Ecologica Montenegrina
ISSN 2336-9744 (online) | ISSN 2337-0173 (print)

Ecologica Montenegrina 77: 180-191 (2024)
This journal is available online at: www.biotaxa.org/em
https://dx.doi.org/10.37828/em.2024.77.18

Article

https://zoobank.org/urn:lsid:zoobank.org:pub:FFAB61B1-6E17-4D85-A601-D51507C3F34E

Three new species of the *Metarctia* Walker subgenus *Metarhodia* Kiriakoff from Zambia and Republic of Congo (Lepidoptera: Erebidae: Arctiinae: Syntomini)

GYULA M. LÁSZLÓ[1*] & ANTON V. VOLYNKIN[2,3]

[1]*African Natural History Research Trust, Street Court, Kingsland, Leominster, HR6 9QA, United Kingdom;*
E-mail: gyulalaszlo@anhrt.org.uk; https://orcid.org/0000-0001-9862-8290
[2]*African Natural History Research Trust, Street Court, Kingsland, Leominster, HR6 9QA, United Kingdom;*
[3]*Altai State University, Lenina Avenue 61, RF-656049, Barnaul, Russia;*
E-mail: anton@anhrt.org.uk; https://orcid.org/0000-0001-9447-4925
[*] *Corresponding author.*

Received 3 August 2024 | Accepted by *V. Pešić*: 24 August 2024 | Published online 26 August 2024.

Abstract
In this paper, three new *Metarctia* Walker, 1855 species belonging to the subgenus *Metarhodia* Kiriakoff, 1953 are described: *Metarctia (Metarhodia) lunda* **sp. n.** from northwest Zambia, *Metarctia (Metarhodia) bemba* **sp. n.** from northeast Zambia, and *Metarctia (Metarhodia) sangha* **sp. n.** collected in Nouabalé-Ndoki National Park, northern Republic of Congo. According to the genital morphology, the new species' closest relative is *Metarctia (Metarhodia) jordani* Kiriakoff, 1957, known exclusively from Mount Moco, an isolated mountain in western Angola, and the four species form a compact species-group not only characterised by the shared genitalia features but also by the conspicuous cream colouration of the antenna. The paper is illustrated with 22 diagnostic figures of adults and genitalia of all members of the *M. jordani* species-group as well as a distribution map.

Key words Afrotropics, morphology, species-group, taxonomy, tiger moths.

Introduction

The Syntomini genus *Metarctia* Walker, 1855 is one of the most diverse genera of Arctiinae. The latest revision of the genus was published more than sixty years ago (Kiriakoff 1960) and the nomenclature is in need of revision (Przybyłowicz 2009). The most recent works concerning the genus were published by the following: Przybyłowicz (2009) who provided an illustrated catalogue of the Afrotropical Thyretini (then as a tribe of Syntominae) listing 88 species; Ochse (2017), who described four new *Metarctia* species; Fiebig *et al.* (2023), who revised the subgenus *Hebena* Walker, 1856 and described six new species and a subspecies; and Spitsyn (2024) who described a new species from Zanzibar.

In the course of the identification of the Syntomini material housed in the collections of the African Natural History Research Trust (ANHRT), a series of *Metarctia* specimens with conspicuous

pale cream antennae collected in northwest Zambia was found. Hitherto, only *Metarctia (Metarhodia) jordani* Kiriakoff, 1957 described from Mount Moco in Western Angola was known to display similar pale colouration of the bipectinate antenna with characteristically short rami. The comparison of the male genitalia of the holotype and an additional topotypical specimen of *M. (M.) jordani* located during this study in the holdings of the Natural History Museum, London (NHMUK) with those of the northwest Zambian individuals confirmed that the latter species is new to science and described in this paper: *Metarctia (Metarhodia) lunda* **sp. n.** The male genitalia configuration displaying a trilobate valva constructed of a costal process, an elongate cucullus (medial process) and a long saccular process, clearly assigns the new species to the subgenus *Metarhodia* Kiriakoff, 1953.

During recent fieldwork conducted by ANHRT teams in Nouabalé-Ndoki National Park, northern Republic of Congo, a series of specimens with the characteristic cream antenna, but displaying a more reddish coloration than *M. (M.) lunda* **sp. n.** was sampled. Subsequent genitalia dissections revealed certain subtle but constant differences in the copulatory organs of both sexes between the northern Congolian specimens and the northwest Zambian *M. (M.) lunda* **sp. n.**, thus the former population is considered here as a hitherto unknown allopatric sibling of the latter taxon and described in this paper as new to science: *Metarctia (Metarhodia) sangha* **sp. n.**

A short series of specimens reminiscent of but considerably smaller than *M. (M.) lunda* **sp. n.** with a northeast Zambian provenance was also located in the holdings of the ANHRT. Genitalia dissections confirmed a close relationship between the northwestern and northeastern Zambian *Metarhodia* populations, however, they revealed constant differences in male genital structures and the latter population is described herein as a third new *Metarhodia* species: *Metarctia (Metarhodia) bemba* **sp. n.**

Material and methods

The material collected during ANHRT expeditions in Zambia and Republic of Congo was sampled using a light tent illuminated with a 125 W mercury vapour light bulb or automatic actinic and LepiLED light bucket traps.

Genital apparatuses were extracted and stained with Eosin red or Chlorazol black and embedded in Euparal on microscope slides, applying standard methods of preparation (Lafontaine & Mikkola 1987). Images of adults were captured using a Nikon D90 SLR camera equipped with a Nikkor AF Micro 60 mm lens. Genitalia were imaged using a Canon EOS 700D camera mounted on a Wild M3Z stereomicroscope (ANHRT) or by the same camera attached to a Wild M5A stereomicroscope (NHMUK). Terminology of genital structures follows Volynkin (2024).

Holotype label data are quoted exactly as they appear. A division slash (/) denotes the commencement of a new line, two division slashes (//) data on a further label.

Collection acronyms used in the text:

ANHRT – African Natural History Research Trust, Leominster, U.K.
NHMUK – The Natural History Museum, London, U.K.

Other abbreviations:

AV – genitalia slide prepared by Anton Volynkin
HT – holotype
LG – genitalia slide prepared by Gyula M. László
NNNP – Nouabalé-Ndoki National Park, Republic of Congo
PT – paratype

Results

Description of new species

***Metarctia (Metarhodia) lunda* sp. n.**
https://zoobank.org/urn:lsid:zoobank.org:act:49DE8603-9C1B-438A-B0E4-6D8C9F930FC0
(Figs 3–6, 15–16, 21)

Holotype. ♂, "ZAMBIA 1300m / Nyangombe Falls / (Miombo/Riverine forest mosaic) / 11°48'25"S, 24°32'12"E / 15–17.xi.2018 MV Light Trap / Aristophanous, M., Derozier, V., / Laszlo, G., Oram, D. Leg. / ANHRT:2018.40" // unique ide.: ANHRTUK 00067062, gen. slide No.: LG 6448 (ANHRT).

Paratypes. Zambia. 1 ♂, with the same data as the holotype; 10 ♂♂, 1 ♀, same site, 17–23.xi.2019, Actinic and MV light trap, leg. Bashford, M., Miles, W., Mulvaney, L., Smith, R., ANHRT:2019.25, gen. slide Nos: AV6378 (♂), LG 6445 (♂), LG 6447 (♂), LG 6450 (♀); 1 ♀, Nkwaji, Mwinilunga, 1316m, 11°36'22"S, 24°33'17"E, 3–10.xi.2017, MV light trap, leg. Carter, M., Lloyd, A., Miles, W., Oram, D., Smith, R., ANHRT:2017.32; 1 ♀, Hillwood, Ikelenge, 1400m, 11°16'02"S, 24°18'59"E, 25–27.xi.2014, light trap, leg. Smith, R. & Takano, H., ANHRT:2017.12, gen. slide No.: LG 6449; 1 ♂, Camp near Kanyama, (Miombo/Riverine/Dambo mosaic), 1375m, 11°25'36"S, 24°40'00"E, 4–7.xii.2019, MV Light Trap, Bashford, M., Miles, W., Mulvaney, L. leg., ANHRT:2019.25; 2 ♂♂, Jiwundu Swamp, 1340m, 11°51'54"S, 25°33'20"E, 21–24.xi.2014, light trap, leg. Smith, R. & Takano, H., ANHRT:2017.12, gen. slide No.: LG 6446 (ANHRT).

Description.

External morphology of adult (Figs 3–6)**.**

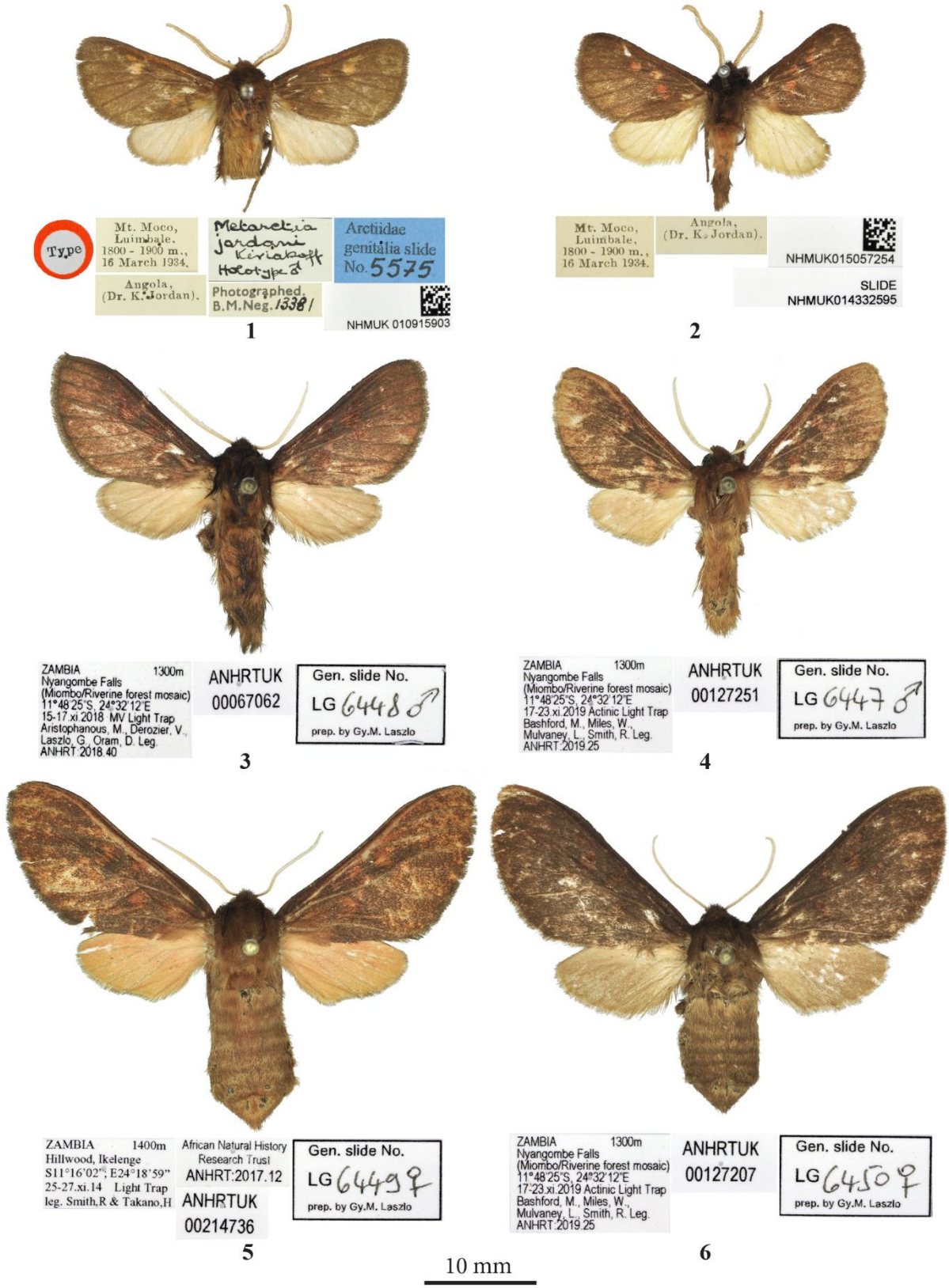
Forewing length 15–18 mm in male, 21–22 mm in female. Antenna pale cream, bipectinate in both sexes, rami twice as long as diameter of antenna shaft in male, rami in female half as long as in male. Head small, compound eyes relatively large. Proboscis absent, labial palps short, porrect. Labial palps, frons, vertex, collar, uniformly dark brown, tegulae, mesothorax and legs slightly lighter greyish-brown; index of very short spurs 0-2-2. Forewing elongate, costal and anal margin straight, termen evenly arcuate, apex rounded; ground colour dark brown with variable extent of reddish-brown patches, distal end of cell often with dark grey blotch. Transverse lines absent except for very thin, continuous, grey terminal line; fringe brownish-grey. Forewing underside uniformly greyish-brown. Hindwing short and narrow, elongate with rounded apex and anal margin; uniformly ochreous pink without transverse lines and discal spot, intensity of pinkish hue varying; female hindwing darker than that of male, with grey fringe. Hindwing underside as of upperside with slightly darker greyish dorsal area. Abdomen uniformly dark brown without marking.

Male genitalia (Figs 15–16)**.**

Uncus stout, proximal half slightly bulged dorsad, setose, distal half dilated dorsoventrally into a longitudinal dorsal crest with margin distally curved ventrad, ventrally with two short longitudinal lateral lobes, apex truncate. Tegumen moderately long and narrow. Juxta rather large, somewhat X-shaped with short, broad apically truncate anterolateral, and larger, triangular posterolateral lobes enclosing a V-shaped medial incision with heavily sclerotised, rugged ridge-like margin. Vinculum short, saccus short and narrow, rounded. Valva moderately broad basally, split into three elongate lobes: costal process elongate-triangular bearing a cluster of long, needle-like setae apically; cucullus (medial process) ca. 2.5 times longer than costal process, slightly arched, gradually tapered in proximal half, distal quarter slightly dilated, apex rounded with dense group of fine, long, acute setae, gradually shortening proximad on ventral margin; saccular process almost as long as cucullus, narrow digitiform, very slightly dilated distad, apically rounded and with ventral side covered in fine setae. Phallus short and narrow, straight; coecum with elongate-quadrangular process taking up ca. one-third the length of entire phallus possessing two short rounded lobes apically; carina absent. Vesica with short, slightly inflated basal section possessing a very short pocket-like ventral diverticulum, and two small, sack-like dorsolateral diverticula; area around base of vesica ejaculatorius with a small grain-like cornutus and fine scobination continued on proximal section of vesica ejaculatorius.

Female genitalia (Fig. 21)**.**

Ovipositor very short, moderately broad, papilla analis rounded-quadrangular, very weakly setose; pseudopapillae short and narrow, rounded-triangular; apophysis posterioris short, as long as papilla



Figures 1–6. Adults. **1.** *Metarctia jordani*, HT, ♂ (NHMUK). **2.** *Id.*, ♂ (NHMUK). **3.** *M. lunda* **sp. n.**, HT, ♂ (ANHRT). **4.** *Id.*, PT, ♀ (ANHRT). **5.** *Id.*, PT (ANHRT). **6.** *Id.*, PT, ♀ (ANHRT).

analis, thin, apically rounded. Eighth tergite very short, narrow belt-like, apophysis anterioris very short (ca. one-quarter the length of posterior one), triangular with slightly curved distal section and pointed

apex. Sterigma highly modified and heavily sclerotised, dorsoventrally swollen, somewhat U-shaped pointing craniad and continued in ribbon-like lateral sclerotisation with ridged surface connecting distal end of sterigma with ventral margin of narrow ostium bursae. Antevaginal plate divided into a pair of short, rounded lateral plates connected to anterior margin of sterigma. Ductus bursae moderately broad, short tubular (ca. one-third the length of corpus bursae) projecting caudad from ostium bursae then bent craniad; corpus bursae ovoid, membranous with very fine scobination dorsally; signum bursae absent.

Diagnosis. The closest relative of the new species is *M. (M.) jordani* Kiriakoff, 1957 described from Mount Moco in western Angola. However, the two species are readily distinguished by the following characters: *Metarctia (Metarhodia) lunda* **sp. n.** is larger in size (forewing length of *M. (M.) jordani* is 12 mm) and it lacks the conspicuous pinkish ochreous spots at the anal vein, in the cell and between M1 and M2 veins, displaying dark grey-brown patches instead; furthermore, the similarly pale cream rami are ca. 25% shorter in the new species. In the male genitalia, *M. (M.) lunda* **sp. n.** has a shorter, dorsoventrally more dilated uncus, a somewhat longer costal process and cucullus (medial process), a considerably longer saccular process of the valva and a larger juxta with markedly wider laterodistal lobes compared to those of *M. (M.) jordani*.

Etymology. The specific epithet refers to the Lunda people, the largest ethnic group in the Northwestern Province of Zambia where the new species was discovered. The name is a noun in the nominative case.

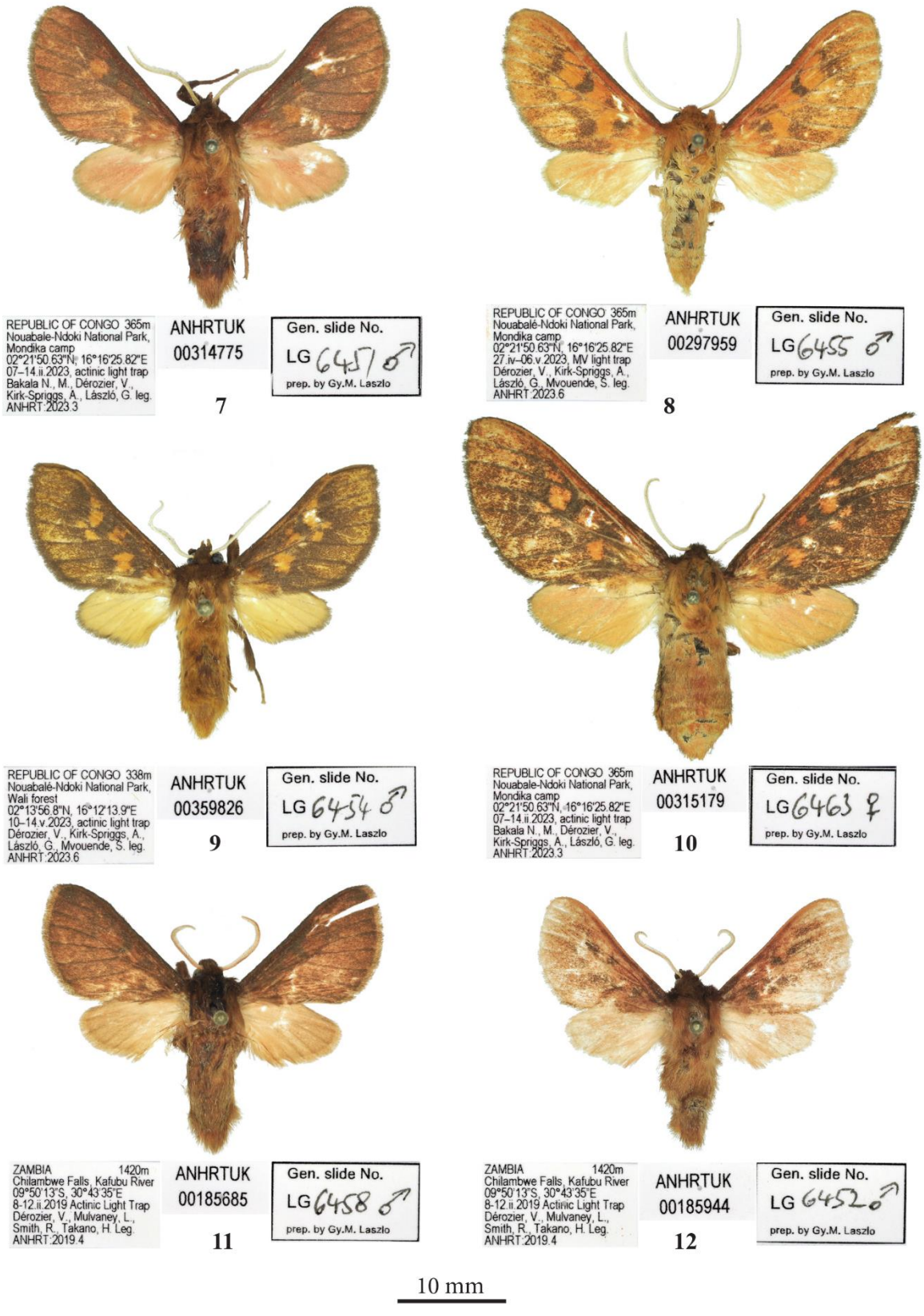
Distribution (Fig. 23**).** *Metarctia (Metarhodia) lunda* **sp. n.** is known exclusively from northwestern Zambia where it was collected in mosaics of Miombo woodlands, riverine forests (*mushitu*) and marshlands.

***Metarctia (Metarhodia) sangha* sp. n.**
https://zoobank.org/urn:lsid:zoobank.org:act:7BA98D31-215F-4D1C-BFEB-2129A36986A9
(Figs 7–10, 17–18, 22)

Holotype. ♂, "REPUBLIC OF CONGO 365m / Nouabale-Ndoki National Park, / Mondika camp / 02°21'50.63"N, 16°16'25.82"E / 07-14.ii.2023, actinic light trap / Bakala N., M., Dérozier, V., / Kirk-Spriggs, A., László, G. leg. / ANHRT:2023.3" // unique id.: ANHRTUK 00314775, gen. slide No.: LG 6451 (ANHRT).

Paratypes. Republic of Congo. 4 ♂♂, 1 ♀, with the same data as the holotype; 9 ♂♂, same site, 27.iv.–06.v.2023, actinic, LepiLED and MV light trap, leg. Dérozier, V., Kirk-Spriggs, A., László, G., Mvouende, S., gen. slide No.: LG 6455; 3 ♂♂, Nouabalé-Ndoki National Park, Makao forest, 349m, 02°36'42.5"N, 17°09'23.8"E, 15–21.v.2023, actinic and LepiLED light trap, Dérozier, V., Kirk-Spriggs, A., László, G., Mvouende, S. leg. ANHRT:2023.6; 7 ♂♂, Nouabale-Ndoki National Park, Mbeli camp, 372m, 02°14'23.8"N, 16°23'52.1"E, 14–20.ii.2023, actinic light trap, Bakala N., M., Dérozier, V., Kirk-Spriggs, A., László, G. leg., ANHRT:2023.3; 1 ♂, Nouabale-Ndoki National Park, Bomassa camp, 341m, 02°12'36.9"N, 16°11'30.2"E, 06–14.v.2023, MV light trap, Dérozier, V., Kirk-Spriggs, A., László, G., Mvouende, S. leg. ANHRT:2023.6; 2 ♂♂, Nouabale-Ndoki National Park, Mombongo camp, 352m, 02°10'30.7"N, 16°8'37.7"E, 2–7.ii.2023, actinic light trap, Bakala N., M., Dérozier, V., Kirk-Spriggs, A., László, G. leg., ANHRT:2023.3, gen. slide No.: LG 6453; 1 ♂, Nouabale-Ndoki National Park, Wali forest, 338m, 02°13'56.8"N, 16°12'13.9"E, 10–14.v.2023, actinic light trap, Dérozier, V., Kirk-Spriggs, A., László, G., Mvouende, S. leg., ANHRT:2023.6, gen. slide No.: LG 6454 (ANHRT).

Description.
External morphology of adult (Figs 7–10)**.**
Forewing length 17–19 mm in male, 23 mm in female. Antenna pale cream, bipectinate in both sexes, rami twice as long as diameter of antenna shaft in male, rami in female half as long as in male. Head small, compound eyes relatively large. Proboscis absent, labial palps short, porrect. Labial palps, frons, vertex, collar, uniformly dark brown, tegulae, mesothorax and legs somewhat paler; index of very short



Figures 7–12. Adults (all in coll. ANHRT). **7.** *Metarctia sangha* **sp. n.**, HT, ♂. **8.** *Id.*, PT, ♂. **9.** *Id.*, PT, ♂. **10.** *Id.*, PT, ♀. **11.** *M. bemba* **sp. n.**, HT, ♂. **12.** *Id.*, PT, ♂.

spurs 0-2-2. Forewing elongate, costal and anal margin straight, termen evenly arcuate, apex rounded; ground colour orange-brown to red-brown with variable extent of reddish or orange patches, distal end

of cell with round red blotch. Transverse lines indiscernible except for very thin, continuous, grey terminal line and in some specimens a broad, diffuse, interrupted postmedial line may be observed; fringe brownish-grey. Forewing underside rufous-brown with dark brown costal margin. Hindwing short and narrow, elongate with rounded apex and anal margin; uniformly orange-red without transverse lines and discal spot, intensity of red varying; fringe pale ochreous in male, pale grey in female. Hindwing underside as of upperside with dark greyish-brown dorsal area. Abdomen uniformly reddish-brown without marking.

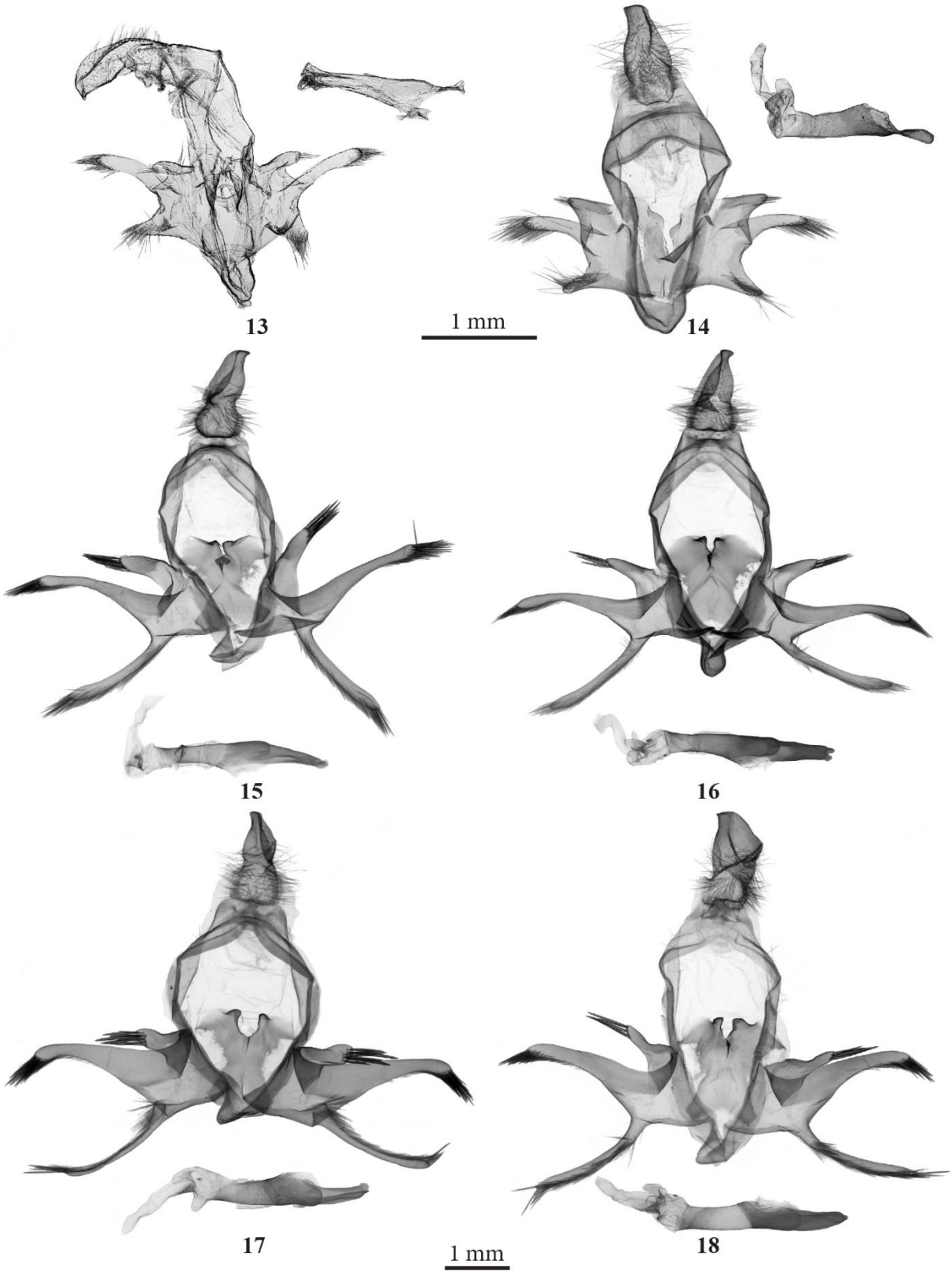
Male genitalia (Figs 17–18)**.**
Uncus stout, proximal half slightly bulged dorsad, setose, distal half dilated dorsoventrally into a longitudinal dorsal crest with margin distally curved ventrad, ventrally with two short longitudinal lateral lobes, apex truncate. Tegumen moderately long and narrow. Juxta rather large, somewhat X-shaped with short, broad apically truncate anterolateral, and larger, triangular posterolateral lobes enclosing a V- or U-shaped medial incision with heavily sclerotised, rugged ridge-like margin. Vinculum short, saccus short and narrow, rounded. Valva moderately broad basally, split into three elongate processes: costal process elongate-triangular, medially constricted, bearing a cluster of long, needle-like setae apically; cucullus (medial process) ca. 2.5 times longer than costal process, relatively broad at base, gradually tapered distally, slightly arched postmedially, distal quarter slightly clubbed, apex rounded with dense group of fine, long, acute setae, gradually shortening proximad on ventral margin; saccular process almost as long as cucullus, narrow digitiform with rounded apex; ventral side covered in fine setae. Phallus short and narrow, straight; coecum with elongate-quadrangular process, taking up ca. one-third the length of entire phallus with two short rounded lobes apically; carina absent. Vesica with short, slightly inflated basal section possessing a very short pocket-like ventral diverticulum, and two small, sack-like dorsolateral diverticula, area around base of vesica ejaculatorius with a small grain-like cornutus and a weakly sclerotised area continued in proximal section of vesica ejaculatorius.

Female genitalia (Fig. 22)**.**
Ovipositor very short, moderately broad, papilla analis rounded-quadrangular, very weakly setose, pseudopapillae short and narrow, triangular; apophysis posterioris short, as long as papilla analis, thin, apically rounded. Eighth tergite very short, narrow belt-like, apophysis anterioris very short (ca. one-quarter the length of posterior one), triangular with slightly dilated distal section and rounded apex. Sterigma highly modified and heavily sclerotised, dorsoventrally swollen, somewhat U-shaped pointing craniad, continued in ribbon-like, slightly wrinkled lateral sclerotisation connecting distal end of postvaginal plate with ventral margin of narrow ostium bursae. Antevaginal plate divided into a pair of large rounded-triangular lateral plates connected to anterior margin of sterigma. Ductus bursae moderately thick, short tubular (ca. one-third the length of corpus bursae) projecting caudad from ostium bursae then bent craniad; corpus bursae ovoid, membranous with very fine scobination dorsally; signum bursae absent.

Diagnosis. The northern Congolese *M. (M.) sangha* **sp. n.** is distinguished from the northwest Zambian *M. (M.) lunda* **sp. n.** by its somewhat larger size and the more extensive variably rufous or orange areas of the forewing and the more reddish hindwing colouration. In the male genitalia, *M. (M.) sangha* **sp. n.** has a markedly thicker cucullus (medial process of the valva) compared to that of *M. (M.) lunda* **sp. n.** In the female genitalia, the heavily sclerotised margin of the sterigma is somewhat narrower and the antevaginal lobes are markedly larger in *M. (M.) sangha* **sp. n.** than in *M. (M.) lunda* **sp. n.**

Etymology. This new species is dedicated to the Sangha people living along the Sangha River in the northern part of the Republic of Congo. The name is a noun in the nominative case.

Distribution (Fig. 23**)**. *Metarctia (Metarhodia) lunda* **sp. n.** is known exclusively from Nouabalé-Ndoki National Park where it was collected in northwestern Congolian lowland rainforest habitats intermixed with *Gilbertiodendron dewevrei* stands.



Figures 13–18. Male genitalia. **13.** *Metarctia jordani*, HT, BM Arct. 5575. **14.** *Id.*, NHMUK 014332595 (NHMUK). **15.** *M. lunda* **sp. n.**, HT, LG 6448 (ANHRT). **16.** *Id.*, PT, LG 6447 (ANHRT). **17.** *M. sangha* **sp. n.**, HT, LG 6451 (ANHRT). **18.** *Id.*, PT, LG 6454 (ANHRT).

***Metarctia (Metarhodia) bemba* sp. n.**
https://zoobank.org/urn:lsid:zoobank.org:act:A4EA601A-CA3A-4B12-9E87-06DA6E6DA346
(Figs 11–12, 19–20)

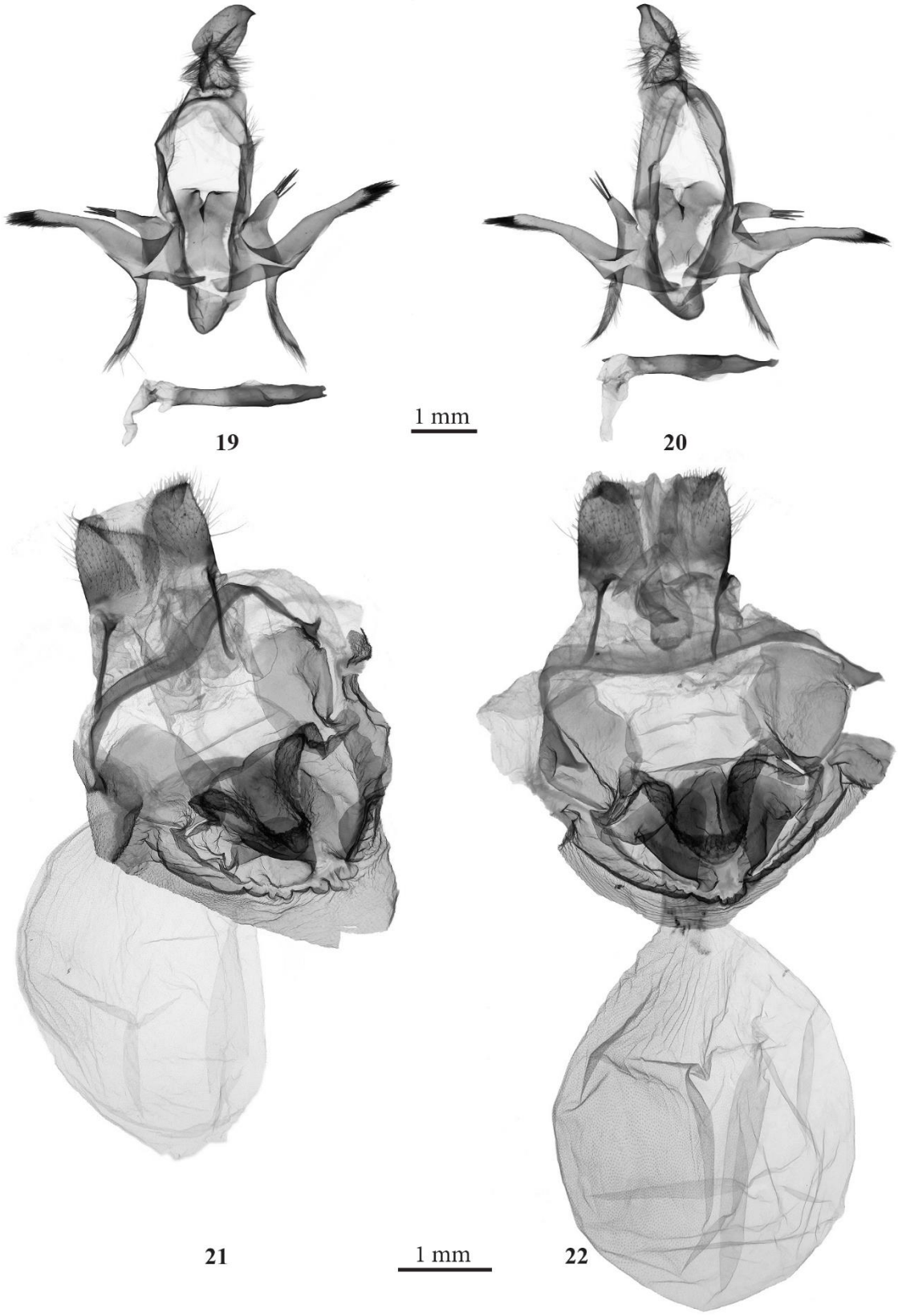
Holotype. ♂, "ZAMBIA 1420m / Chilambwe Falls, Kafubu River / 09°50'13"S, 30°43'35"E / 8-12.ii.2019 Actinic Light Trap / Dérozier, V., Mulvaney, L., / Smith, R., Takano, H. Leg. / ANHRT:2019.4" // unique id.: ANHRTUK 00185685, gen. slide No.: LG 6458 (ANHRT).

Paratypes. Zambia. 1 ♂, with the same data as the holotype, gen. slide No.: LG 6452; 1 ♂, Muchinga Province, Jombo village, 10°27'01"S, 33°14'30"E, 30.xi.–05.xii.2023, MV light trap, Bashford, M., Collins, A., László, G., Volynkin, A. leg., ANHRT:2024.3; 1 ♂, Muchinga Province, 30 km North of Mpika, Danger Hill, 1684m, 11°37'38"S, 31°33'56"E, 13–15.xii.2023, MV light trap, László, G., Morgan, L., Volynkin, A. leg., ANHRT:2024.3, gen. slide No.: LG 6456 (ANHRT).

Description.
External morphology of male adult (Figs 11–12)**.**
Forewing length 14–15 mm. Antenna pale cream, bipectinate, rami twice as long as diameter of antenna shaft. Head small, compound eyes relatively large. Proboscis absent, labial palps short, porrect. Labial palps, frons, vertex, collar, uniformly dark brown, tegulae, mesothorax and legs somewhat paler; index of very short spurs 0-2-2. Forewing elongate, costal and anal margin straight, termen evenly arcuate, apex rounded; ground colour rust brown with darker costa and dark brown blotch at distal end of cell. Transverse lines indiscernible except for very thin, continuous, grey terminal line; fringe brownish grey. Forewing underside ochreous-brown darkening towards termen, costal margin dark brown. Hindwing short and narrow, elongate with rounded apex and anal margin; uniformly pale pinkish orange without transverse lines and discal spot; fringe pale ochreous. Hindwing underside ochreous brown with slightly darker greyish brown dorsal area. Abdomen uniformly rust brown without marking.

Male genitalia (Figs 19–20)**.**
Uncus stout, proximal half slightly bulged dorsad, setose, distal half dilated dorsoventrally into a longitudinal dorsal crest with margin distally curved ventrad, ventrally with two short longitudinal lateral lobes, apex truncate. Tegumen moderately long and narrow. Juxta large, somewhat X-shaped with short, broad apically truncate anterolateral, and larger, triangular posterolateral lobes enclosing a narrow V- or U-shaped medial incision with heavily sclerotised, rugged ridge-like margin. Vinculum short, saccus short and narrow, rounded. Valva moderately broad basally, split into three elongate processes: costal process short, digitiform, medially tapered, bearing a cluster of long, needle-like setae apically; cucullus (medial process) ca. 2.5 times longer than costal process, narrow at base, slightly tapered distally, slightly arched medially, apex rounded with dense group of fine, long, acute setae, gradually shortening proximad on ventral margin; saccular process ca. half as long as cucullus, very narrow digitiform, gently arched with pointed apex; ventral side covered in fine setae. Phallus short and narrow, straight; coecum penis with elongate-quadrangular process, taking up ca. one-third the length of entire phallus with two short rounded lobes apically; carina absent. Vesica with short slightly inflated basal section possessing a very short pocket-like ventral diverticulum, and two small, sack-like dorsolateral diverticula, subbasal section of vesica with a short triangular cornutus, medial section with a weakly sclerotised area continued in proximal part of vesica ejaculatorius.
Female unknown.

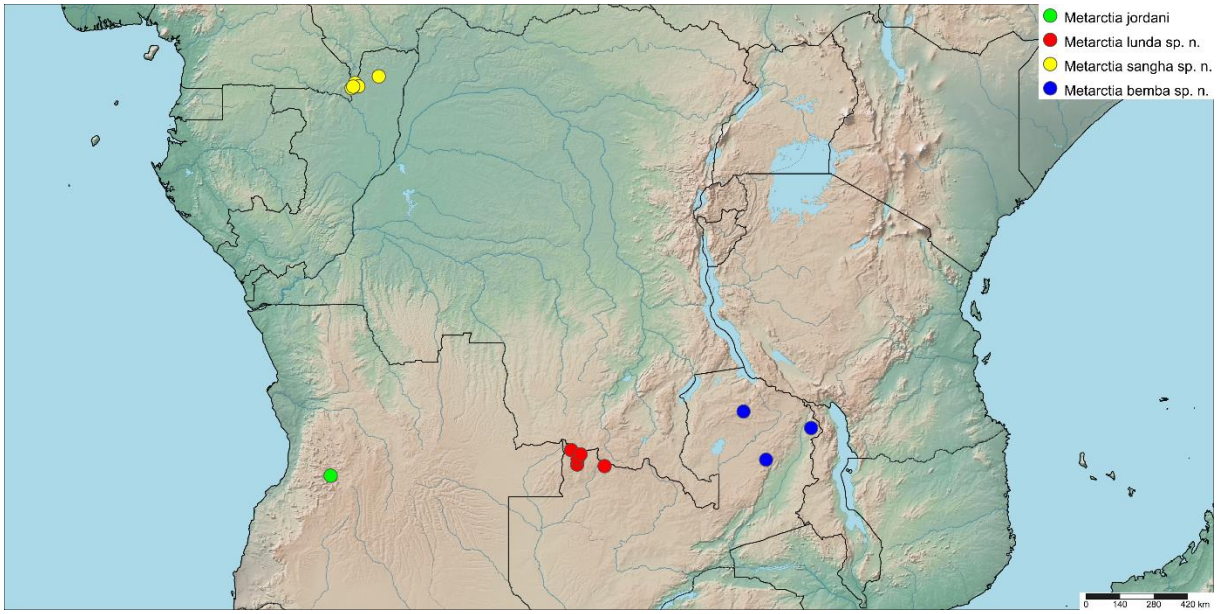
Diagnosis. *Metarctia (Metarhodia) bemba* **sp. n.** is reminiscent of *M. (M.) lunda* **sp. n.** but it is considerably smaller in size and shows a slightly paler forewing ground colour. In the male genitalia, the two species are readily distinguished by the noticeably shorter and narrower costal process, the slightly shorter cucullus, the markedly shorter saccular process of the valva and the considerably narrower juxta in *M. (M.) bemba* **sp. n.** compared to those of *M. (M.) lunda* **sp. n.** In the vesica structures, *M. (M.) bemba* **sp. n.** has a noticeably larger cornutus and shorter diverticula than in *M. (M.) lunda* **sp. n.**



Figures 19–22. Male (19–20) and female genitalia (21–22) (all in coll. ANHRT). **19.** *Metarctia bemba* **sp. n.** HT, LG 6458. **20.** *Id.*, PT, LG 6452. **21.** *M. lunda* **sp. n.**, PT, LG 6449. **22.** *M. sangha* **sp. n.**, PT, LG 6463.

Etymology. This new species is named after the Bemba people, the largest ethnic group of Zambia inhabiting primarily the northeastern regions of the country. The name is a noun in the nominative case.

Distribution (Fig. 23**)**. The type material of *Metarctia (Metarhodia) bemba* **sp. n.** was collected in the northeastern areas of Zambia in diverse mosaics of Miombo woodlands, riverine forests (*mushitu*) and marshlands.



Figures 23. Distribution of the taxa of the *Metarctia (Metarhodia) jordani* species-group.

Discussion

The subgenus *Metarhodia* of *Metarctia* is phenotypically characterised by the dark brownish forewing, the pale ochreous to orange hindwing colouration and the conspicuously short rami of the male antennae. The shared male genitalia feature of the subgenus is the trilobate valva displaying a narrow, digitiform, apically setose costal process, an elongate, narrow cucullus as a medial process of the valva and a well-defined saccular lobe or process. As a result of this study, a well-defined species group comprising *M. (M.) jordani*, *M. (M.) lunda* **sp. n.**, *M. (M.) sangha* **sp. n.** and *M. (M.) bemba* **sp. n.** can be delimited with species possessing cream-coloured antennae and considerably longer cuculli as well as narrower, more elongate saccular processes than is observed in the other members of the subgenus (cf. Przybyłowicz 2009). The species of this complex show an allopatric distribution pattern in central- and southern-central Africa and the relatively limited morphological divergence of these taxa may suggest a recent radiation. Additional research is required to specify the exact distribution range of these species and discoveries of further species of this complex cannot be ruled out.

Acknowledgements

In the Republic of Congo, our cooperative partner, the Wildlife Conservation Society (WCS) Congo and their employees authorised research in NNNP and provided diverse administrative and technical support during the expedition. We express our gratitude to the following WCS staff: Morgane Cournarie (Program coordinator), Vittoria Estienne (Director of Research and Biomonitoring), Ben Evans (Park Director), Richard Malonga (Director), Onesi Samba (Research Assistant), Yako Valentin (Administrative Manager), Tatiana Thomas (Camp Manager, Mondika). The authors are also grateful to Joseph Goma-Tchimbakala (General Director of IRSEN, Institut National de Recherche en Sciences Exactes et Naturelles), for issuing the necessary research and export permits and Jean Bosco Nganongo (Directeur de la DFAP Direction de la Faune et des aires protégées), for issuing CITES permits. We further thank Victor Mamonekene (Hydrobiologist, Ichthyologist, IRSEN and Marien Ngouabi University) for his valuable assistance. Last but not least, we are indebted to Violette Dérozier who very ably organised ANHRT's series of expeditions conducted in NNNP.

In Zambia, Rhoda Kachali (Department of National Parks and Wildlife – ZAWA, Lusaka), Claire Mateke and Martha Imakando (Livingstone Museum, Livingstone) are thanked for the diverse administrative and technical assistance provided during fieldwork as well as for issuing the research and export permits.

Alberto Zilli and Geoff Martin (NHMUK) are thanked for kindly facilitating access to the Syntomini type and accession materials under their care. The image of the holotype of *Metarctia jordani* is reproduced with permission from the Trustees of the Natural History Museum, London and made available under Creative Commons License 4.0 (https://creativecommons.org/licenses/by/4.0/). The authors declare that to the best of their knowledge they conform to the national regulations and meet with the conditions and requirements of International Conventions concerning collecting/export and handling of the specimens presented in this Article.

References

Fiebig, R., László, G.M., Volynkin, A.V. & Taberer, T.R. (2023) Integrative taxonomic revision of the *Metarctia* Walker, 1855 subgenus *Hebena* Walker, 1856, with descriptions of six new species and one new subspecies (Lepidoptera: Erebidae: Arctiinae: Syntomini). *Zootaxa*, 5339 (4), 301–354. https://doi.org/10.11646/zootaxa.5339.4.1

Kiriakoff, S.G. (1953) Les Thyretide du Musée Royal Congo Belge (Lepidoptera Notodontoidea). *Annales du Musée Royal du Congo Belge*, 8 (26), 1–91.

Kiriakoff, S.G. (1957) New Thyretidae (Lepidoptera Notodontoidea). *Tijdschrift voor Entomologie*, 100 (1), 95–114.

Kiriakoff, S.G. (1960) Lepidoptera Fam. Thyretidae. *Genera Insectorum*, 214e, 1–66.

Lafontaine, J. D. & Mikkola, K. (1987) Lock-and-key systems in the inner genitalia of Noctuidae (Lepidoptera) as a taxonomic character. *Entomologiske Meddelelser*, 55(2–3), 161–167. [in Swedish with English abstract]

Ochse, M. (2017) Arctiinae der Subtribus Thyretina in der westafrikanischen Regenwaldregion (Erebidae). *Nachrichten des Entomologischen Vereins Apollo*, 38 (1), 1–22. [https://www.zobodat.at/pdf/NEVA_38_0001-0022.pdf]

Przybyłowicz, Ł. (2009) *Thyretini of Africa. An illustrated Catalogue of the Thyretini (Lepidoptera: Arctiidae: Syntominae) of the Afrotropical Region.* Entomonograph, 16, Apollo Books, Denmark, 170 pp.

Spitsyn, V.M. (2024) A new species of the genus *Metarctia* Walker, 1855 from Zanzibar Island (Erebidae: Arctiini: Syntomini). *Ecologica Montenegrina*, 75, 85–88. https://doi.org/10.37828/em.2024.75.7

Volynkin, A.V. (2024) On the terminology of the genitalia structures of lichen moths (Lepidoptera: Erebidae: Arctiinae: Lithosiini) with some references to Noctuidae. *Ecologica Montenegrina*, 73, 176–207. https://doi.org/10.37828/em.2024.73.18

Walker, F. (1855) *List of the of Lepidopterous Insects in the Collection of the British Museum. Part III. Lepidoptera Heterocera*, 3, i–iv., Printed by the order of Trustees, London, 583–775.

Walker, F. (1856) *List of the of Lepidopterous Insects in the Collection of the British Museum. Part VII. Lepidoptera Heterocera*, 7, i–iv., Printed by the order of Trustees, London, 1509–1808.