BioOne DIGITAL LIBRARY

A new species of Afromelittia Gorbunov & Arita, 1997 (Lepidoptera: Sesiidae: Melittiini) from The Gambia

Authors: Bartsch, Daniel, and Weitzel, Matthias

Source: Integrative Systematics: Stuttgart Contributions to Natural History, 5(1) : 49-52

Published By: Stuttgart State Museum of Natural History

URL: https://doi.org/10.18476/2022.477144

The BioOne Digital Library (https://bioone.org/) provides worldwide distribution for more than 580 journals and eBooks from BioOne's community of over 150 nonprofit societies, research institutions, and university presses in the biological, ecological, and environmental sciences. The BioOne Digital Library encompasses the flagship aggregation BioOne Complete (https://bioone.org/subscribe), the BioOne Complete Archive (https://bioone.org/archive), and the BioOne eBooks program offerings ESA eBook Collection (https://bioone.org/esa-ebooks) and CSIRO Publishing BioSelect Collection (https://bioone.org/csiro-ebooks).

Your use of this PDF, the BioOne Digital Library, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Digital Library content is strictly limited to personal, educational, and non-commmercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne is an innovative nonprofit that sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Integrative-Systematics:-Stuttgart-Contributions-to-Natural-History on 07 Jul 2025
Terms of Use: https://complete.bioone.org/terms-of-use

RESEARCH ARTICLE

A new species of *Afromelittia* Gorbunov & Arita, 1997 (Lepidoptera: Sesiidae: Melittiini) from The Gambia

Daniel Bartsch[1] & Matthias Weitzel[2]

Abstract

A new species of Afrotropical Melittiini, *Afromelittia gruschwitzi* **sp. n.**, is described. Attracted by synthetic pheromones, a single male was trapped 1992 in Abuko Nature Reserve, a gallery forest in The Gambia, West Africa. The female and the biology of the new species are unknown.

Keywords: Afrotropical Region, clearwing moths, Cucurbitaceae, pheromones, taxonomy.

Zusammenfassung

Eine neue Art afrotropischer Melittiini, *Afromelittia gruschwitzi* **sp. n.**, wird beschrieben. Ein einzelnes, mit synthetischen Pheromonen angelocktes Männchen konnte 1992 im Abuko Nature Reserve, einem Galeriewald in Gambia, Westafrika, gefangen werden. Das Weibchen und die Biologie der neuen Art sind unbekannt.

Introduction

The small genus *Afromelittia* was established by Gorbunov & Arita (1997) to include four very similar species of Afrotropical Melittiini, namely the type species *A. occidentalis* (Le Cerf, 1917) from Central Africa, *A. aenescens* (Butler, 1896) from Malawi, *A. natalensis* (Butler, 1874) from South Africa and *A. iridisquama* (Mabille, 1890) from Ivory Coast. A further two species, *A. caerulea* Bartsch, 2016 from South Africa and *A. haematopis* (Fawcett, 1916), widespread from the Arabian Peninsula to Kenya and Botswana, were added by Bartsch (2016). The closest relative of *Afromelittia* is the American genus *Eichlinia* Gorbunov, 2020.

In 1992, Dr. Michael Gruschwitz, a biologist and friend of the second author, carried out a zoological survey in The Gambia, West Africa, supported by the Gambian Wildlife Conservation Department. Equipped with some artificial pheromones composed for various Central European Sesiidae and with the request to try them out on occasion during the survey, he succeeded in attracting two males of a conspicuous, large Sesiidae species and caught one of them. We found that this specimen belongs to an unknown species of *Afromelittia*, described below.

Material and methods

The synthetic attractant used was a broad spectrum pheromone of unknown composition, developed in the 1980s for some Central European pest species and withdrawn from the market a long time ago. Terminology of the wing venation and anatomical description follows Špatenka et al. (1999). The specimen was photographed using a Visionary Digital photography system (LK Imaging System, Dun. Inc., equipped with a Canon EOS 5DSR camera). Genital slides were produced using standard techniques, i.e., maceration of the abdomen in a 5% potassium hydroxide solution, removal of the scales and embedding with opened valvae in Euparal (e.g., Robinson 1976). Photos of the slide were taken with a Keyence VHX-5000.

Taxonomic part

Afromelittia gruschwitzi **sp. n.**
(Figs. 1–2)

Type material

Holotype ♂ (Fig 1): The Gambia, Abuko Nature Reserve between Lamin and Serrekunda, 13°23′29.753″N, 16°37′02.492″W, at pheromone, 27.VII.1992, 16.00 h, leg. Dr. M. Gruschwitz. Deposited at State Museum of Natural History, Stuttgart, Germany.

Description

Partially descaled specimen. Alar expanse 33 mm, forewing 14 mm, antenna 8 mm, body length 17 mm. Head: labial palpus orange-yellow, frons laterally orange; vertex raw umber, brownish-grey between antennae; pericephalic scales dorsally raw umber, laterally orange; antenna black, reverse side orange-yellow. Thorax: pale brownish-grey, laterally grey with pearly shine, yellowish below forewing base; dorso-lateral scale tufts of meta-thorax grey, proximally white. Fore- and midleg: orange-brown; tarsus of midleg dark brown with black thorns laterally. Hindleg:

© Staatliches Museum für Naturkunde Stuttgart

Downloaded From: https://complete.bioone.org/journals/Integrative-Systematics:-Stuttgart-Contributions-to-Natural-History on 07 Jul 2025
Terms of Use: https://complete.bioone.org/terms-of-use

Fig. 1. *Afromelittia gruschwitzi* **sp. n.**, holotype.

dark grey; coxa grey, proximally yellow; ventral edge of femur white with grey, hair-like scales; scale tufts of tibia and first two tarsomeres black, scarcely mixed with reddish-brown; distal tarsomeres black, dorsally white; spurs black, rear side with long, reddish-brown and white scales. Wings: forewing black with some white scales, wing base with individual dark olive-green scales; external transparent area well developed, consisting of four continuously widening cells between stem of R_4/R_5 and CuA_1. Hindwing: hyaline; veins and narrow margins black; anal area black, upper side densely covered with white, intensely blue shining scales. All wings: underside similar, fringes dark brownish-grey. Abdomen: black, second segment laterally with green-brownish gloss. Specialized scale follicles of tergite eight largely stunted, only laterally well developed.

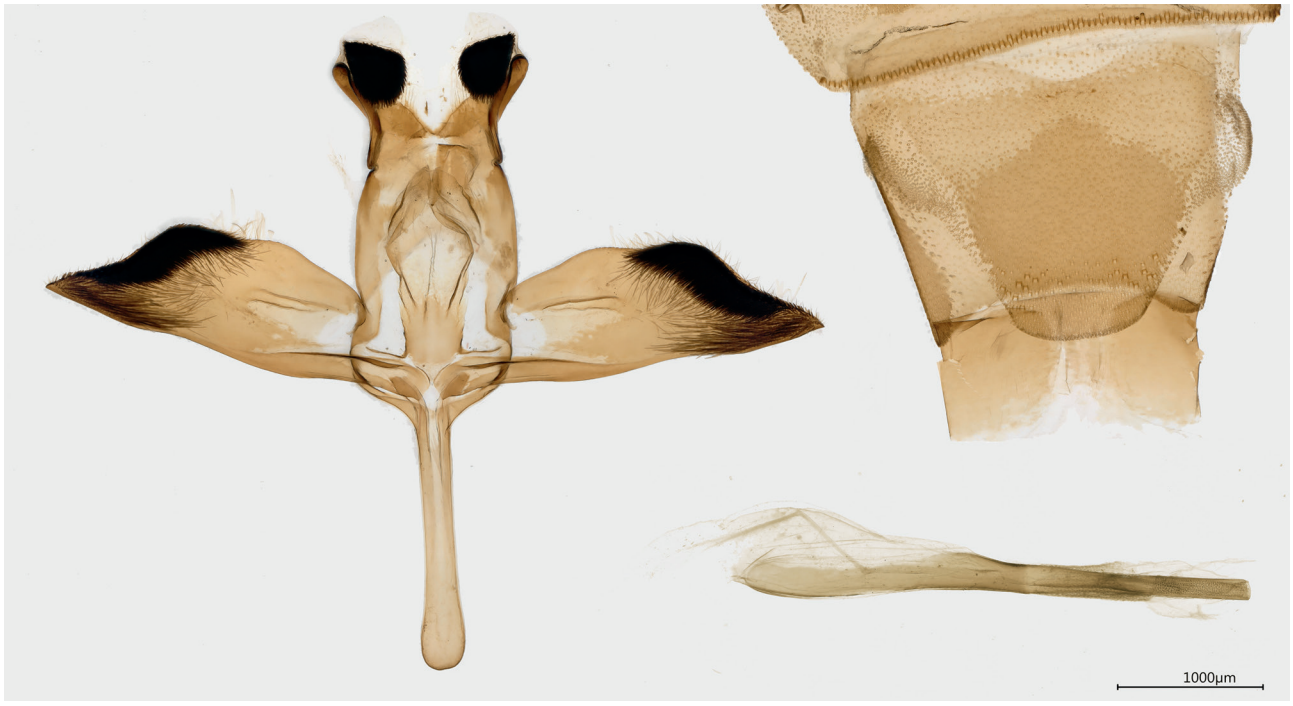

Fig. 2. *Afromelittia gruschwitzi* **sp. n.**, holotype. Genitalia and tergite 8.

Downloaded From: https://complete.bioone.org/journals/Integrative-Systematics:-Stuttgart-Contributions-to-Natural-History on 07 Jul 2025
Terms of Use: https://complete.bioone.org/terms-of-use

Fig. 3. Type locality of *Afromelittia gruschwitzi* **sp. n.** in Abuko Nature Reserve, The Gambia, July 1992. In the foreground, flowering bushes of *Hoslundia* cf. *oppositifolia* (Lamiaceae), a probable nectar plant of the new species.

Genitalia (Fig. 2). Typical for the genus; tegumen with sclerotized, slightly pointed gnathos; valva with ventral margin slightly concave in middle part, basal two-fifths thickened, continuously tapering distally, dorsal margin convex, distal margin concave; saccus long, distally tapering; phallus straight, about 1.5 times as long as valva.

Diagnosis

Afromelittia gruschwitzi **sp. n.** resembles other species of the genus, particularly *A. occidentalis*, *A. aenescens*, *A. natalensis*, *A. iridisquama* and *A. caerulea*. All of these species, including the western extreme *A. iridisquama*, differ externally by the usually completely opaque forewings, which only rarely have one or two very small transparent cells near the tornus (external transparent area well developed and large in *A. gruschwitzi*), and the well-developed, specialized scale follicles of tergite eight (stunted in medial part in *A. gruschwitzi*). *Afromelittia caerulea* differs further by the bright blue, opaque hindwings. In the male genitalia, these species are hard to distinguish. *Afromelittia gruschwitzi* **sp. n.** has valva slightly broader and shorter with distal margin somewhat more concave, and saccus longer and narrower.

Habitat and behaviour

Two males were attracted to the pheromones during the rainy season, at 4:00 p.m. in a forest glade close to the edge of a gallery forest in transition to the surrounding savannah (Fig. 3). The type locality is situated within the Abuko Nature Reserve, which is the northernmost outpost and The Gambia's last undisturbed remaining riverine forest patch within the Guinea forest savannah biome, protected since 1916, initially as a water catchment area (Jensen & Kirkeby 1980). The reserve is a well-known biodiversity hotspot, inhabited by numerous species whose only Gambian distribution point is Abuko. It has been the subject of various scientific field studies about vertebrate and invertebrate taxa (Gruschwitz et al. 1991; Lenz 1995).

Biology

Unknown. Melittiini larvae are trophically bound to Cucurbitaceae. In The Gambia, this family is present with

Downloaded From: https://complete.bioone.org/journals/Integrative-Systematics:-Stuttgart-Contributions-to-Natural-History on 07 Jul 2025
Terms of Use: https://complete.bioone.org/terms-of-use

at least 30 species that occur both in the savannah and in the forest (Prof. Dr. E. Fischer, Koblenz, pers. comm.). The locality of collection is situated west of Dahomey Gap. For zoogeographical aspects of the area, see Schmitt (2020).

Etymology

The new species is named after Dr. Michael Gruschwitz, Weeze, North Rhine Westphalia, Germany, who collected the holotype.

Acknowledgements

We are grateful to Dr. Sigrid Lenz (Bad Kreuznach) and Prof. Dr. Eberhard Fischer (Koblenz) for information on Gambian vegetation.

References

Bartsch, D. (2016): *Melittia fiebigi* spec. nov. and *Afromelittia caerulea* spec. nov., two new Melittiini from southern Africa (Lepidoptera: Sesiidae). – Annals of the Ditsong National Museum of Natural History **6**: 109–115.

Butler, A. G. (1874): Notes on the Aegeriidae, with descriptions of new genera and species. – The Annals and Magazine of Natural History **4** (14): 407–411.

Butler, A. G. (1896): On a collection of butterflies obtained by Mr. Richard Crawshay in Nyasa-land, between the months of January and April 1895. – Proceedings of the Zoological Society of London **1896**: 108–136.

Fawcett, J. M. (1916): Notes on a collection of Heterocera made by Mr. W. Feather in British East Africa, 1911-13. Family Aegeridae. – Proceedings of the Zoological Society of London **2**: 736–737, pl. 1.

Gorbunov, O. G. (2020): Establishment of *Eichlinia* gen.n. for the Western hemisphere Melittiini (Lepidoptera: Sesiidae), with a catalogue of the genus. – Russian Entomological Journal **29** (3): 276–284.

Gorbunov, O. & Arita, Y. (1997): A Revision of Ferdinand Le Cerf's Clearwing Moth Types (Lepidoptera, Sesiidae), Kept at the Paris Museum. II. Melittiini in the Afrotropical Region. – Japanese Journal of Systematic Entomology **3** (2): 289–323.

Gruschwitz, M., Lenz, S. & Böhme W. (1991): Zur Kenntnis der Herpetofauna von Gambia (Westafrika). Teil 1 und 2. – Herpetofauna **13**: 13–34.

Jensen, J. V. & Kirkeby J. (1980): The Birds of The Gambia, 284 pp. Arhus (Aros Nature Guides).

Lenz, S. (1995): Zur Biologie und Ökologie des Nilwarans, Varanus niloticus (L.1766) in Gambia, Westafrika. – Mertensiella **5**, 1–256.

Mabille, M. P. (1890): Voyage de M. Ch. Alluaud dans le territoire d'Assinie (Afrique occidentale) en juillet et août 1886. Lépidoptères avec des notes sur quelques autres espèces d'Afrique. – Annales de la Société Entomologique de France (Deuxième Série) **10**: 17–51.

Schmitt, T. (2020): Molekulare Biogeographie. Gene in Raum und Zeit, 504 pp., 750 figs. Bern (UTB, Haupt Verlag).

Authors' addresses:

[1]Staatliches Museum für Naturkunde, Rosenstein 1, 70191 Stuttgart, Germany;
e-mail (corresponding author): daniel.bartsch@smns-bw.de

[2]Graf-Reginar-Straße 43, 54294 Trier, Germany

ZooBank registration: http://zoobank.org/References/64211A09-2A9C-4C02-AA7C-336B2766ABE1

Manuscript received: 15.XII.2021; accepted: 21.II.2022.

Downloaded From: https://complete.bioone.org/journals/Integrative-Systematics:-Stuttgart-Contributions-to-Natural-History on 07 Jul 2025
Terms of Use: https://complete.bioone.org/terms-of-use