the external appearance and wing pattern of all these examined specimens are nearly identical with that of the type specimen of *M. cretacea*, the male genitalia of all of the 6 dissected West African specimens have turned out to be fundamentally different from the one illustrated in Hacker *et al.* (2012). The reason for this discrepancy could be either an editorial error in Esperiana Vol. 17 or a misplaced abdomen or confused genitalia preparation of the specimen examined by Hacker. This assumption is supported by the fact, that the otherwise rather characteristic genitalia referred by Hacker *et al.* (2012) as *M. cretacea* seems to be identical with that of *M. genitaliana* Hacker, 2012 illustrated 17 pages

later (cf p. 496 and 513 of the same publication). Either way an error has occurred and it is certain that the real genitalia morphology of *M. cretacea* has remained unknown until now.

A number of specimens of both sexes of true *M. cretacea* have been located during the examination of the Nolini material of the ANHRT and HNHM, and the genitalia morphology of the species is clarified for the first time in this present paper. Surprisingly, based on both male and female genital characters, this externally distinct species turned out to belong not to *Meganola*, but to *Ezishnola* László, Ronkay & Witt, 2010, a hitherto monotypic genus that has been known from the Oriental region only. The placement of *M. cretacea* in the genus *Ezishnola* is supported by the similarly broad, rather quadrangular forewing with similar arrangement of transverse lines, the large, medially dilated, rounded, tongue-shaped valva and the long, spike-like harpe situated in the medial plate of the valva in the male. In addition, the female genitalia display very similar configurations of the ovipositor and eighth segment, the short sclerotized and long membranous sections of the ductus bursae and the ovoid corpus bursae bearing a pair of rounded plates of the signum bursae.

Further specimens reminiscent of *E. cretacea* with similar habitus but with a considerably darker greyish forewing ground colour were found in the collection of ANHRT collected recently in Zambia. Despite the rather different coloration, the Zambian specimens show almost identical configuration in male genitalia with those of the West African *E. cretacea*. Interestingly however, the female genitalia of the Zambian specimens differ considerably from the West African ones, and taking into consideration their strikingly different external habitus, the *E. cretacea*-like specimens from Zambia are described here as new to science.

In the course of sorting the mixed Heterocera accessions of the NHMUK, a male and female of an *E. cretacea*-like insect from Uganda were found. The examination of their genitalia revealed that despite the fact that their external habitus is similar to *E. cretacea* from West Africa, the configuration of the female genitalia of the Ugandan specimen shows a closer relationship to the new Zambian species. The male genitalia of the Ugandan specimen is very similar to the other two taxa but the female genitalia differs markedly. Thus, the specimens from Uganda represent a third African *Ezishnola* taxon and is described here as new to science. As all three *Ezishnola* species bear distinctive characters in their female genitalia, female specimens have been designated as the holotypes of the two new species.

Material and methods

The genital apparatuses were dissected, stained with Eosin red and mounted in Euparal on microscope slides applying standard methods of preparation (Lafontaine & Mikkola 1987). Photos of adults were taken using either a Nikon D700 SLR camera equipped with Nikkor AF-S Micro 105 mm lens or a Nikon D90 SLR camera equipped with Nikkor AF Micro 60 mm lens. Genitalia were photographed using either a Canon EOS 700D camera mounted on a Leitz Diaplan compound microscope or a Canon EOS 5D SLR camera with a Canon MP-E 65 mm lens.

Abbreviations of the depositories used:

ANHRT – African Natural History Research Trust, Leominster, UK;

HNHM – Hungarian Natural History Museum, Budapest, Hungary;

NHMUK (formerly BMNH) – The Natural History Museum, London, UK;

MWM/ZSM – Museum Witt in the Bavarian State Collection of Zoology, Munich, Germany.

Other abbreviations:

LGN, LGNA – genitalia slides of Nolidae prepared by Gyula M. László

Systematics

Ezishnola cretacea (Hampson, 1914) comb. nov. (Figs 3-8, 15, 19, 20)

Roeselia cretacea Hampson, 1914, Catalogue of the Lepidoptera Phalaenae in the British Museum, Supplement 1: 431. Type locality: [Ghana] Gold Coast, Bibianaha. 2 Syntypes, females (NHMUK).

Meganola cretacea (Hampson, 1914), Esperiana 17: 496.

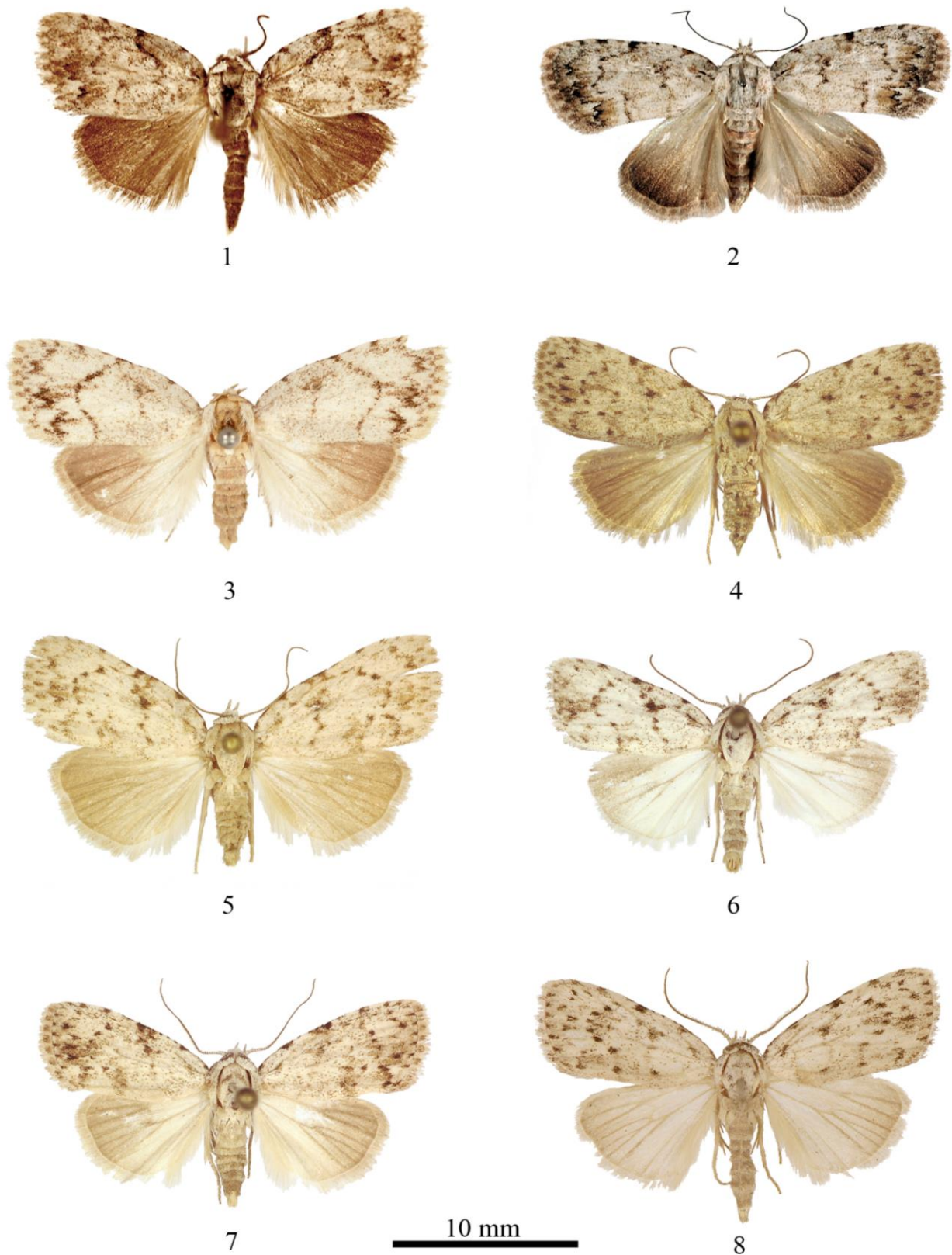
Type material examined: Syntype, female. Red ring “Type” label; [Ghana] “Gold Coast. Bibianaha. 700 ft. II. 1912. H.G.F. Spurrell. 1912-275.”; with handwritten: “Roeselia cretacea type ♀ Hmpsn”; QR code label with unique number: NHMUK010598832 (NHMUK).

Additional material examined: Liberia. 2 males, 750m, Nimba County, Nimba Mts., ENNR, Cellcom road, 7°33'3.78"N, 8°31'46.49"W, 16-28.xii.2018, Cold Cathode UV Light Trap (8 W), Sáfián, Sz., Simonics, G. leg., ANHRT:2018.43, slide Nos: LGNA953, LGNA954; 1 male, 611m, Lofa County, Wologizi Mts, base camp forest, 8°07'17"N, 9°57'42"W, 20.xi.-01.xii.2017, MV Light Trap (125W), Aristophanous, M., Sáfián, Sz., Simonics, G. & Smith, L. leg., ANHRT:2017.33, slide No.: LGNA595; 1 male, 530m, Lofa County, Foya Proposed Protected Area, 7°56'36"N, 10°16'36"W, 10-19.xi.2017, MV Light Trap (125W), Aristophanous, M., Sáfián, Sz., Simonics, G. & Smith, L. leg., ANHRT:2017.33; 1 male, 883m, Lofa County, Wologizi Mts, Ridge Camp 2, 8°07'20.79"N, 9°56'50.75"W, 22-31.xi.2018, Light Trap (blended bulb 250W), Sáfián, Sz., Simonics, G. leg. ANHRT:2018.43; 1 male, 494m, Nimba county, Nimba Mts., ENNR, Grassfield FDA Field Station, 7°29'32.45"N, 8°34'54.05"W, 22.xi.2018 Light Trap, Blended Bulb (250W), Sáfián, Sz., Simonics, G. leg. ANHRT:2018.43; 1 male, 700m, ENNR, Nimba Mts, Cellcom Rd, 7°32'47.5"N, 8°32'1.33"W, 10-24.III.2017, Light Trap (250W blended bulb) & cold cathode UV light bucket trap (8W), Sáfián, Sz., Simonics, G. leg., ANHRT:2017.36; 2 males, 701m, Nimba Mountains, Mount Gangra western slope, 7°33'29.73"N, 8°38'16.4"W, 16-17.III.2017, Light Trap (250W blended bulb) & cold cathode UV light bucket trap (8W), Sáfián, Sz., Simonics, G. leg., ANHRT:2017.36 (ANHRT). **Ivory Coast.** 1 male, 1171m, Mt. Tonkoui Peak N07°27'15.2", W07°38'12.5" 3-7.V.2017, MV light, Aristophanous, A., Aristophanous, Geiser, M., Moretto, P. leg., ANHRT:2017.25, slide No.: LGNA594; 2 males, same site, 9-16.IV.2016, Light Trap, Aristophanous, M., Moretto, P. leg., ANHRT:2017.17. **Guinea.** 1 male, 1500m, Nimba Mts, SMFG concession area (Societe des Mines de Fer de Guinee) 600 Forest, 7°39'49.93"N, 8°22'22.19"W, 21-30.viii.2017, Cold Cathode UV Light Trap (8W), Sáfián, Sz., Simonics, G. leg., ANHRT:2017.36, slide No.: LGNA835; 1 female, 700m, Nimba Mts, SMFG concession area, (Societe des Mines de Fer de Guinee), Cite 1, 7°42'2.83"N, 8°23'58.60"W, 16-25.VII.2017, General coll. at light, Sáfián Sz. leg., ANHRT:2017.36, slide No.: LGNA998 (ANHRT). **Ghana.** 1 female, Bunso Arboretum, 6°15'58.03"N, 0°27'45.72"W, 13-14.IX.2010, leg. Sz. Sáfián, slide No.: LGNA990 (HNHM).

Taxonomic notes

As discussed in the introduction, due to an unknown reason, Hacker *et al.* (2012) published an incorrect male genitalia figure of *Meganola cretacea*, and did not illustrate the female genitalia of the taxon as only the intact syntype female specimen was known to the author (Hacker *et al.* 2012). Through the examination of the extensive material in the collections of ANHRT and HNHM, both the male and female genitalia of *E. cretacea* have been illustrated here for the first time (figs 15, 19, 20). According to the diagnostic genitalia characters, namely the long, finger-like uncus, the basally narrow, medially dilated, tongue-shaped valva, the spike-like harpe erected in the central plate of the valva, pointing ventrad and the simple, short cylindrical aedeagus with long caecum penis in the male and the short, trapezoidal ovipositor, the short, simple, ribbon-like eighth tergite, the heavily sclerotized distal and membranous proximal section of the ductus bursae, and the ovoid corpus bursae bearing a pair of rounded plates of the signum in the female genitalia, the species belongs to the hitherto monotypic genus *Ezishnola* László, Ronkay & Witt, 2010 established for the unique species *E. fuscographa* described from North Thailand (László *et al.* 2010) (figs 1, 2, 18, 24). The current discovery of the genus in the Afrotropics suggests *Ezishnola* may be an ancient, relict Gondwanan genus with very few extant species.

Description of the male genitalia (Figs 19, 20). Uncus medium long, rather narrow, gradually tapered, apically with a short, fine, pointed hook; subscaphium rather long and narrow, poorly sclerotized; tegumen short and broad, rather triangular; valvae weakly sclerotized, medium long, medially dilated, apically broadly rounded, tongue-shaped; harpe spike-like, rather long, relatively thick, slightly arcuate, apically pointed, situated in the central plate of valva; transtillae well-developed, semi-circular, medially divided; sacculus long and broad, basal third more strongly sclerotized than the apical one; fultura inferior (juxta) very small, with a pair of ear-like rounded lobes, somewhat cordiform; vinculum rather broad and long, V-shaped, saccus short, apically acutely pointed. Aedeagus short and narrow, caecum penis rather long, evenly rounded; carina without sclerotized features; vesica membranous in full length, without cornuti.



Figures 1-8: adults. *Ezishnola fuscographa* László, Ronkay & Witt, 2010, holotype, male, Thailand (MWM/ZSM); 2, *E. fuscographa* László, Ronkay & Witt, 2010, paratype, female, Thailand (NHMUK); 3, *E. cretacea* (Hampson, 1914), syntype, female, Ghana (NHMUK); 4, *E. cretacea* (Hampson, 1914), female, Ghana (HNHM); 5, *E. cretacea* (Hampson, 1914), female, Guinea (ANHRT); 6, *E. cretacea* (Hampson, 1914), male, Liberia (ANHRT); 7, *E. cretacea* (Hampson, 1914), male, Liberia (ANHRT); 8, *E. cretacea* (Hampson, 1914), male, Ivory Coast (ANHRT).

Description of the female genitalia (Fig. 15). Ovipositor short, trapezoidal, papillae anales conical; apophyses posteriores and anteriores medium long, rather thin, of same length; 8th tergite conspicuously short, weakly sclerotized, ribbon-like; ostium bursae moderately sclerotized, goblet-shaped, relatively short and narrow; ductus bursae very short and narrow, medial half more strongly sclerotized than distal and proximal quarters, cervix bursae membranous, relatively thick, sack-like; corpus bursae membranous, distal half tubular, rather thick, proximal half ovoidal; signum bursae present, consisted of a pair of heavily sclerotized semi-circular plates.

***Ezishnola inopinata* sp. nov. (Figs 9-12, 16, 21, 22)**

Holotype. Female. “Zambia, 1147m, Lukwakwa, West Lunga NP (Cryptosepalum forest/Dambo), S12°39'40", E24°26'13", 9-15.XI.2018, MV Light Trap, Aristophanous, M., Dérozier, V., László, G., Oram, D. leg., ANHRT:2018.40”, unique number: ANHRTUK 00056751, slide No.: LGNA 692 (ANHRT).

Paratypes. Zambia. 15 males, 1 female, with the same data as the holotype, unique numbers: ANHRTUK 00055289, 00055290, 00055291, 00055293, 00055331, 00055332, 00055333, 00055435, 00055436, 00058751, 00058754, 00061221, 00061223, 00061249, 00066639, 00072250; 2 males, same data but collected by Lepi LED Light Trap, unique numbers: ANHRTUK 00070756, 00074154; 1 male, same data but collected by Actinic Light Trap, unique number: ANHRTUK 00056895; 2 males, same locality but collected at 4-8.XI.2013 by Smith, R., Takano, H. & Oram, D., ANHRT:2017.10, unique numbers: ANHRTUK 00073451, 00073452, slide Nos: LGNA 60, LGNA 93; 1 male, 1400m, Hillwood, Ikelenge, S11°16'02", E24°18'59", 30.IV.-11.V.2014, Light Trap, leg. Smith, R., Takano, H., Chmurova, L. & Smith, L., ANHRT:2017.11, unique number: ANHRTUK 00073453, slide No.: LGNA 198; 3 males, same locality, but collected at 25-27.XI.2014 by Smith, R. & Takano, H., ANHRT:2017.12, unique numbers: ANHRTUK 00001290, 00001289, 00073454, slide Nos: LGNA 415, LGNA 392, LGNA 292; 1 female, 1365m, Jan Fisher’s Farm, Chingola (Miombo/Riverine forest mosaic, 12°36'10”S, 27°55'48”E, 14-17.XI.2019, MV Light Trap, Bashford, M., Miles, W., Mulvaney, L. leg., ANHRT:2019.25, unique number: ANHRTUK 00132526 (ANHRT).

Diagnosis. *E. inopinata* is an allopatric sister species of *E. cretacea* distinguished by the following characters: *E. inopinata* has a considerably darker forewing ground colour with more sharply defined, dark greyish transverse lines and with much wider blackish irregular patches in the postmedial area compared to those of *E. cretacea*; in addition, the postmedial line of the new species is continuous, whereas that of the sister species consists of a row of dots. In the male genitalia, the differences between the two taxa are subtle, the new species has a somewhat shorter uncus, a narrower, medially less dilated valvae, and slightly shorter and narrower harpe compared to *E. cretacea*. The differences between the two species are well expressed in the configuration of the female genitalia: *E. inopinata* has slightly shorter papillae anales, much shorter and thinner apophyses, somewhat wider and shorter goblet-shaped ostium bursae, a somewhat thicker ductus bursae with considerably shorter medial sclerotization, a conspicuously shorter and thicker tubular distal part and much more elongated proximal part of corpus bursae compared to those of *E. cretacea*; however, the most conspicuous difference between the two species is expressed by the complete lack of signum bursae in *E. inopinata*, while its West African sister species has a pair of heavily sclerotized semi-circular signa bursae.

Description (Figs 9-12). Forewing length 9.5-11 mm in males, 11-12 mm in females. Antenna filiform in both sexes with somewhat longer and denser ciliation in males compared to that of females.

Head relatively large, labial palps medium long, curved dorsad, inner surface greyish white, lateral and ventral surface of first and second segments dark blackish grey, third segment pale greyish white; frons and vertex pale greyish white; compound eyes moderately large, globular. Thorax whitish grey, basal two-third of collar darker greyish, abdomen creamy white – brownish white striped. Intraspecific variability limited, all known specimens are rather similar in coloration without noticeable alterations in wing pattern. Sexual dimorphism is moderately expressed in size (females slightly larger) and in coloration, namely females have slightly darker forewing and considerably darker hindwing ground colour compared to those of males.

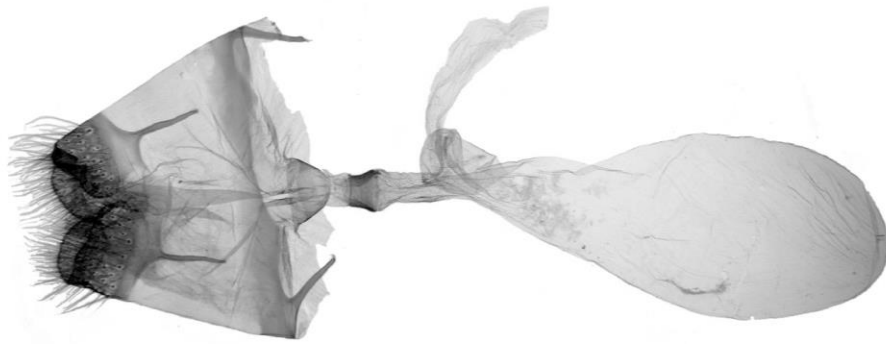


Figures 9-14: adults. 9, *Ezishnola inopinata* sp. n., holotype, female, Zambia (ANHRT); 10, *E. inopinata* sp. n., paratype, female, Zambia (ANHRT); 11, *E. inopinata* sp. n., paratype, male, Zambia (ANHRT); 12, *E. inopinata* sp. n., paratype, male, Zambia (ANHRT); 13, *E. carcassoni* sp. n., holotype, female, Uganda (NHMUK); 14, *E. carcassoni* sp. n., paratype, male, Uganda (NHMUK).

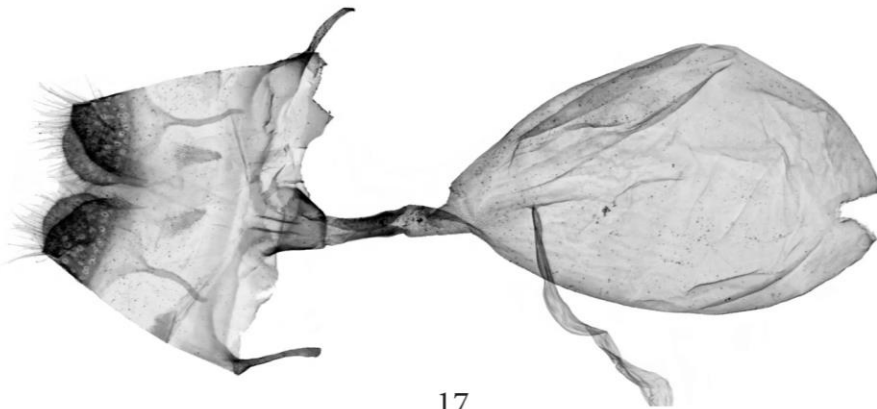
Forewing relatively long and broad, rather quadrangular, apically rounded. Forewing ground colour pale graphite grey, with blackish grey irregular patches in the postmedian area. Sub-basal and basal lines diffuse, shadow-like, represented by groups of dark grey hair scales; antemedial line fine, dark grey, interrupted, almost straight, running angularly towards costa where it joins the medial line, forming a small but conspicuous dark grey quadrangular costal patch; medial line rather thick, slightly diffuse and shadow-like, medially angled, with lower section reaching ventral margin in right angle. Orbicular stigma rather large, rounded, consisting of raised pale whitish grey scales. Postmedial line relatively thick, very sharply defined by blackish scales, costal section broadly arcuate, ventral section straight, running parallel with medial line. Subterminal line diffuse, interrupted, shadow-like, consisted of dark graphite grey patches of different size; terminal line very fine, undulating, nearly continuous, blackish; terminal area with dark grey suffusion; cilia pale brownish grey chequered with dark grey.



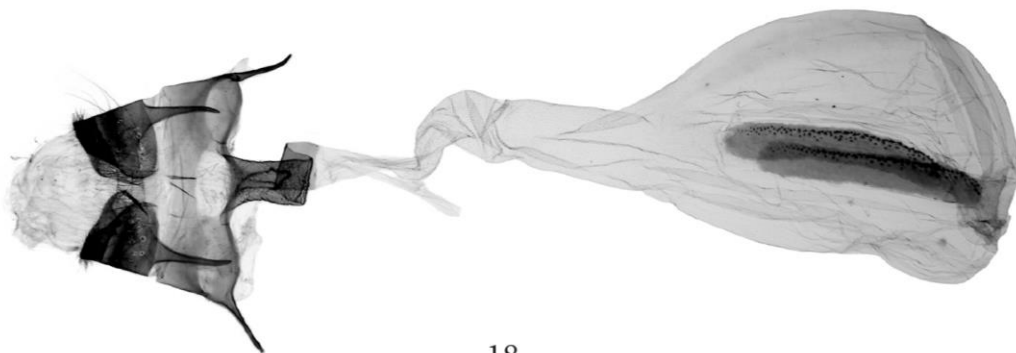
15



16

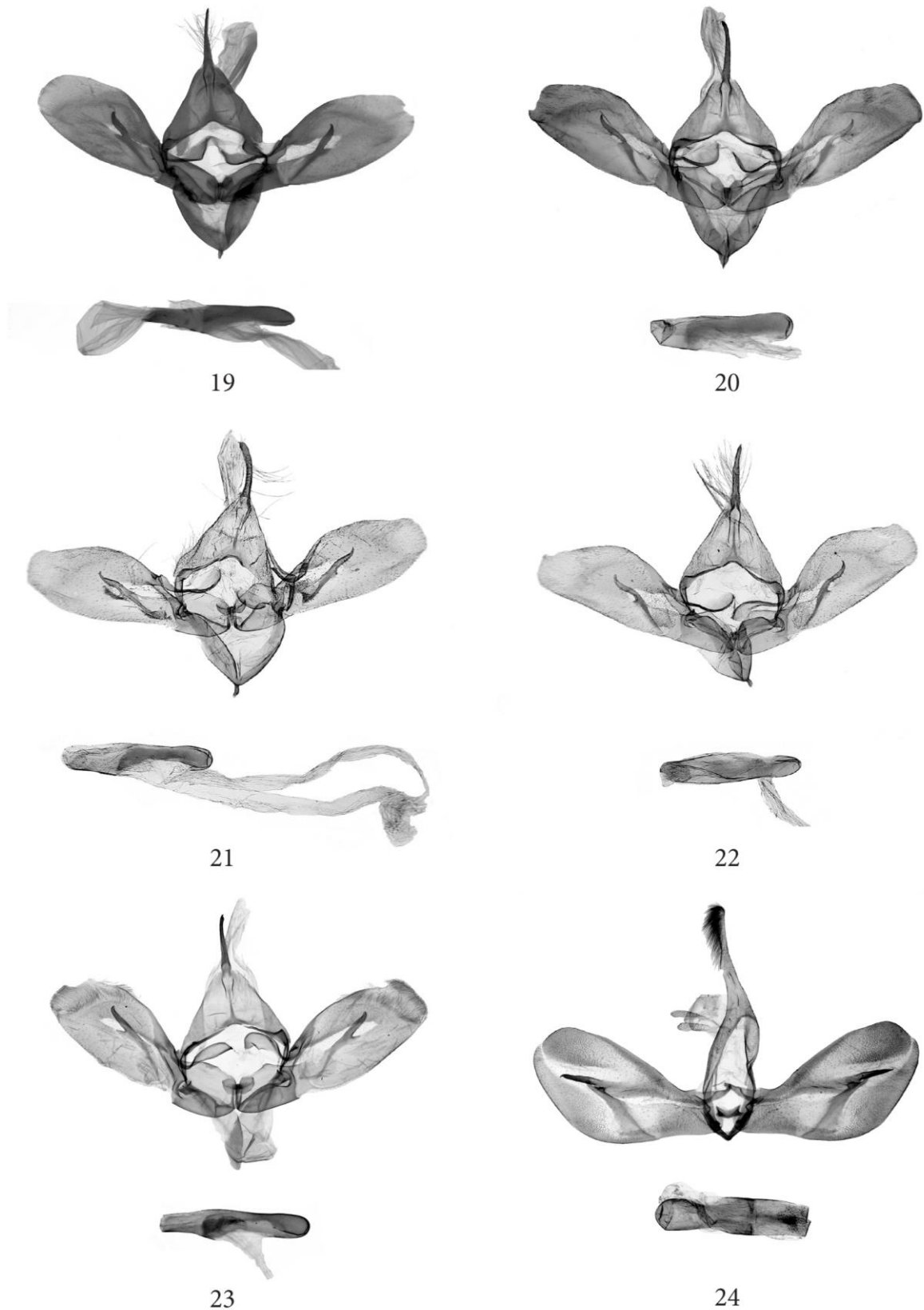


17



18

Figures 15-18: female genitalia. 15, *Ezishnola cretacea* (Hampson, 1914), LGNA 990, Ghana, Bunso Arboretum (HNHM); 16, *E. inopinata* sp. n., holotype, LGNA 692, Zambia, Lukwakwa (ANHRT); 17, *E. carcassoni* sp. n. holotype, NHMUK 010316559 (Gy. M. László), Uganda, Kalinzu Forest (NHMUK); 18, *E. fuscographa* László, Ronkay & Witt, 2010, paratype, LGN 971, Thailand, Bo Luang (MWM/ZSM).



Figures 19-24: male genitalia. 19, *Ezishnola cretacea* (Hampson, 1914), LGNA 835, Guinea, Nimba Mts (ANHRT); 20, *E. cretacea* (Hampson, 1914), LGNA 953, Liberia, Nimba Mts (ANHRT); 21, *E. inopinata* sp. n., paratype, LGNA 60, Zambia, Lukwakwa (ANHRT); 22, *E. inopinata* sp. n., paratype, LGNA 292, Zambia, Ikelenge (ANHRT); 23, *E. carcassoni* sp. n. paratype, NHMUK 010316558 (Gy. M. László), Uganda, Masaka (NHMUK); 24, *E. fuscographa* László, Ronkay & Witt, 2010, holotype, LGN 953, Thailand, Pua (MWM/ZSM).

Hindwing pale whitish grey in basal half, gradually darkened towards termen in males, darker grey in females; cilia whitish grey in both sexes. Underside of forewing uniformly dark graphite grey, that of hindwing pale graphite grey, darkened along the margin in males, similar but darker in females, without traces of pattern.

Male genitalia (Figs 21, 22). Uncus relatively short, rather narrow, distally slightly dilated, apically with a short, fine, pointed spine; subscaphium rather long and narrow poorly sclerotized; tegumen short and broad, rather triangular; valvae weakly sclerotized, medium long, medially moderately dilated, apically broadly rounded, tongue-shaped; harpe spike-like, rather long, relatively thick, slightly arcuate, apically pointed, situated in the central plate of valva; transtillae well-developed, semi-circular, medially divided; sacculus long and broad, basal third more strongly sclerotized than apical one; fultura inferior (juxta) very small, with a pair of ear-like rounded lobes; vinculum rather broad and long, V-shaped, saccus short, apically acutely pointed. Aedeagus short and narrow, caecum penis rather long, evenly rounded; carina without sclerotization; vesica membranous in full length, without cornuti.

Female genitalia (Fig. 16). Ovipositor short, trapezoidal, papillae anales conical; apophyses posteriores and anteriores rather short, conspicuously thin, posterior ones slightly longer than anterior; 8th tergite conspicuously short, weakly sclerotized, ribbon-like; ostium bursae moderately sclerotized, goblet-shaped, relatively short and narrow; ductus bursae very short, relatively narrow, medial quarter more strongly sclerotized than distal and proximal quarters, slightly dilated, cervix bursae membranous, rather thick, sack-like; corpus bursae membranous, distal third tubular, rather thick, dilated anteriorly, proximal half elongate ovoidal; signum bursae absent.

Etymology. The latin adjective *inopinata* means unexpected, referring to the surprising occurrence of a new *Ezishnola* species in NW Zambia.

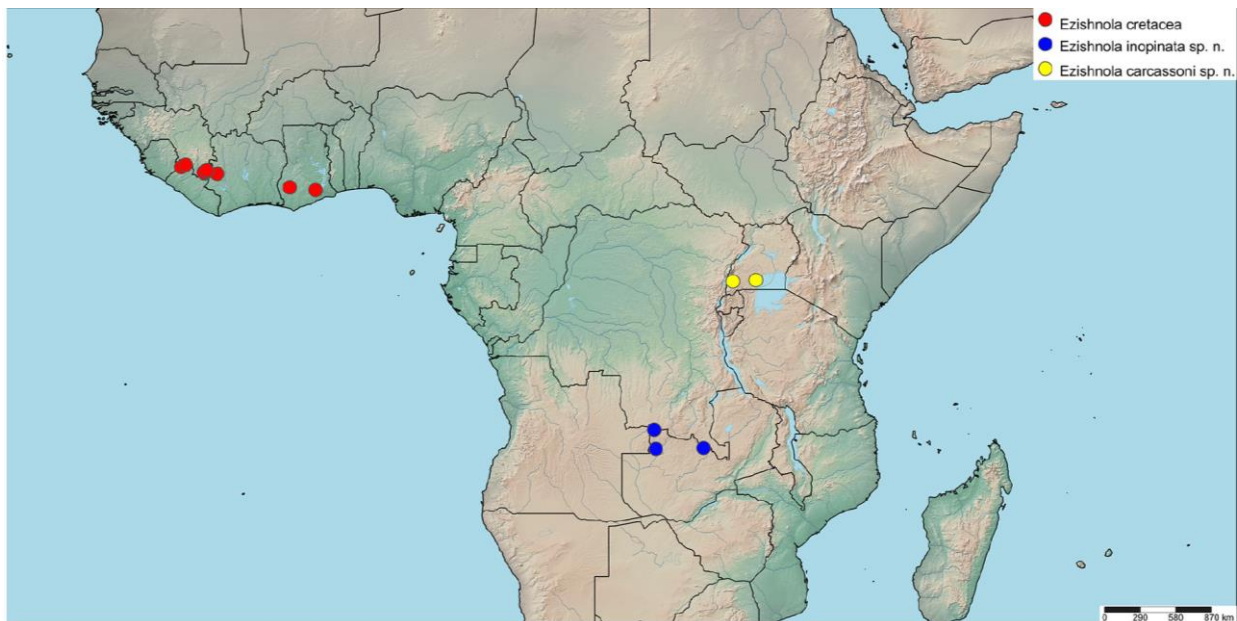


Figure 25. Distribution of the African *Ezishnola* species.

***Ezishnola carcassoni* sp. nov. (Figs 13, 14, 17, 23)**

Holotype. female, “Kalinzu Forest Ankole Uganda Nov. 1961 R. H. Carcasson”, “Coryndon Museum B.M. 1963-322”, QR code label with unique number: NHMUK 014046240, slide No.: NHMUK 010316559 (NHMUK).

Paratype. Uganda. 1 male, Katera Sango Bay, Masaka, Oct. 1960, R.H. Carcasson, QR code label with unique number: NHMUK 014046239, slide No.: NHMUK 010316558 (NHMUK).

Diagnosis. *E. carcassoni* sp. n. is an East African allopatric sister species of *E. cretacea* and *E. inopinata* known so far only from Uganda. The new species differ externally from both sister species by its conspicuously interrupted transverse lines consisting of a dense row of sharply defined blackish dots, whereas the crosslines are more continuous in the other species, although similar wing pattern is not unknown in *E. cretacea*. In the male genitalia, *E. carcassoni* differs from both sister species by its somewhat shorter uncus and valva, in addition more robust, almost straight harpe (those of the other two species are thinner and slightly arcuate) and considerably narrower, more elongate transtillae. In the female genitalia, the new species has somewhat shorter apophyses than those of *E. cretacea*, ovoid corpus bursae without tubular section and without sack-like cervix bursae (corpus bursae with conspicuously long tubular section and cervix bursae is sack-like in *E. cretacea*), in addition *E. carcassoni* lacks signum bursae. The differences between the female genitalia of the new species and *E. inopinata* are as follows: *E. carcassoni* has somewhat longer apophyses, narrower ductus bursae with longer sclerotized medial section compared to those of *E. inopinata*, in addition less elongate, more rounded corpus bursae with simple cervix bursae, while the corpus bursae of *E. inopinata* is more elongated with anteriorly dilated distal tubular section and its cervix bursae with a well-developed, membranous sack.

Description (Figs 13, 14). Forewing length 12 mm in male, 13 mm in female. Antenna filiform in both sexes with somewhat longer and denser ciliation in males compared to that of females.

Head relatively large, labial palps medium long, curved dorsad, inner surface brownish white, lateral and ventral surface of first and second segments brownish grey, third segment pale creamy white; frons and vertex pale brownish white; compound eyes moderately large, globular. Thorax brownish grey, basal two-third of collar darker greyish, abdomen brownish white. Intraspecific variability limited. Sexual dimorphism is moderate, expressed in size (female slightly larger) and in coloration, (female hindwing somewhat darker than that of male).

Forewing relatively long and broad, rather quadrangular, apically rounded. Forewing ground colour pale brownish grey, with some darker brown irregular patches in the postmedian area. Sub-basal and basal lines diffuse, shadow-like, represented by groups of brownish hair scales; antemedial line fine, brownish grey, interrupted, almost straight, running angularly towards costa; medial line rather thick, interrupted, diffuse, present only in the ventral third; Orbicular stigma rather large, rounded, consisting of raised pale whitish grey scales. Postmedial line relatively thick, interrupted, very sharply defined by dense row of dark brown scales, upper section broadly arched, lower section running parallel with medial line. Subterminal line rather undulating, interrupted, consisting of dark brown triangular patches of different size; terminal line thick, interrupted, consisting of a row of dark brown streaks; terminal area with some red-brown suffusion; cilia pale brownish grey chequered with darker brown.

Hindwing pale greyish white, with some darker brownish suffusion terminally in males, darker grey in females, turning to brownish grey in the terminal area; cilia whitish grey in both sexes. Underside of forewing uniformly dark brownish grey, that of hindwing paler brownish grey, darkened along the margin in males, similar but darker in females, without traces of pattern.

Male genitalia (Fig. 23). Uncus relatively short, rather narrow, gradually tapered distally, apically with a short, fine, pointed hook; subscaphium rather long and narrow poorly sclerotized; tegumen short and broad, rather triangular; valvae weakly sclerotized, relatively short, medially moderately dilated, apically broadly rounded, tongue-shaped; harpe thorn-like, rather long and robust, almost straight, apically curved and pointed, situated in the central plate of valva; transtillae well-developed, elongate-ovoid, medially divided; sacculus long and broad, basal third more strongly sclerotized than apical one; fultura inferior (juxta) very small, with a pair of ear-like rounded lobes; vinculum rather broad and long, broad V-shaped, saccus short, apically acutely pointed. Aedeagus short and narrow, caecum penis rather long, evenly rounded; carina without sclerotization; vesica membranous in full length, without cornuti.

Female genitalia (Fig. 17). Ovipositor short, trapezoidal, papillae anales conical; apophyses posteriores and anteriores short, relatively thin, of same length; 8th tergite conspicuously short, weakly sclerotized, ribbon-like; ostium bursae moderately sclerotized, goblet-shaped, relatively short and narrow; ductus bursae very short, relatively narrow, medial half more strongly sclerotized than distal and proximal quarters, cervix bursae membranous, rather thick, without sack-like protrusion; corpus bursae membranous, elongate-ovoid without distal tubular part; signum bursae absent.

Etymology. The new species is named after the British entomologist Robert Herbert Carcasson, collector of the type specimens.

Remark. An unidentified specimen is illustrated in Hacker *et al.* (2012) on p. 529 from Budongo Forest, Uganda. Based on its external habitus, this specimen almost certainly belongs to *E. carcassoni*.

Acknowledgements

The author is grateful to the following persons who provided significant help during the course of the preparation of this present paper: Dr Alberto Zilli and Mr Geoff Martin (NHMUK, London, UK) for their kind assistance provided during the study of the Nolini type and accession material of the NHMUK; Dr László Ronkay and Dr Balázs Tóth for the opportunity to examine African Nolini material of the HHNM; Dr Hitoshi Takano (ANHRT, NHMUK) for the linguistic corrections of the manuscript. My special thanks go to the following co-operative partners in Zambia for the diverse administrative and technical assistance provided during the field work as well as for issuing the research and export permits: Ms Rhoda Kachali (Department of National Parks and Wildlife – ZAWA, Lusaka), Ms Claire Mateke and Ms Martha Imakando (Livingstone Museum, Livingstone).

The Author declares that to the best of his knowledge he conforms to the national regulations and meets with the conditions and requirements of International Conventions concerning collecting/export and handling of the specimens presented in this Article.

References

- Hacker, H.H., Schreier, H.P. & Goater, B. (2012) Revision of the tribe Nolini of Africa and the Western Palaearctic Region (Lepidoptera, Noctuoidea, Noctuidae, Nolinae). *Esperiana*, 17, 7–612.
- Hampson, G.F. (1914) Catalogue of the Amatidae and Arctiidae (Nolinae and Lithosianae) in the Collection of the British Museum. *Catalogue of the Lepidoptera Phalaenae in the British Museum*, Supplement 1. London 858 pp.
- Lafontaine, J.D. & Mikkola, K. (1987) Lock-and-key system in the inner genitalia of Noctuidae (Lepidoptera) as taxonomic character. *Entomologiske Meddelelser*, 55, 161–167. (in Finnish)
- László, Gy.M., Ronkay, G. & Witt, T. (2010) Contribution to the Nolinae (Lepidoptera, Noctuidae) fauna of North Thailand. *Esperiana*, 15, 7–125.