LepSoc AFRICA

METAMORPHOSIS

LEPIDOPTERISTS' SOCIETY OF AFRICA

Volume 35: 25–30

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

New records of Metarbelidae from Namibia and description of a new species from the Great Escarpment (Lepidoptera, Cossoidea)

urn:lsid:zoobank.org:pub:4741E842-B635-4363-9BFD-035869F02637
Published online: 02 December 2024
DOI: https://dx.doi.org/10.4314/met.v35i1.6

Wolfram Mey
Museum für Naturkunde, Leibniz-Institut für Evolutions- und Biodiversitätsforschung an der Humboldt-Universität zu Berlin, Invalidenstraße 43, 10115 Berlin, Germany. Email: wolfram.mey@gmx.de

Abstract: New faunistic data from Namibia are given for the family Metarbelidae. A total of 17 species are recorded and a new species is described: *Metarbela dietermeyi* **sp. nov.** The adults of the new species and specimens of *Lukeniana raymondrevellii* and two *Selagena* species are illustrated in colour. The male genitalia and wing venation of *M. dietermeyi* **sp. nov.** are depicted as line drawings and its systematic position is briefly discussed.

Key words: Africa, biogeography, checklist, faunistics, *Metarbela*, taxonomy
Citation: Mey, W. 2024. New records of Metarbelidae from Namibia and description of a new species from the Great Escarpment (Lepidoptera, Cossoidea). *Metamorphosis* **35**: 25–30.
Peer reviewed

INTRODUCTION

Metarbelidae is a predominantly Afrotropical family with about 220 species known from the African continent (De Prins & de Prins, 2011-2024). In the past, they were included by Janse (1925) and other authors as subfamily of Cossidae, but the group is now generally treated as a family of its own. Regrettably, information on the immatures and hostplants are largely absent, but available data suggest feeding of larvae on the bark of trees (Janse, 1925).

Two years ago, during an excursion through the Great Escarpment of Namibia, an unknown species of the family Metarbelidae was collected at lights in an area that had not been previously visited by the author. The species turned out to be an unknown member of the genus *Metarbela* Holland, 1893, and its description forms the subject of the present article. In addition, faunistic data, which has been assembled over recent years from various places in Namibia are provided, together with a list of the known Metarbelidae species of Namibia.

The first monographic account on the family Metarbelidae in South Africa (RSA) was provided by Janse (1925). He listed 29 species, arranged in nine genera. All species were collected or recorded either from the territory of RSA or from the former Southern Rhodesia (= Zimbabwe). The first species from Namibia, were recorded by Gaede (1929). He published the description of one species: *Metarbela trisignata* Gaede, 1929. One year later, the description of *Arbelodes heringi* (Janse, 1930) from Windhoek was added, which became the last record of the family from Namibia for nearly 80 years. Taxonomic work on the family was resumed by Mey (2005) with the description of *Metarbela naumanni* Mey, 2005. The study of material collected during several expeditions to the Brandberg yielded the discovery of another five species (Lehmann, 2007). Two new species from Namibia were included in the establishment of the new genus *Kroonia* by Lehmann (2010a) and one new species in the revision of the genus *Arbelodes* by Lehmann (2010b). The faunistic exploration of the Namibian fauna was greatly enlarged and intensified by the BIOTA project and reached its peak from 2007 to 2009. Concerning Metarbelidae, the BIOTA sampling program resulted in the discovery of a further three new species, which were described by Mey (2011, 2012). The most recent addition to the Namibian fauna was the detection and description of *Lukeniana raymondrevellii* Lehmann, Zahiri & Husemann, 2023, based on material housed in the Natural History Museum, London. Based on the available literature seen (De Prins & De Prins (2011−2024)), the number of Metarbelidae species occurring in Namibia currently stands at 17 including *Metarbela dietermeyi* **sp. nov.** and two yet unidentified species.

Received: 04 November 2024
Accepted: 20 November 2024

METHODS AND MATERIALS

Material examined in this study belong to museum collections listed at the end of the chapter. The adult moths were collected in the field by using light traps. Pinned specimens and their associated slide-mounted genitalia, and other features were examined with dissecting and compound microscopes. Dissection of the genitalia was performed largely according to standard procedure and the genitalia were embedded in Euparal. Chlorazol Black was used for staining genitalia. The cleared abdomens of some specimens are stored in polyethylene vials with glycerol and are placed on the pin with the specimen. Prior to embedding the cleared genitalia on microscope slides or into glycerol vials, they were drawn using a camera lucida attached to a Leica MZ12 compound microscope.

The terminology used in the descriptions of species largely follows Mey (2011). The treatment and sequence of species groups and species are arranged alphabetically.

Abbreviation of depositories:

MfN – Museum für Naturkunde, Berlin, Germany
NMNW – National Museum of Namibia, Windhoek
TMSA – Ditsong Museum of Natural History, Pretoria, South Africa

Figure 1 – *Lukeniana raymondrevellii*, male, Kombat, Farm Omatjete.

Figure 2 – *Lukeniana raymondrevellii*, male, Farm Hohenfels.

RESULTS

Faunistic records of Metabelidae from Namibia

Arbelodes heringi Janse, 1930
Material examined: 1 ♂, Otjozondjuba, Mt. Etjo Lodge, 1700 m, 13.viii.2014, D. Stöckel

Kroonia heikeae Lehmann, 2007
Material examined: 2 ♂, Karas, Karasberge, Goibib Mountain Lodge, 1366 m, 30.i.2012, leg. W. Mey

Lukeniana raymondrevellii Lehmann, Zahiri & Husemann, 2023 (Figs. 1 & 2)
Material examined: 2 ♂, Otjozondjuba, Otjiwarongo, Farm Abachaus, 1942, leg. G. Hobohm (as *Metarbelodes umtaliana* Aurivillius, 1901, in TMSA)
3 ♂, Otjozondjuba, Otjiwarongo, Hohenfels, 25-27.viii.2012, leg. W. Mey
10 ♂, 1 ♀, Otjozondjuba, Kombat, Farm Omatjete, 27.viii.2012, leg. W. Mey (genitalia slide Mey 42/24)

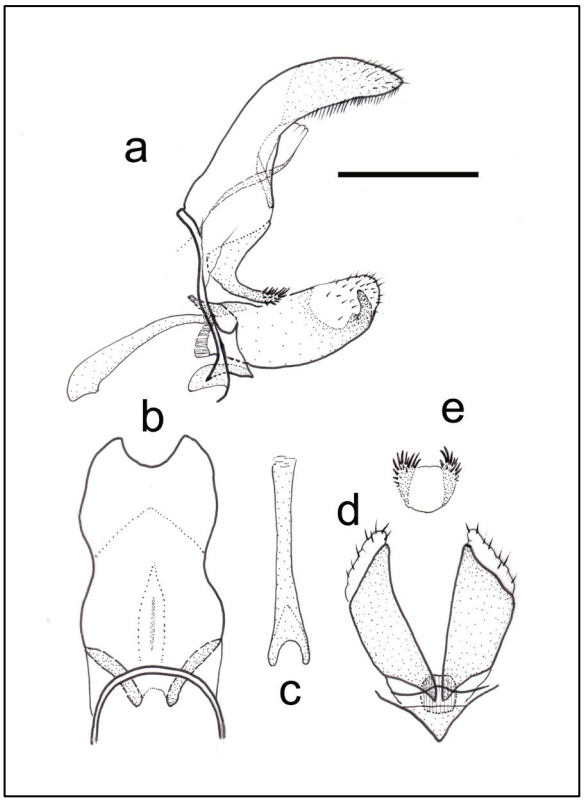

Figure 3 – *Lukeniana raymondrevellii*, male genitalia: a – lateral, b – dorsal, c – phallus, ventral, d – ventral, e – apex of gnathos, ventral aspect.

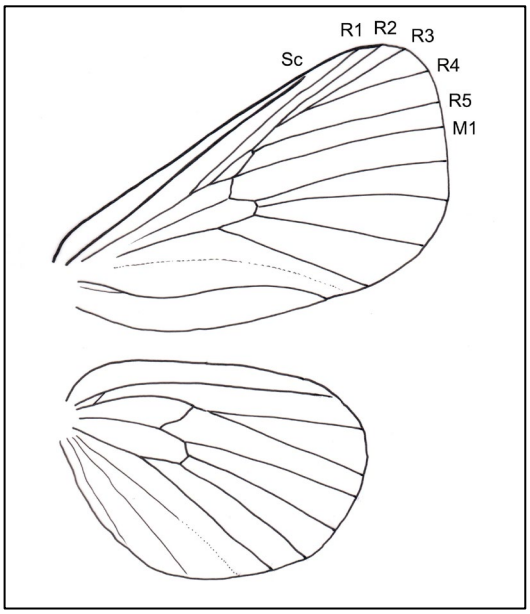

Figure 4 – *Lukeniana raymondrevellii*, male, wing venation.

Remarks: Material of this recently described species had been deposited many years ago in several museum collections. The species was identified as a member of *Metarbelodes* Strand, 1909 due to four spurs on hind tibia, presence of a cossoid gnathos in the male genitalia (Fig. 3) and similar wing venation (Fig. 4). Morphological differences between *Lukeniana* and *Metarbelodes* are minimal. The geographic positions of the new localities are marked in Fig. 17. The habitats, where adults have been collected at the lights, are at the foothills of the Waterberg Plateau Park (Fig. 5) and south of the Otavi Mts. (Fig. 6).

Figure 5 – Collecting site of *L. raymondrevellii* at Farm Hohenfels near Waterberg Plateau Park.

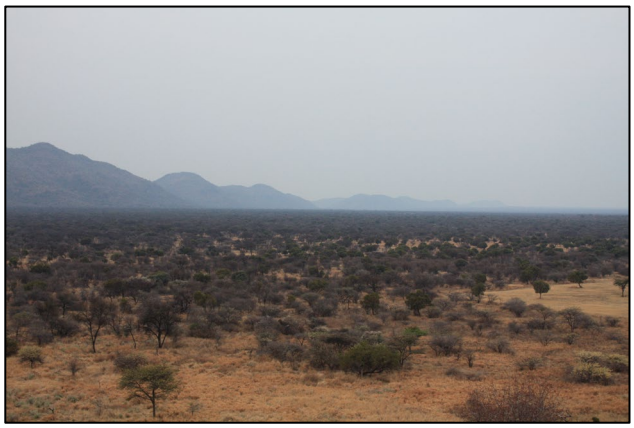

Figure 6 – Collecting site of *L. raymondrevellii*, south of the Otavi Mts.

Metarbela trisignata Gaede, 1929
Material examined: 1 ♂, Erongo, Farm Kuduberg, 1500 m, 12-14.i.2007, LF, leg W. Mey & K. Ebert
1 ♂, Otjozondjuba, Okahandja, Farm Erichsfelde, 1349 m, 19-21.iii.2003, LF, leg W. Mey & K. Ebert

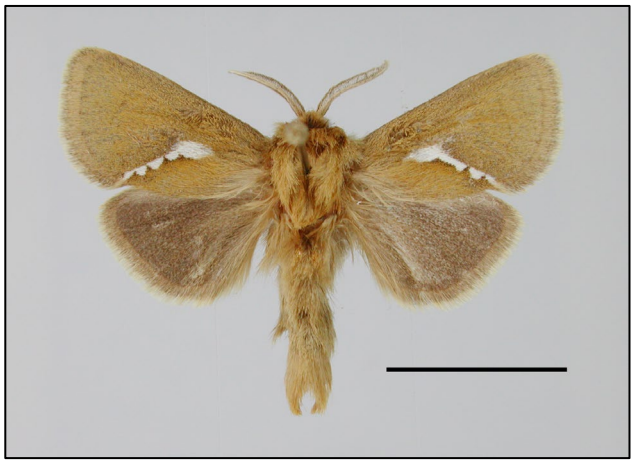

Figure 7 – *Metarbela naumanni* Mey, 2005, paratype, male, scale: 1 cm.

Metarbela weinmanni Lehmann, 2007
Material examined: 2 ♂, Kunene, Joulbertpass, 1360 m, 1.ii.2009, leg. W. Mey
2 ♂, Kunene, Palmwag Lodge, 995 m, 27-29.ii.2008, leg. W. Mey
9 ♂, Kunene, Hobatere, campsite, 1256 m, 19-21.ii. 2008, leg. W. Mey
5 ♂, Kunene, Grootberg Pass, 1546 m, 3.ii.2009, leg. W. Mey
1 ♂, Erongo, Farm Kuduberg, 1500 m, 12-15.i.2007, leg. W. Mey & K. Ebert
1 ♂, Erongo, Farm Eileen, 1310 m, 15-16.iii.2005, leg. W. Mey

Metarbela kobesi Lehmann, 2007
Material examined: 1 ♂, Kunene, Grootberg Pass, 1546 m, 3.ii.2009, leg. W. Mey
1 ♂, Erongo, Spitzkoppe, campsite, 1102 m, 1-3.iii.2008, leg. W. Mey
1 ♂, Hardap, Naukluft Berge, Koedoesrus campsite, 29-31.i.2007, 1460 m, leg. W. Mey

Metarbela naumanni Mey, 2005 (Fig. 7)
Material examined: 12 ♂, Kunene, Joulbertpass, 1360 m, 1.ii.2009, leg. W. Mey
2 ♂ 1♀, Kunene, Otjikonde, Farm Holstein, 1200 m, 13.iii.2005, leg. W. Mey
1 ♂, Kunene, Outjo, 1280 m, 2.v.1957 (TMSA)
2 ♂, Otjozondjuba, Okahandja, Farm Erichfelde, 1349 m, 2.iv.2008, leg. W. Mey
1 ♂, Erongo, Farm Ameib, 24.ii.1975 (as M. cymaphora Hps., in TMSA)
1♂, Khomas, Windhoek, Farm Rooiklip, 1075 m, 10.iii.2014, leg. W. Mey
2 ♂ 1 ♀, Karas, Karasburg, Karios, 897 m, 18.iv.2008, leg. W. Mey

Salagena albovenosa Mey, 2011
Material examined: 1♂, Khomas, Windhoek, Farm Rooiklip, 1075 m, 22-24.xi.2017, leg. W. Mey

Salagena cf. *narses* Fawcett, 1916
Material examined: 1 ♂, Kavango, Rundu, Popa Falls, 1005 m, 9.xi.2007, leg. V. Richter

Salagena tessellata Distant, 1897
Material examined: 2 ♂ 1♀, Kawango, “Bagani, S. W. A./West Caprivi/ 6.x.1982/G. B. Kroon” (MfN)

Figure 8 – *Salagena* spec. 1, Otjiwarongo, Waterberg.

Salagena spec. 1 (Fig. 8) (under study by I. Lehmann)
Material examined: 1 ♂, Otjozondjuba, Otjiwarongo, Waterberg National Park, 1535 m, tourist camp,

21-22.xi.2000, leg. W. Mey (I. Lehmann genitalia slide 06/042013)
2 ♂, Kavango, Rundu, Popa Falls, 1005 m, 9.xi.2007, leg. V. Richter (I. Lehmann genitalia slide 02/082010)
1 ♂, RSA, North-West Province, Dwarsberge, 9-12.xi.2010, leg. F. Koch
2 ♂, Caprivi, Kongola, 20 km south, Namushasha Lodge, 29.x.-1.xi.2012, leg. D. Stöckel

Figure 9 – *Salagena* spec. 2, Kwando, Popa Falls.

Salagena spec. 2 (Fig. 9) (under study by I. Lehmann)
Material examined: 2 ♂, Kavango, Rundu, Popa Falls, 1005 m, 9.xi.2007, leg. V. Richter (I. Lehmann genitalia slide 16/092010)
1 ♂, RSA: Mpumalanga, Graskop, 5 km east, 16-17.xi.1999, leg. W. Mey

Taxonomic Account

***Metarbela dietermeyi* sp. nov.**
urn:lsid:zoobank.org:pub:4741E842-B635-4363-9BFD-035869F02637
Type material: Holotype ♂, **Namibia**, Erongo, Karibib, Otjipatera Mts., Etusis Lodge, 1086 m, S 22°10.770′ E 15°44.221′, 18-21.iii.2022, at the lights, leg. W. Mey, (MfN, Berlin)
Paratypes: 8 ♂, same data as Holotype (MfN, Berlin, NMNW, Windhoek)

Etymology. The new species is named in honour of my brother Dieter Mey (Bad Tabarz, Germany), who was a reliable companion during our joint excursion to southern Africa.

Description. Adult male (Figs 10, 11, 12): length of forewing 11–11.3 mm, wingspan 21–26 mm. Head and thorax with dense, grey-brown vestiture, labial palpi short, porrect, darker as the protruding hairs of frons; antenna brown, about half the length of forewing, bipectinate, sparsely scaled dorsally, rami with rows of setae on ventral side, 45 pairs of rami present. Proboscis and maxillary palpi absent. Legs grey-brown, with dense vestiture on dorsal side; epiphysis absent; hind tibia with apical spur pair. Wing venation in Fig. 13; forewings brown-beige, with characteristic position of short white streak along anal side of Cu1b, sometimes filled with 2-3 indistinct spots; transverse lines thin and pale, or absent; wing margin without line separating fringes, hindwings pale beige, sometimes darker apically, underside of wings pale beige, frenular bristles absent. Tuft of long hairs on metathorax. Abdomen light brown, with long and dense vestiture, anal tuft with long, brown tipped hairs, forming a fan-like roof over genitalia.

Figures 10, 11, 12 – *Metarbela dietermeyi* **sp. nov.**, male paratypes.

Male genitalia (Fig. 14): Segment IX fused to a ring-like structure, lateral sides constricted, basal and dorsal parts enlarged. Uncus a roof-like plate with shallow, semicircular emarginations on apical margin. Ventral side of anal tube with long, sinus-like subscaphium. Gnathos absent. Saccus short and broad, slightly curved dorsad. Valva nearly rectangular, apical margin convex, dorsal part membranous without sclerotized costa, ventral part sclerotized, both valvae fused basally along a band-like structure. Inner apodeme of base of valva large, curved,

outer apodeme short. Juxta elongate, attached to diaphragma on basal part around phallus. Phallic apparatus tubular, ventral apex acute, vesica without cornuti.

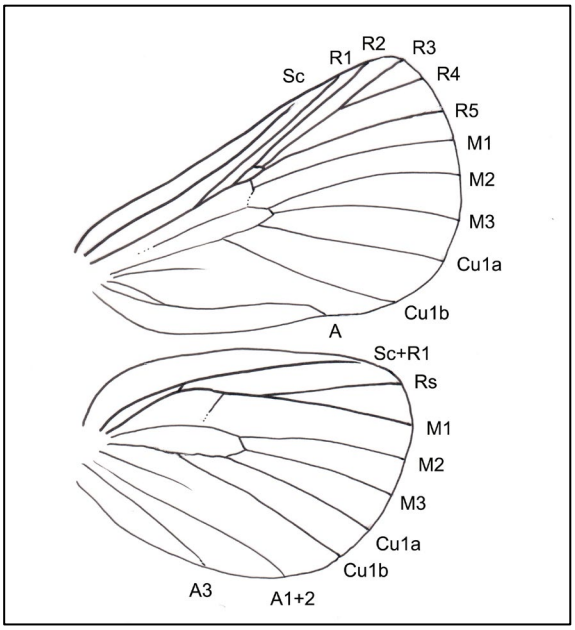

Figure 13 – *Metarbela dietermeyi* **sp. nov.**, wing venation, male paratype.

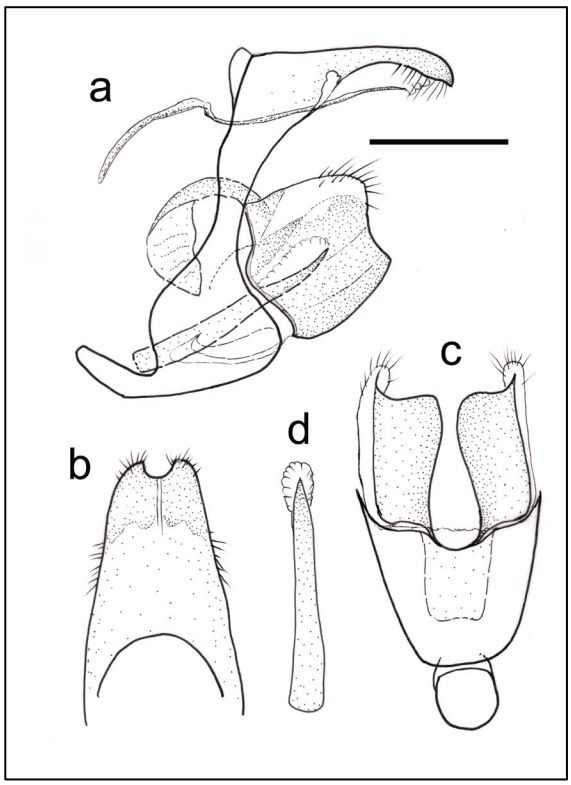

Figure 14 – *Metarbela dietermeyi* **sp. nov.**, male genitalia: a-lateral, b – dorsal, c – ventral, d – phallus, ventral aspect.

Female and biology: unknown.

Remarks. In external appearance and size the new species resembles *M. naumanni* Mey, 2005. The diagnostic and readily observable difference between the two species is the brown ground colour of forewings of *M. naumanni* (Fig. 7) which contrasts with the beige wings of *M. dietermeyi* **sp. nov.** (Figs. 10, 11, 12). Some small differences are observable in wing venation: areole elongate in forewing of *M. naumanni* and R3+4+5 with a short stalk, and in hindwing Sc+R1 present as short fork at wing margin. In *M. dietermeyi* **sp. nov.** the areole is short and R3+4 and R5 originate separately from areole, and in the hindwing Sc+R1 fused to wing margin. In male genitalia, the new species has a very long and curved inner apodeme of valva, and the emargination of the apical margin of the valva are much shallower.

Based on wing pattern and genitalia both species form a species-pair, whose most closely related species seems to be *M. cymaphora* Hampson, 1910, described from eastern Africa.

The new species seems to be an endemic of the western parts of the Great Escarpment in Namibia.

List of species of Metarbelidae recorded/collected from Namibia
(terra typica in parentheses)

Arbelodes Karsch, 1896
- *A. dupreezi* Lehmann, 2010 – (Karas: Farm Aar)
- *A. heringi* Janse, 1930 – (Windhoek)
- *A. kroonae* Lehmann, 2007 – (Karas: Ai-Ais)

Kroonia Lehmann, 2010
- *K. heikeae* Lehmann, 2010 – (Erongo: Homeb)
- *K. honeyi* Lehmann, 2010 – (Oshikoto, Otavi Mts.: Farm Varianto)

Lukeniana Lehmann, Zahiri & Husemann, 2023
- *L. raymondrevellii* Lehmann, Zahiri & Husemann, 2023 – (Otjozondjupa: Waterberg)

Metarbela Holland, 1893
- *M. dietermeyi* **sp. nov.** – (Erongo: Otjipatera Mts.)
- *M. kobesi* Lehmann, 2007 – (Brandberg Mt.)
- *M. naumanni* Mey, 2005 – (Karas)
- *M. trisignata* Gaede, 1929 – (Tsumeb)
- *M. weinmanni* Lehmann, 2007 – (Brandberg Mt.)

Salagena Walker, 1865
- *S. albovenosa* Mey, 2011 – (Namib-Naukluft Park, Ganab)
- *S. meyi* Lehmann, 2007 – (Brandberg Mt.)
- *S.* cf. *narses* Fawcett, 1916 – (Kenia, Kedai)
- *S. tessellata* Distant, 1897 – (RSA, Pretoria)

Teragra Walker, 1855
- *T. cammae* Lehmann, 2007 – (Brandberg Mt.)
- *T. macroptera* Mey, 2011 – (Windhoek)

CONCLUSION

Looking across the different biomes of Namibia (https://atlasofnamibia.online/), records of metarbelid species come from localities distributed mainly in the Tree-and-Shrub Savanna Biome (Figs 5, 6). Few records are known from the Nama Karoo Biome, and only one record comes from the Namib Desert Biome (*Salagena albonervosa*). Currently, no records are known from the Succulent Karoo Biome. The most widespread species is *M. naumanni* (Fig. 7), occurring from Kaokoveld in the north to the Fish River Canyon in the south. It is closely

related with *M. dietermeyi* **sp. nov.** (Figs 10, 11, 12). The new species was collected at the foothills of the Otjipatera Mts., where dry savanna vegetation is gradually replaced by thornbush shrubland and broad-leaved trees on hills and mountains (Figs 15, 16).

Figure 15 – Collecting site and lodging hut in Etusis Lodge near Karibib.

Figure 16 – Landscape of the Otjipatera Mts.

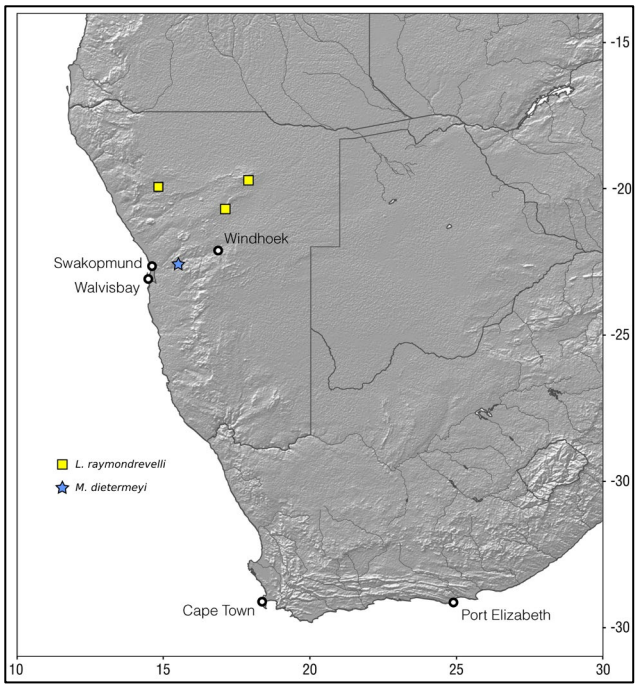

Figure 17 – Map of Namibia with collecting sites of *Lukeniana raymondrevellii* and *Metarbela dietermeyi* **sp. nov.**

The majority of the Namibian Metarbelidae are not recorded outside the country. In contrast, most of the species from South Africa are confined to the eastern side of the continent. Further collecting, especially in Botswana and in the interior of South Africa, will show whether this pattern is a sampling artefact or a valid pattern of biogeographic divergence.

ACKNOWLEDGEMENTS

The author wishes to thank the staff members of the Natural History Museum, London (K. Sattler, D. Lees, K. Tuck, and A. Zilli) for access to the Lepidoptera collections during numerous visits over the last three decades. I am grateful to J. Mey (University of Potsdam) for providing the distribution map. I would also like to thank the reviewers (W. Speidel and R. V. Yakovlev) and the Metamorphosis editorial team for their constructive comments that helped me to improve the quality of the manuscript.

LITERATURE CITED

DE PRINS, J. & DE PRINS, W. 2011-2024. AfroMoths, online database of Afrotropical moth species (Lepidoptera): http://www.afromoths.net.

GAEDE, M. 1929 21. Family: Metarbelidae. Pp. 501-513, pl. 78. *In*: SEITZ, A. (ed.): *The Macrolepidoptera of the World. Vol. 14. The African Bombyces and Sphinges*. Alfred Kernen, Stuttgart.

JANSE, A.J.T. 1925. A revision of the south African Metarbelinae. *S.A. Journal of Natural History* 5: 61–100.

-----. 1930. A new Metarbelid (Lep.). *Mitteilungen der Deutschen entomologischen Gesellschaft* 1(4): 60–61.

LEHMANN, I. 2007. Metarbelidae. *In*: MEY, W. (ed.): *The Lepidoptera of the Brandberg Massif in Namibia. Part 2. Esperiana Memoir* **4**: 169–185, pl. 17. Bad Staffelstein, Germany.

-----. 2010a. A new genus of Metarbelidae (Lepidoptera, Cossoidea) from the Afrotropical Region with the description of seven new species. *Esperiana Memoir* **5**: 294–321, pl. 21. Bad Staffelstein, Germany.

-----. 2010b. A revision of the genus *Arbelodes* Karsch (Lepidoptera: Cossoidea: Metarbelidae) from southeastcentral and southern Africa with the description of thirteen new species. Published by the author, Hamburg & Wismar, 81 pp., 5 colour pls.

LEHMANN, I., ZAHIRI, R. & HUSEMANN, M. 2023. Revision of the *Metarbelodes* Strand, 1909 genus-group (Lepidoptera: Cossoidea: Metarbelidae) with descriptions of two new genera and 33 new species from high elevations of eastern and southern Africa. *Zootaxa* **5267**(1): 001–106. https://doi.org/10.11646/zootaxa.5267.1.1

MEY, W. 2005. *Metarbela naumanni* **sp. nov.** from southern Africa (Lepidoptera, Cossidae: Metarbelinae). *Entomologische Zeitschrift* **115**(1): 10–12.

-----. 2011. Basic pattern of Lepidoptera diversity in southwestern Africa. *Esperiana Memoir* **6**, 320 pp. Bad Staffelstein, Germany.

-----. 2012. *Arbelodes goellnerae* **sp. nov.** from southern Namibia (Lepidoptera: Cossoidea, Metarbelidae). *Entomologische Zeitschrift* **122**(3): 103–104.