

A revision of the Afrotropical taxa of the genus *Amerila* Walker (Lepidoptera: Arctiidae)

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Abstract. This paper comprises a complete revision of the Afrotropical species of the genus *Amerila* (*Rhodogastris* auct.), based on adult morphology. Examination of type material for most described taxa has resulted in numerous taxonomic changes. From a total of forty-seven previously described African taxa, thirty-five species including five newly described species and two new subspecies are recognized. For ten taxa, lectotypes have been selected, and for one species a neotype had to be designated. For each species, in addition to synonymy, a brief diagnosis based on external characters and genitalia is given, and the known distribution summarized. All species are illustrated by photographs and illustrations of male genitalia (except *A. ruffifemur*, the male of which is unknown), and a key for determination of males by external characters is provided.

Introduction

The palaeotropic genus *Amerila* Walker, 1855 (due to a misidentified type species, usually referred to previously as *Rhodogastris*), comprises some sixty species of large, robust, and aposematically coloured Old World arctiine moths (Strand, 1919; Hampson, 1920; Häuser, 1993). The majority of species occur in the Afrotropical Region including Madagascar, but in the Indo-Australian Region some twenty species are distributed from India to New Guinea, the Solomon Islands and north-eastern Australia (Rothschild, 1914; Common, 1990). Until recently, apart from the description of a few new taxa (e.g. Berio, 1935; Pinhey, 1952; Kiriakoff, 1954), the genus received little attention by systematists and knowledge of its biology is scant. However, *Amerila* moths exhibit a variety of traits which make them particularly interesting for chemoecological studies on pheromone communication and evolutionary aspects of insect–plant relationships. Many species show a striking similarity in external appearance (Plates 2–7), but are distinctly different in male genitalia (Plates 8–13) and androconial organs (Plate 1A–D). The structural diversity observed in the androconial organs appears to be paralleled in the complexity of their volatile secretions (Schmidt, 1992; M. Boppré *et al.*, unpublished data).

Adult *Amerila* are pharmacophagous with respect to pyrrolizidine alkaloids (Boppré, 1981a, 1984, 1986, 1990,

1996), i.e. independent of nutritional requirements, they are attracted to withered plants containing these secondary metabolites (as well as to dishes with pure chemicals; cf. Plate 1E) from which they take up these compounds and store them for defence. In the course of ongoing studies on the ecological and evolutionary relationships between these moths and plants containing pyrrolizidine alkaloids (cf. Boppré, 1996), considerable taxonomic difficulties were encountered with several members of the genus.

This paper provides the means for identifying Afrotropical *Amerila* species, and summarizes the available information about their adult morphology and geographical distribution. All named taxa from the African continent, Madagascar and the Seychelles have been included; in addition, five species and two subspecies are newly described. For all taxa considered here, the available type material has been examined, and lectotypes were designated or neotypes selected in all cases required. In this study, only adult characters are used to diagnose individual taxa; early stages and the biology of certain species will be treated in a forthcoming paper.

Methods

Material

Specimens examined for this study originated from several field trips by one of us (M.B.) to Kenya, Benin and Ghana, from material deposited in various institutional and private collections (see below), and from laboratory rearings using a semiartificial diet (Bergomaz & Boppré, 1986). In total, more

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than 800 collection-based specimens have been examined, and some 150 genital preparations were made and studied.

The DELTA program package (Dallwitz *et al.*, 1993) assisted in generating species descriptions and the key.

Genitalia preparation

For the preparation of genitalia, the entire abdomen was removed, macerated in $\approx 10\%$ aqueous KOH, and dissected in water under a dissection microscope (WILD M3). Except where noted, genitalia drawings were executed from entire genitalia or single parts submersed in a Petri dish in water, without any compression by glass slides and cover slips. For better contrast, some preparations were stained with Chlorazol Black.

Plates

For producing the plates, water-colour paintings, black and white 6×6 -cm photographs of specimens, and ink-drawings of genitalia, respectively, were scanned with an UMAX[®] UC1200SC and edited with Adobe[®] Photoshop[®] 3.0, mounted in Adobe[®] PageMaker[®] 6.0 and printed from SyQuest[®] removable hard disk cartridges, all using an Apple Macintosh[®] computer (Quadra 840 AV).

Deposition of specimens

Specimens and preparations are deposited in the institutional and private collections listed below.

Abbreviations

AMES, Allyn Museum of Entomology, Sarasota/FL, U.S.A.; BGSS, Institut für Biogeographie der Universität des Saarlandes, D-Saarbrücken; BMNH, The Natural History Museum, GB-London; DSLU, Department of Systematics (Zoology), Lund University, S-Lund; IRSN, Institut Royal des Sciences Naturelles de Belgique, Bruxelles; ITZA, Institut voor Taxonomische Zoologie, NL-Amsterdam; MCSN, Museo Civico di Storia Naturale Giacomo Doria, I-Genova; MNHU, Museum für Naturkunde der Humboldt-Universität, D-Berlin; MRAC, Musée Royale d'Afrique Centrale, B-Tervuren; NMKE, National Museum of Kenya, Section of Entomology, EAK-Nairobi; NMBZ, Natural Museum, ZW-Bulawayo; SMFM, Forschungsinstitut und Naturmuseum Senckenberg, D-Frankfurt/Main; SMNS, Staatliches Museum für Naturkunde, D-Stuttgart; SMWN, State Museum, NAM-Windhoek; TMPR, Transvaal Museum, ZA-Pretoria; ZFMK, Zoologisches Forschungsinstitut und Museum Alexander Koenig, D-Bonn; ZMUC, Zoological Museum, University of Copenhagen, DK-Copenhagen; ZSSM, Zoologische Staatssammlung, D-München; BJ, collection A. Bjørnstad, N-Drangedal; LK, collection L. Kühne, D-Potsdam; MB, collection Prof. Dr M.

Boppré, D-Freiburg; GA, collection Prof. Dr R. Garms, D-Hamburg; RS, collection R. Summkeller, D-Völklingen; WT, collection of the late Dr W. Thomas, D-Langöns, now in coll. T. Witt, D-München.

The genus *Amerila* Walker, 1855

In the literature, the taxa dealt with here have usually been placed in the genus *Rhodogastria* Hübner, 1819, on the basis of a misidentified type species (e.g. Hampson, 1901; Strand, 1919; Gaede, 1926; Pinhey, 1975; Muller, 1980). The correct type species of *Rhodogastria* is, however, *Phalaena amasis* Cramer, 1779, an African member of the Spilosominae (Watson *et al.*, 1980: 170; Goodger & Watson, 1995).

The genus *Amerila* (*Rhodogastria* auct.) has always been placed in the subfamily Arctiinae (e.g. Walker, 1855; Hampson, 1901; Rothschild, 1914; Gaede, 1926; Kôda, 1987; Goodger & Watson, 1995), generally close to genera like *Axiopoena*, *Pachyphilona* (= *Migoplastis*) and *Utetheisa*. However, a separate subfamily 'Rhodogastrinae' was proposed by Kiriakoff (1950) consisting of *Amerila* and the neotropical genus *Pelochyta*, based on joint distinctive characteristics of the metathoracic tympanic organ.

Since the previous comprehensive taxonomic revision of the genus by Hampson (1901, 1920), which also included the Indo-Australian taxa, several new species have been described from Africa (e.g. Berio, 1935; Pinhey, 1955; Kiriakoff, 1954). A subset of the African species formed the subject of a university thesis project by Muller (1980), which also included the description of a number of new taxa. Muller's thesis (1980), however, has never been published and, accordingly, the new names proposed by him are not available according to Article 9 of the ICZN. A catalogue of all species-group names referable to *Amerila* and information on the nomenclatorial status of all the taxa and their respective type-material has been provided by Häuser (1993). A new catalogue of African Arctiinae (Goodger & Watson, 1995) lists forty-three available species-group taxa for *Amerila*, but omits two names published by Bethune-Baker (1925).

Although *Amerila* moths can generally be easily recognized even in the field by a characteristic phenotypical appearance (*Gestalt*), it is difficult to state specific external characters which universally distinguish *Amerila* species from other members of the Arctiinae. Generally, adults of *Amerila* can be characterized as follows: medium to large sized (wingspan 17–32 mm) and quite robust; proboscis particularly well developed; antennae filiform in both sexes, black, dark brown or red; forewings elongated, comparatively narrow, often fully or partly transparent medially; hindwings much shorter than forewings, generally weakly scaled; ground coloration of head and thorax white, grey, or various shades of brown, contrasted with a characteristic, aposematic pattern of black dots; in most species, dorsally, one black spot medially on the occiput, two on the patagia, one or two on the tegulae, three pairs on the thorax, and two on the forewings on the base of the subcostal/radial veins; laterally, two black spots on the pleural region of

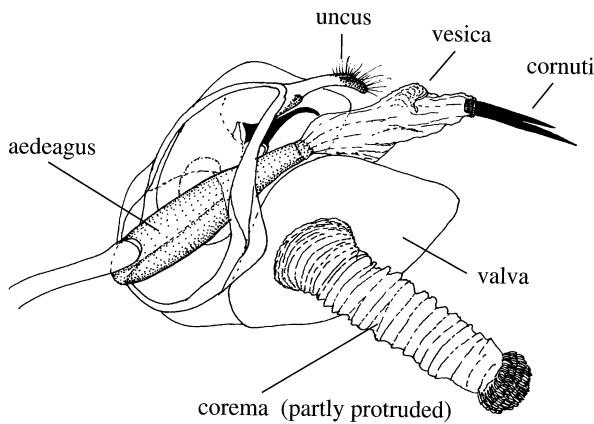


Fig. 1 General organization of male genitalia of *Amerila*, exemplified in *A. bubo*.

each abdominal segment; coloration of abdomen dorsally and of inner parts of femora, tibiae, and tarsi often red or yellow.

Additional features with a higher diagnostic value, which might be autapomorphic for the genus, are found in the structure of the tympanic organ (see Kiriakoff, 1950), and in the male genitalia (Fig. 1): uncus and saccus are generally small; in most species the valvae possess on each of their outer surfaces a protrudable, tube-like, often hirsute corema (Plate 1A) (Bethune-Baker, 1925), which can be expanded through the tracheal system; on the inner side they bear a single, strongly sclerotized spine-shaped process. In the female, the additional postabdominal accessory glands which are generally located dorsally within the papillae anales and otherwise are characteristic of the Arctiidae (Holloway, 1988: 2) are absent (Kôda, 1987).

Generic synonymy

Amerila Walker, 1855: 725. Type species: *Sphinx astreus* Drury, 1773, by subsequent designation by Hampson (1900: 60).

Canopus Walker, 1855: 747 (invalid homonym). Type species: *Canopus bubo* Walker, 1855, by subsequent designation by Hampson (1900: 60).

Phryganeomorpha Wallengren, 1858: 214. Type species: *Chelonia madagascariensis* Boisduval, 1847, by original designation.

Amblythyris Mabilie, 1879: 137. Type species: *Amblythyris radama* Mabilie, 1879, by subsequent designation by Hampson (1900: 60–61).

Euthoracia Hulstaert, 1923: 411. Type species: *Caryatis syntomina* Butler, 1878, by original designation. **Syn.n.**

Gastrochrysia Kiriakoff, 1954: 186. Type species: *Gastrochrysia lineolata* Kiriakoff, 1954, by original designation. **Syn.n.**

The Afrotropical species of *Amerila*

For all species included here, a short diagnosis based on adult external characters and male genitalia is given, in addition to

brief indications about their known distribution and taxonomic comments where required. All species recognized are dealt with simply in alphabetical order, and all species-group taxa considered to be conspecific are listed as synonyms. Except for three cases of subspecific differentiation no attempts have been made to recognize taxonomically other cases of infraspecific variation. The description is kept to those characters which are variable between species, and general characteristics of the genus (see above) are not repeated for each species.

In the accounts of each species, 'fw' denotes forewing(s), 'hw' hindwing(s); unless noted, coloration and wing pattern refer always to upper dorsal side. Generally, only one sex is described in some detail, except for taxa exhibiting distinct sexual dimorphism.

For information about the distribution of individual species, only data from examined specimens were considered. Records from the literature are generally not included because of the many taxonomic changes brought about by the present revision. The distribution of all Afrotropical species is summarized by countries in Table 1.

Localities recorded are arranged in the text by country and province, generally following a sequence from north to south and west to east. Spelling of names is as given on specimen labels, except for countries and provinces (*Times Atlas of the World*). Modern transcriptions of colonial names and other supplementary data are enclosed in square brackets. Days and years are given in Arabic, months always in Roman numerals. For primary type specimens, all labels are cited in full.

On the plates, the colour and black and white pictures of species (Plates 2–3 and 4–7, respectively) are arranged according to outward similarity to facilitate identification; however, the genitalia pictures (Plates 8–13) are in alphabetical order.

Amerila accra (Strand) (Plate 7K)

Rhodogastrina metasarca vs. *accra* Strand, 1919: 376. Holotype ♂ (examined): Accra/Crowley Bequest, 1901–78/*Rhodogastrina metasarca* var. *accra*, Holotype Strand, Hampson Subsp.I/*Rhodogastrina metasarca* ssp. Type ♂, Hmpsn./Type/Arctiidae genitalia slide no. 4385 [BMNH; abdomen dissected]. Type locality: GHANA: Accra.

Description

Male. Fw length 21–23 mm; fw dark brown with central area semitransparent but largely suffused by brown scales, discal vein slightly darkened; hw pale ochre with a pinkish tint, well developed towards the apex and outer margin. Head, thorax, tibiae, tarsi, and outer sides of femora dark brown; ventral side of thorax and inner sides of femora pinkish red; tegulae with a single black spot basally. Abdomen dorsally pale brown suffused with pinkish red, ventrally dark ochre, without obvious androconial organs.

Table 1. Distribution of *Amerila* spp. in Africa based on specimens considered in this study. A gender sign after the specific name indicates that only the respective sex is known. ○ country of type locality; ● confirmed record.

<i>Amerila</i>	AFRICA																																							
	WESTERN							CENTRAL					EASTERN				SOUTHERN																							
	Senegal	Gambia	Guinea-Bissau	Guinea	Sierra Leone	Liberia	Mali	Burkina Faso	Côte d'Ivoire	Ghana	Togo	Bénin	Nigeria	Cameroon	Equat. Guinea	Gabon	Congo	Centr. African Rep.	Zaire	Rwanda	Burundi	Uganda	Sudan	Ethiopia	Somalia	Kenya	Tanzania	Angola	Zambia	Malawi	Mozambique	Namibia	Botswana	Zimbabwe	Rep. South Africa	Madagascar	Seychelles			
<i>accra</i> ♂	○	
<i>affinis</i>	●	●	.	●	●	●	○	.	.	.		
<i>aldabrensis</i>	○	
<i>androsusca</i>	○	●	
<i>bauri</i>	
<i>bipartita</i> ♂	○	●	●	○	.	.	
<i>brunnea</i>	
<i>bubo</i>	.	.	.	●	●	.	.	.	●	●	●	○	.	●	●	●	.	.	.	●	●	●	●	●	●	●	●	●	●	●	●	○	
<i>castanea</i> ♂
<i>catinca</i>
<i>femina</i> ♂
<i>fennia</i>	○	.	.	.	●	.	.	●	●	●	●	
<i>fuscivena</i> ♂
<i>howardi</i>
<i>kiellandi</i> ♂
<i>leucoptera</i>	●	.	.	○	.	.	.	●	●	●	●	●	.	●	.	.	.	○	●
<i>lineolata</i>
<i>lupia</i>
<i>luteibarba</i>	●	●	.	.	●	●	●	○	.	●	●
<i>madagascariensis</i>
<i>magnifica</i>
<i>makadara</i>
<i>mulleri</i>
<i>nigrivenosa</i> ♂
<i>nigroapicalis</i> ♂	○	●
<i>niveivitre</i>	●	●	●	●	●	●	●	○
<i>phaedra</i>
<i>puella</i>	●	.	.	●	.	.	.	●	●	●	●	●
<i>roseomarginata</i>
<i>rufifemur</i> ♀
<i>shimbaensis</i>
<i>syntomina</i>	.	.	.	●	●	.	.	●	●	●	●	○
<i>thermochroa</i>
<i>vidua</i>	.	.	.	●	○
<i>vitrea</i>	●	●	.	.	●	.	●	●	●	●	●	●	.	○	●

Additional records: *mulleri* ●: Swaziland; *puella* ●: Sao Tomé & Príncipe; *roseomarginata* ●: Eritrea; *vitrea* ●: Saudi Arabia, Jemen, Eritrea, Swaziland

Male genitalia (Plate 8). Uncus almost completely absent, reduced to a narrow thickening of the tegumen. Valvae large, oval-shaped, distally tapering ventrally and rounded; outer surface without extrusible coremata; inner sclerotized process large, smooth and apically pointed, strongly bent at its base and slightly curved distally. Vesica distally with 15–20 long, slender, straight cornuti arranged along a longitudinal line.

Female. Unknown.

Distribution. West Africa; Ghana.

Comments. The type specimen of this taxon had already been cited as an undescribed subspecies of *Rhodogastria metasarca* by Hampson (1911: 412). Following its original

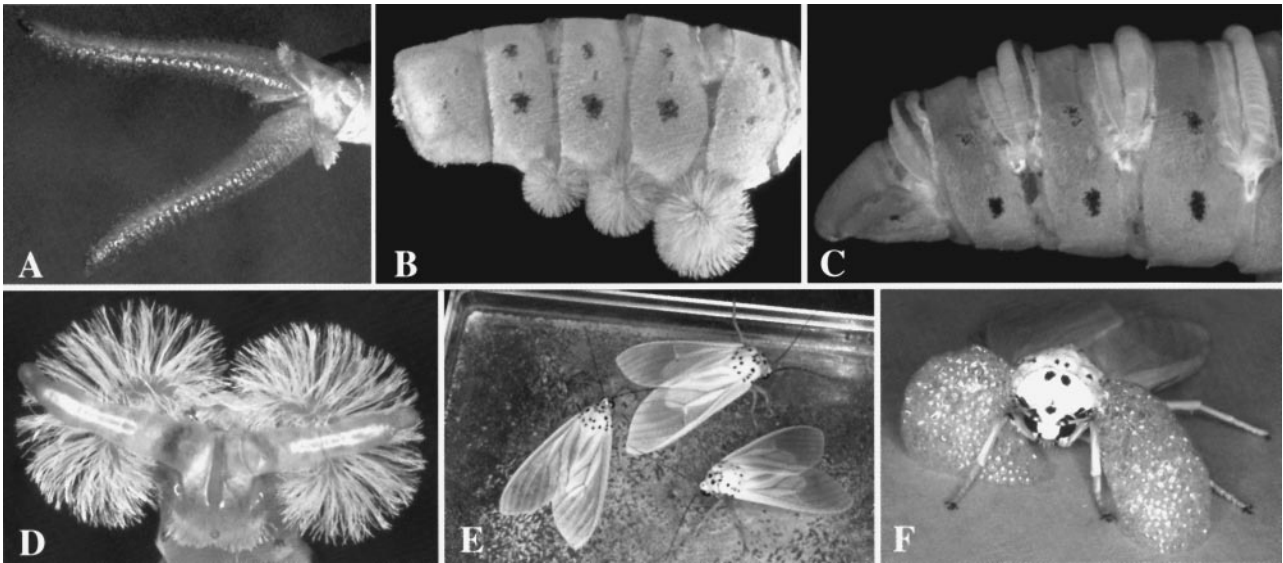


Plate 1. Androconial organs (artificially protruded) of *Amerila vitrea* (A), *A. catinca* (B), and *A. luteibarba* (C) and *A. roseomarginata* (D) to illustrate diverse types of these male scent organs. *Amerila bubo* at a dish containing purified pyrrolizidine alkaloids (E) and engaged in frothing after disturbance (F).

placement, this taxon should be conspecific with *A. fennia* (= *A. metasarca* auct.), but the distinct male genitalia clearly indicate species status. The taxon has recently been listed as an infrasubspecific name (Goodger & Watson, 1995: 4), but in the original description by Strand (l.c.) the name was evidently meant to denote a geographical form or subspecies.

Additional material examined. GHANA: Sekondi (1 ♂, BMNH).

Amerila affinis (Rothschild) (Plate 6A)

Rhodogastria affinis Rothschild, 1910: 184. Lectotype ♂ (here designated): Natal, A.J. Spiller/*Rhodogastria affinis* Rothschild. Type/Type/Arctiidae ♂ Genitalia Slide VU no. 12.50/Arctiidae genitalia slide no. 4447 [BMNH; abdomen dissected]. Type locality: SOUTH AFRICA: Natal.

Rhodogastria affinis ssp. *pallens* Bethune-Baker, 1925: 325. Holotype ♂ (examined): Gimson, N. Rhodesia, 1908/*Rhodogastria affinis pallens* Type B-B/G.T.B.-Baker Coll., Brit.Mus. 1927-360./Type/B531 [BMNH, abdomen partly dissected]; note: the genitalia had been dissected and illustrated by Bethune-Baker (1925: plate xxxix); during the examination of material in the BMNH, however, an associated genitalia preparation could not be found. Type locality: ZIMBABWE: Gimson. **Syn.n.**

Description

Male. Fw length 21–24 mm; fw along costal and inner margins pale greyish brown, the apex pale brown, with a large, central transparent area sharply delimited towards the apex,

and discal vein finely lined with darker scales; hw pale greyish brown, weakly scaled, the central area partly transparent, and the apex slightly darker brown. Head, thorax and base of abdomen dorsally pale greyish brown; thorax ventrally and outer sides of femora, tibiae, and tarsi dark brown; inner sides of femora, tibiae, and tarsi red; tegulae with two black spots, one basally and another one distally. Abdomen dorsally dark red, ventrally pale greyish brown; the anterior margin of the abdominal tergites V and VI with a narrow band of velvet-like, presumably androconial scales, a similar broader band sometimes present on tergites III and IV; laterally, the intersegmental pleural folds between segments IV – VI each with an extrusible, small, roundish, membraneous vesicle-like projection.

Male genitalia (Plate 8). Uncus small, triangular, distally narrow, and pointed. Valvae short, distally squarish, at the ventral posterior corner with a distinct edge; outer surface without extrusible coremata; inner sclerotized process short, orientated ventrally and curved, with 4–7 short spines along the ventral side in a continuous line from the base to the pointed tip. Vesica with two separate cornuti; a large, straight cornutus distally, and a small, strongly curved, hook-like cornutus medially.

Female. Similar to ♂, except for the absence of the abdominal androconial organs.

Distribution. East and South Africa; from south-eastern Ethiopia and eastern Zaire to the Cape.

Comments. Although this species is externally very similar to *A. luteibarba*, most authors have accepted it as a separate

Plate 2. African *Amerila* I

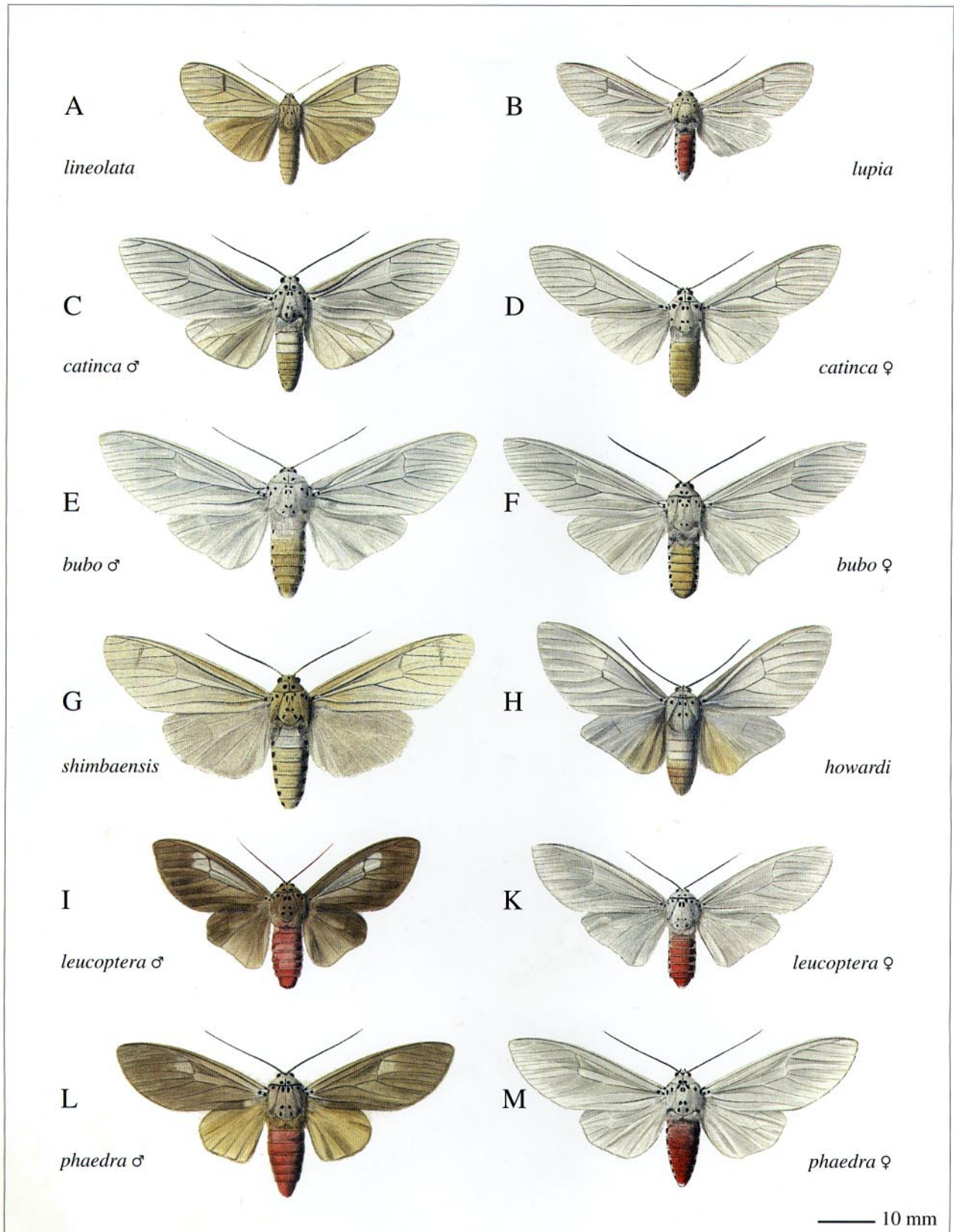


Plate 3. African *Amerila* II

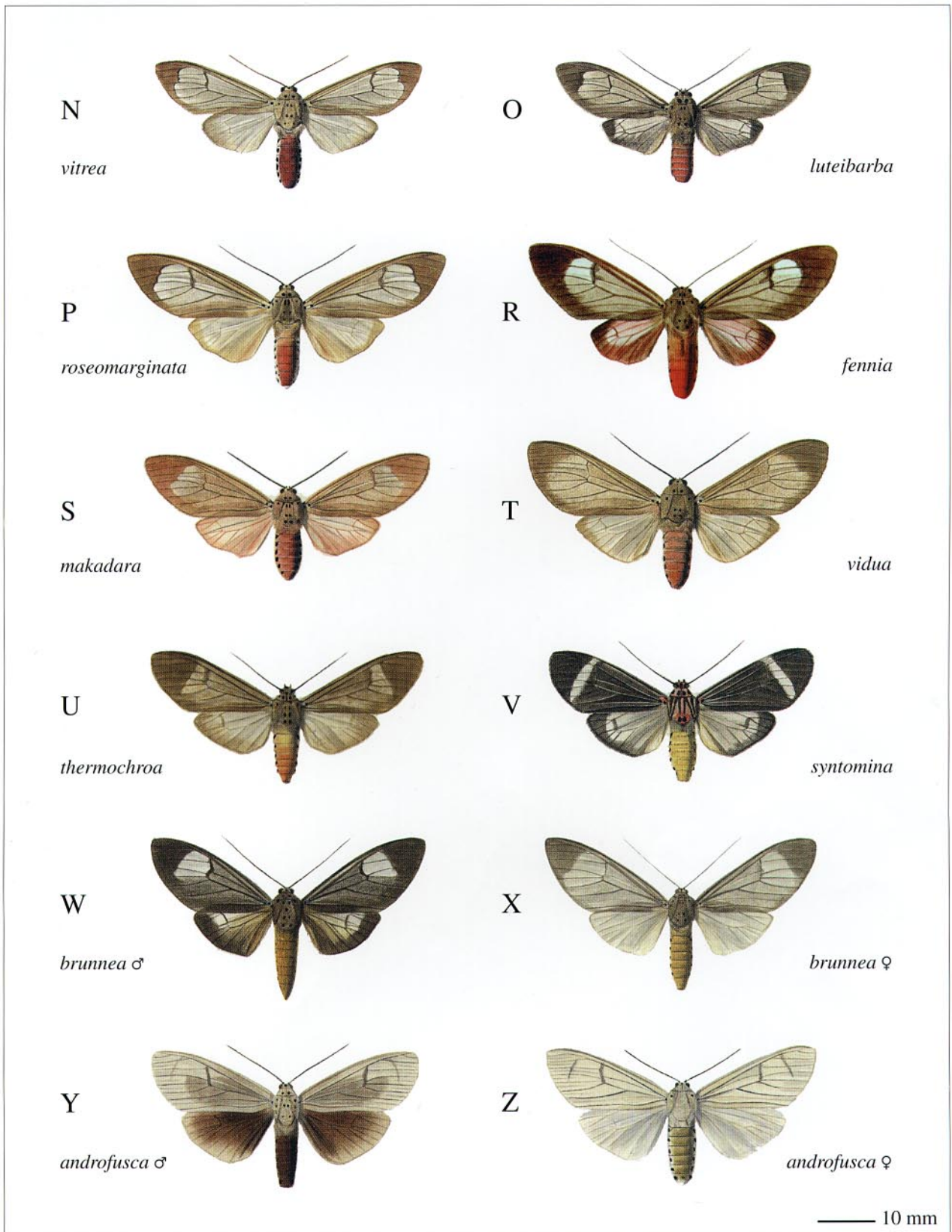
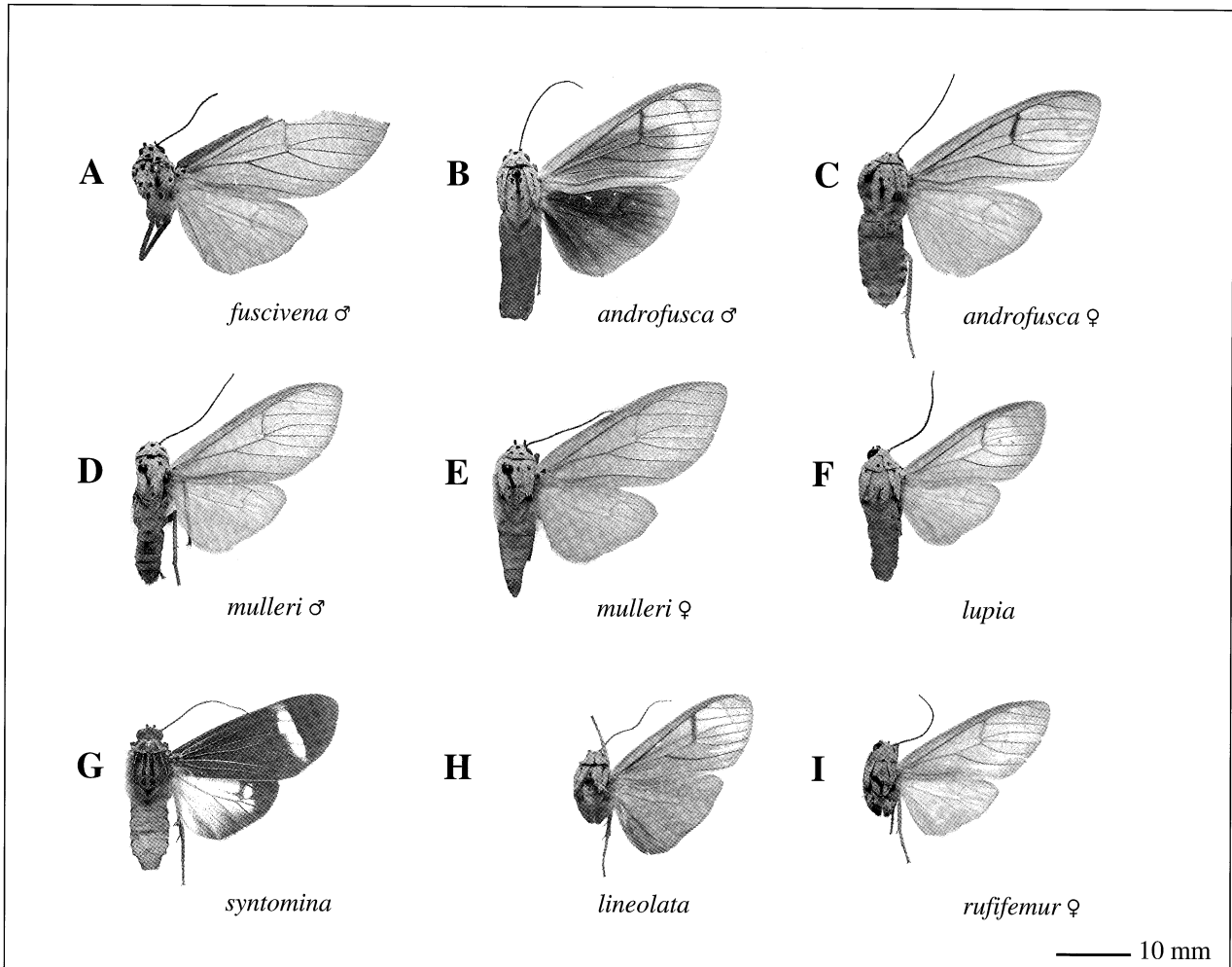


Plate 4. African *Amerila* III

species (Gaede, 1926; Hampson, 1920). Muller (1980), however, despite constant differences in the male genitalia placed *affinis* as a subspecies of *A.luteibarba* because the two taxa show a largely vicariant distribution over most of the African continent. According to the material examined for this study, *A.affinis* and *A.luteibarba* coexist in eastern Zaire, Kenya and northern Tanzania without the occurrence of any transitional forms. Therefore, we treat both taxa here as separate species.

The most apparent external diagnostic features between the two species are the slightly larger size and paler greyish brown ground colour in *A.affinis* which is most noticeable dorsally on the thorax, particularly on the patagiae and tegulae. In the male genitalia, the uncus is broader in *A.affinis*, the valvae of *A.affinis* are posteriorly not rounded but ventrally acuminate, the inner sclerotized process of the valva has spines from base to tip, and the small cornutus on the vesica is shorter and more curved.

The description of *pallens* Bethune-Baker appears to have been based on a single worn, much faded male specimen.

Additional material examined. ZAIRE: Haut-Zaire: Haut Ituri, Nioka, v.–vi.1976 (3 ♂♂, SMNS), x.–xi.1976 (3 ♂♂, SMNS); Kivu: Tongo, 1620 m, 21.viii.1990 (2 ♂♂, MCSN); Lwiro bei Bukuvu, 1800 m, 19.vi.–27.vii.1965 (1 ♂, SMNS). ETHIOPIA: Jlubabor: Gore, 2007 m, 35°31'E 8°8'N, 8.–21.xii.1959 (3 ♂♂, SMNS). KENYA: Kakamega: Kakamega Forest, 27.iv.1988 (2 ♂♂, MB); Eastern: Meru, Kathita R.area, iv.1979 (1 ♂, NMKE); Coast: Kwale: Shimba Hills, 20.viii.1979 (2 ♂♂, MB), 8.iv.1995 (1 ♂, SMNS), Loc.Jadini, 21.vi.1970 (1 ♂, ZMUC). TANZANIA: West Lake: Bukoba, 19.ii.1963 (1 ♂, ZSSM), 26.ix.1963 (1 ♀, ZSSM), Bukoba, Kikuru F., Ruzinga, c.1200 m, 14.iii.1993 (1 ♂, BJ); Arusha: Mt.Meru, 1400 m, 18.vii.1963 (1 ♂, ZSSM), Mt.Meru, Momella, 1600–1800 m, 1.10.ii.1964 (1 ♂, ZSSM), Mbulu District, Karatu,

Plate 5. African *Amerila* IV

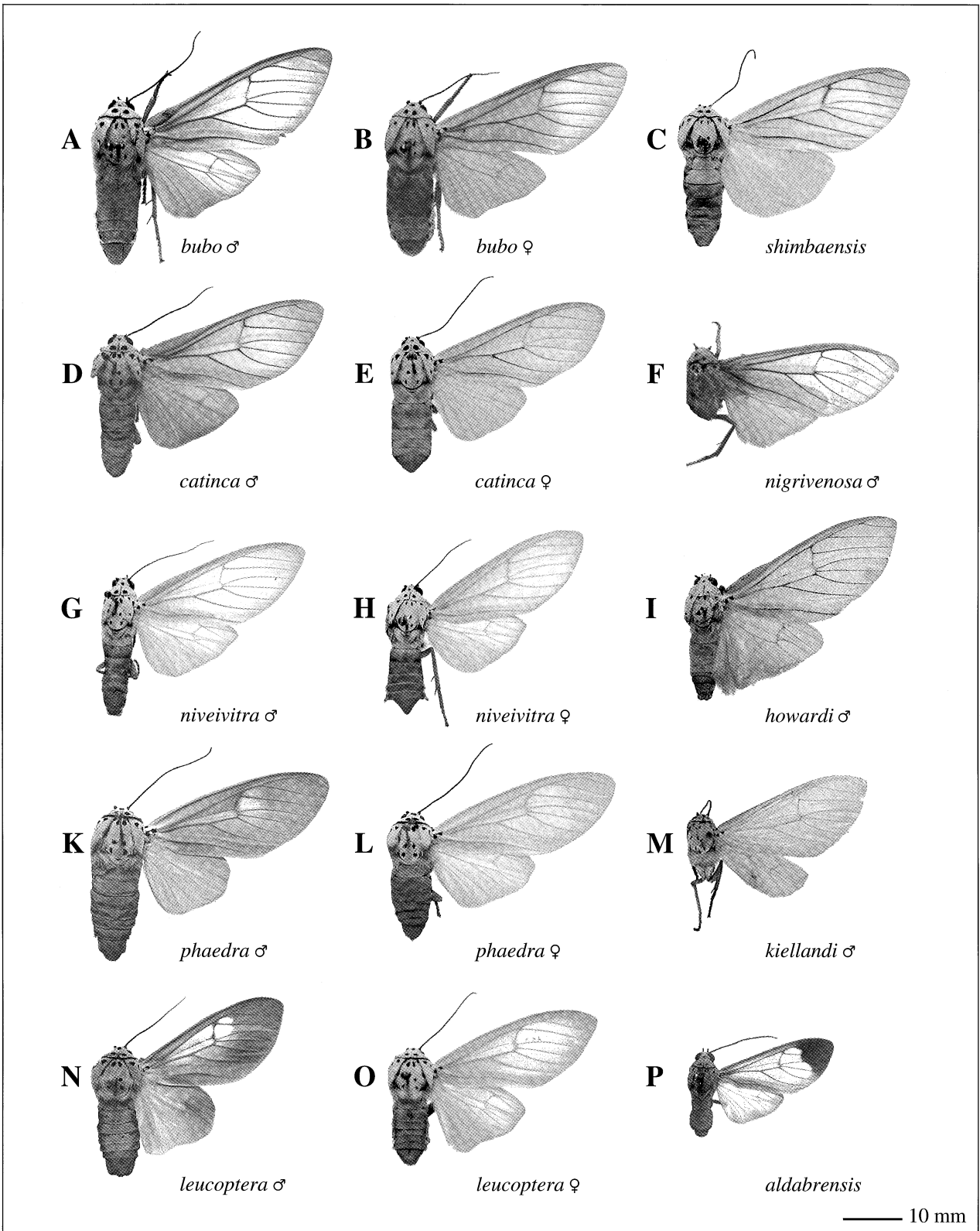
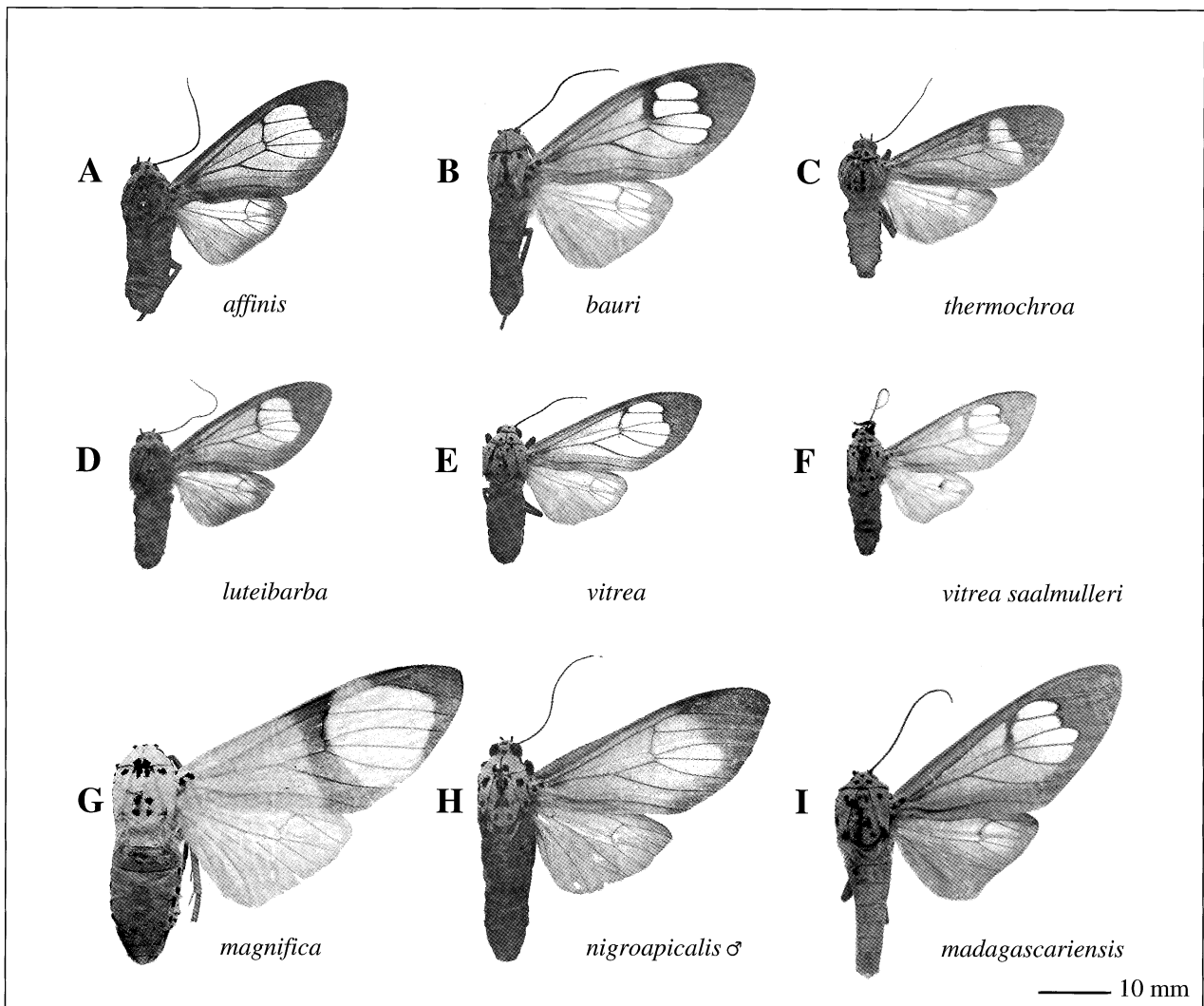


Plate 6. African *Amerila* V

1700 m, 20.ii.1979 (1 ♂, BJ), 3.iv.1979 (1 ♀, BJ), Babati nr. Tarangira Nat. Park, 4°12'S 35°45'E, 31.iii.1995 (1 ♂, SMNS); Chagga: Makoa [near Moshi], 7.–27.i.1959 (1 ♂, SMNS), 2. + 6.ii.1959 (1 ♂, SMNS); Tanga: E. Usambara Mts., Amani, ii.1953 (1 ♂, NBMZ), iv.1961 (1 ♂, BMNH), 800 m, 3.iv.1995 (1 ♂, SMNS), Usambara-Berge, Malindi, 29.iv.1962 (1 ♀, ZSSM), Lushoto, W. Usambara Mts., Ambangulu, 4000', 25.ii.1981 (1 ♂, BJ); Kigoma: Tubira Forest, 1100 m, 7.v.1989 (1 ♂, BJ); Mbeya: Rungwe, Tukuyu, Musekwa, 1100 m, 27.v.1984 (1 ♀, BJ); Morogoro: Kilombero, Sanje, 350 m (2 ♂♂, 1 ♀, BJ), Nguru Mt., Mkombola, 1200 m, 14.ii.1985 (1 ♀, BJ); Marangu, 7.viii.1978 (1 ♂, ZMUC). MALAWI: Southern: Limbe (1 ♂, BMNH). MOZAMBIQUE: Sofala: 30 m.E. of Inhaminga, Chironde, 18.v.1969 (1 ♂, NBMZ). ZIMBABWE: Vumba, 20.xii.1963 (1 ♂, NBMZ), Laurenceville, Vumba, 12.x.1993 (1 ♂, MB). SOUTH AFRICA: Natal: Durban (1 ♀, BMNH),

Sea St. Lucia, Charters Creek, 29.12S 32.25E, 0 m, 11.ii.1989 (1 ♂, 2 ♀♀, WT), St Lucia Estuary, 28.17S 32.25E, 20 m, 12.–13.ii.1989 (1 ♂, WT).

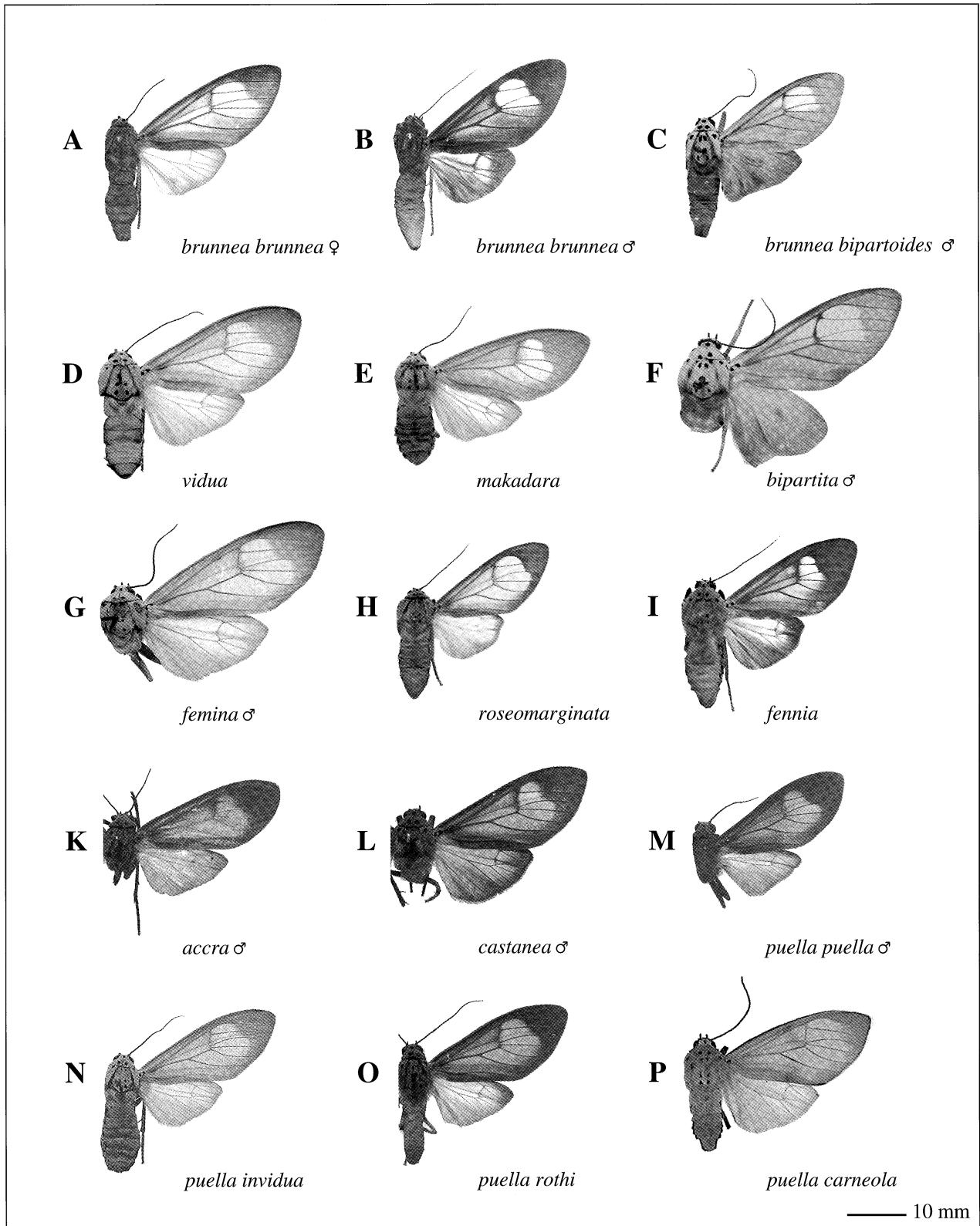
***Amerila aldabrensis* (Fryer) (Plate 5P)**

Rhodogastris aldabrensis Fryer, 1912: 6. Lectotype ♂ (here designated): Seychelle Islands, Percy Sladen Trust Expedition, 1913–170./Assumption I., R.P. Dupont. 1909./ Type sp. ♂, *Rhodogastris aldabrensis* JF Fryer/Type [BMNH]. Type locality: SEYCHELLES: Assumption Island.

Description

Male. Fw length 17–18 mm; fw pale grey, largely transparent, along outer and inner margin slightly more densely scaled, but

Plate 7. African *Amerila* VI



Plates 4-7. Photographs of recognized taxa of African *Amerila* species.

Plate 8. Male genitalia of African *Amerila* I

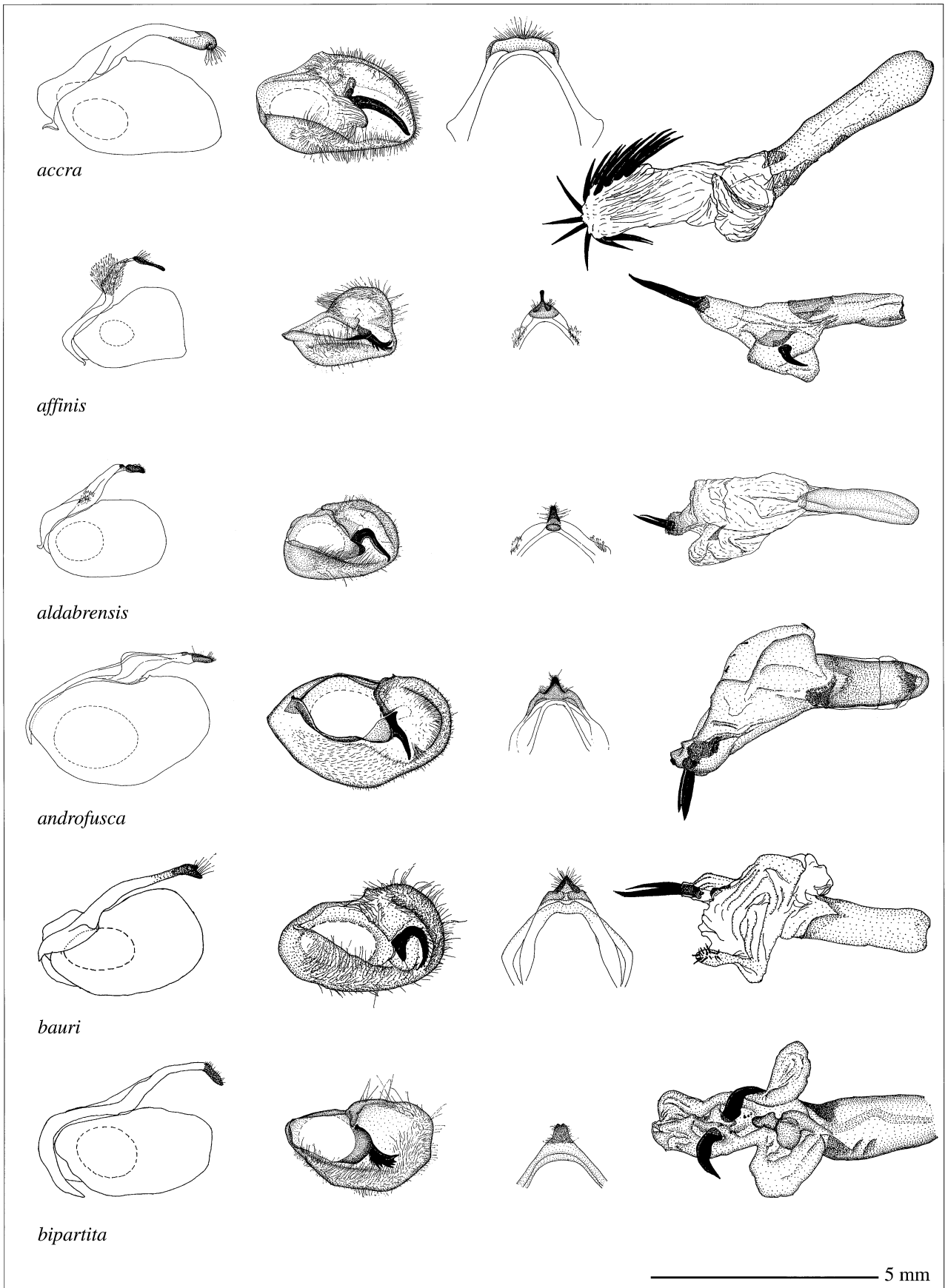


Plate 9. Male genitalia of African *Amerila* II

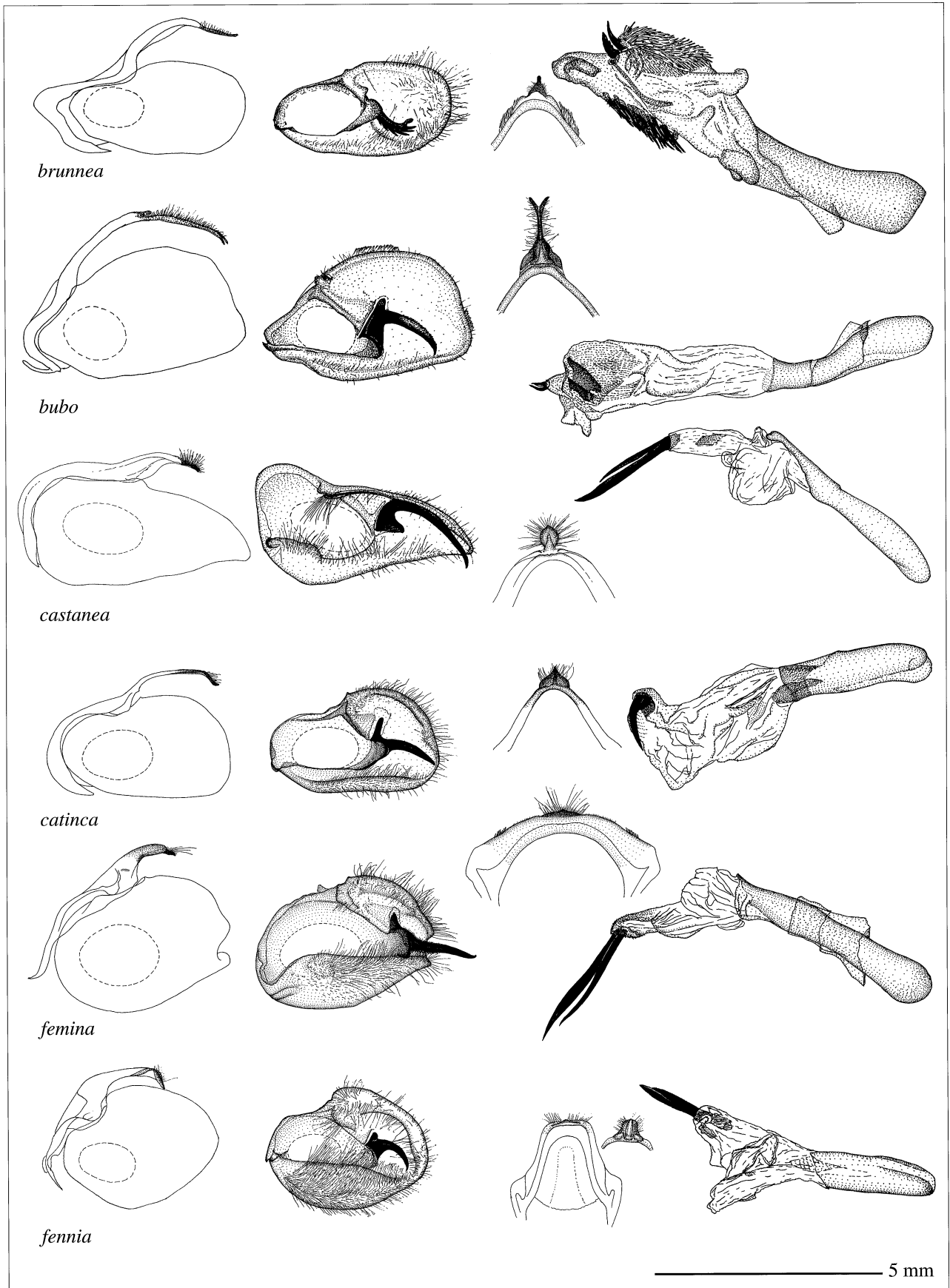


Plate 10. Male genitalia of African *Amerila* III

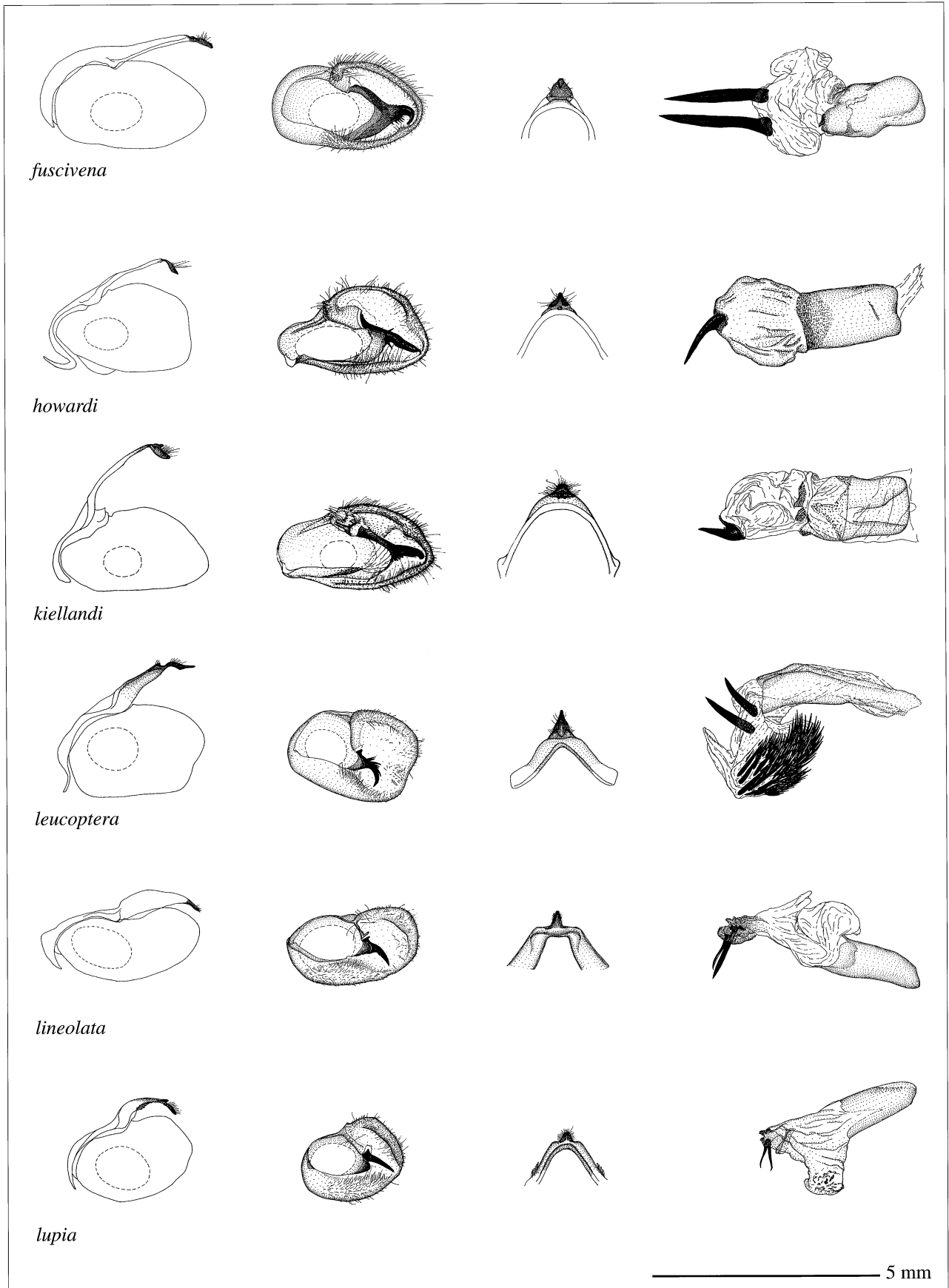


Plate 11. Male genitalia of African *Amerila* IV

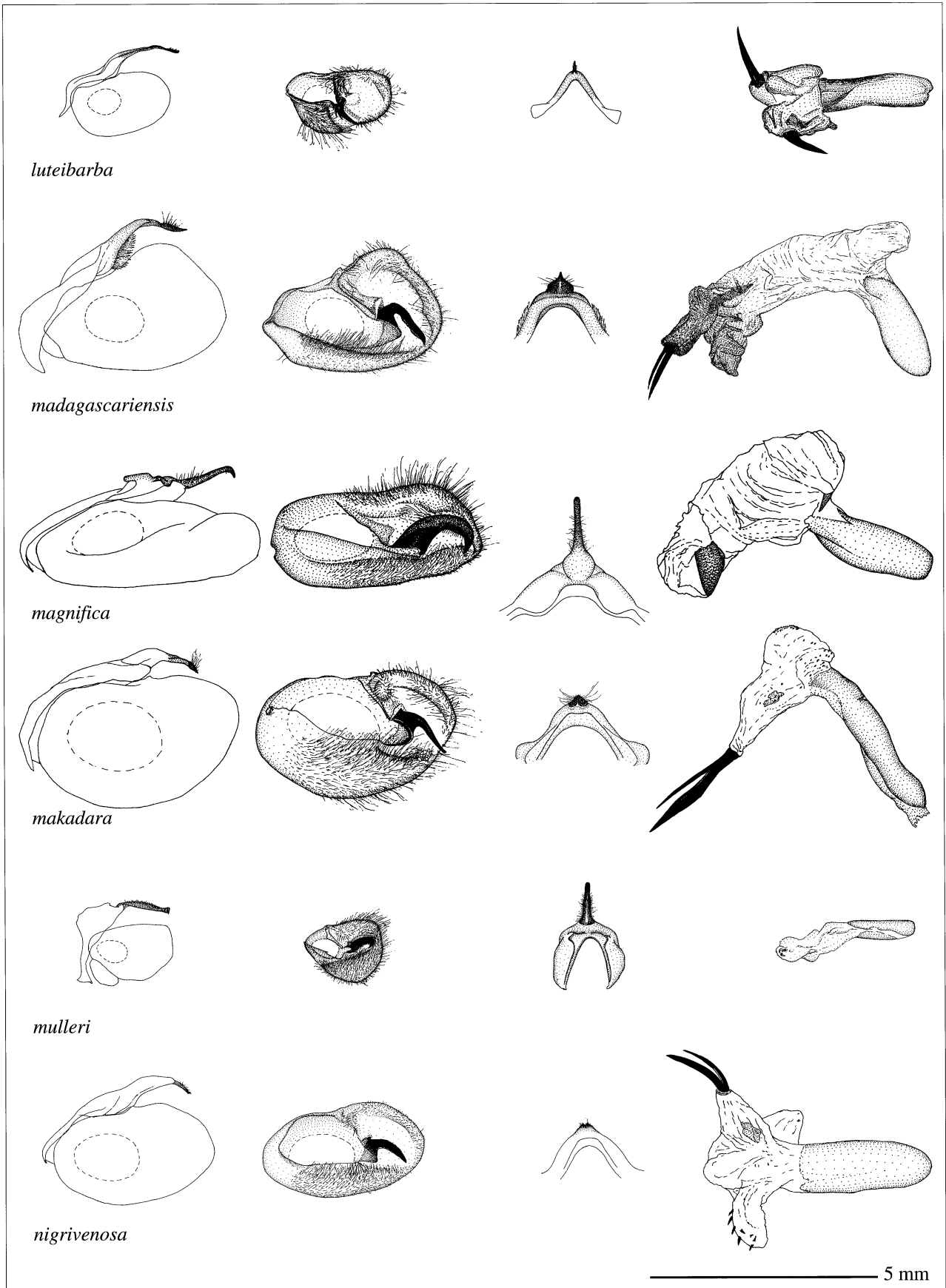


Plate 12. Male genitalia of African *Amerila* V

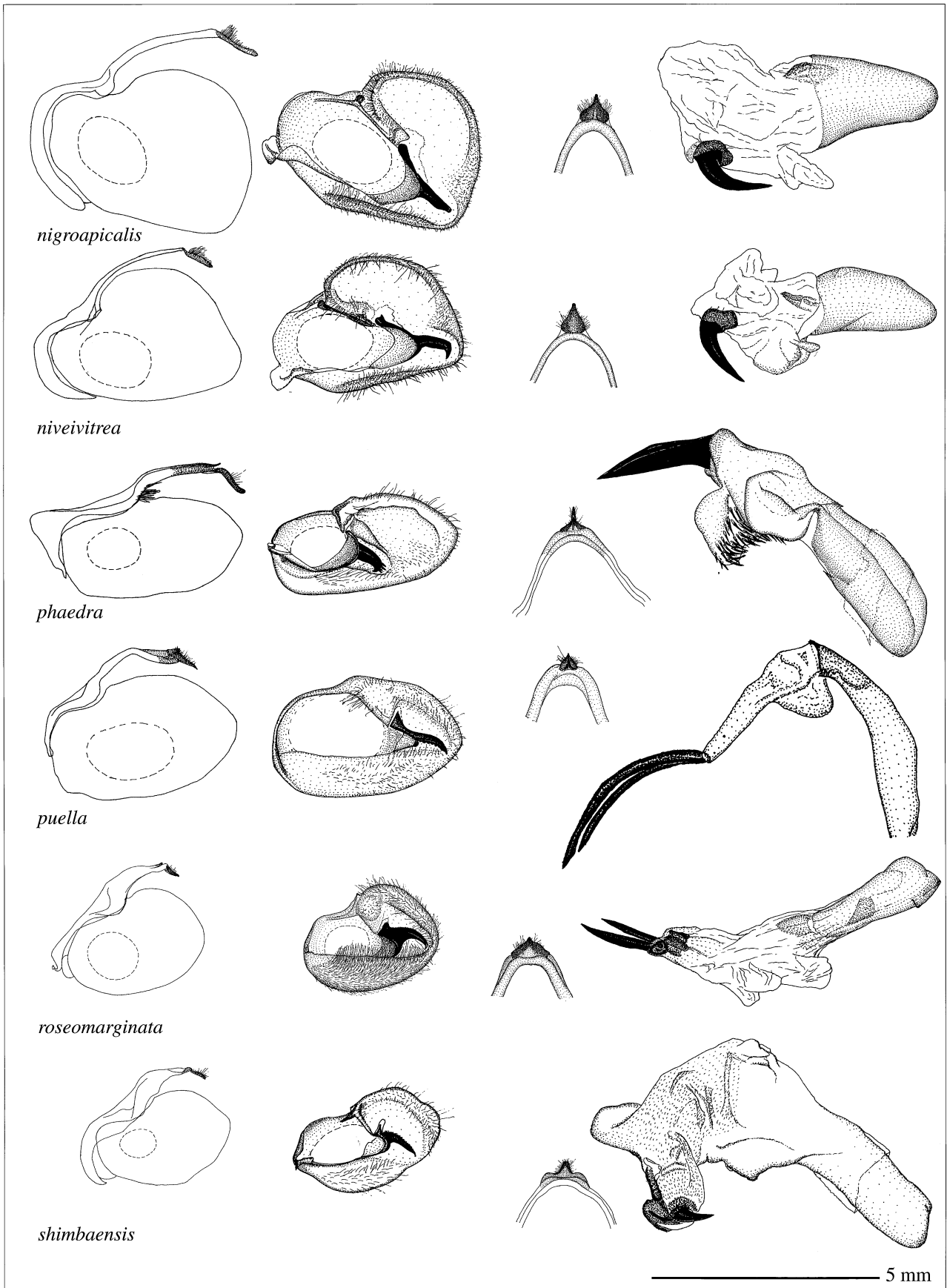
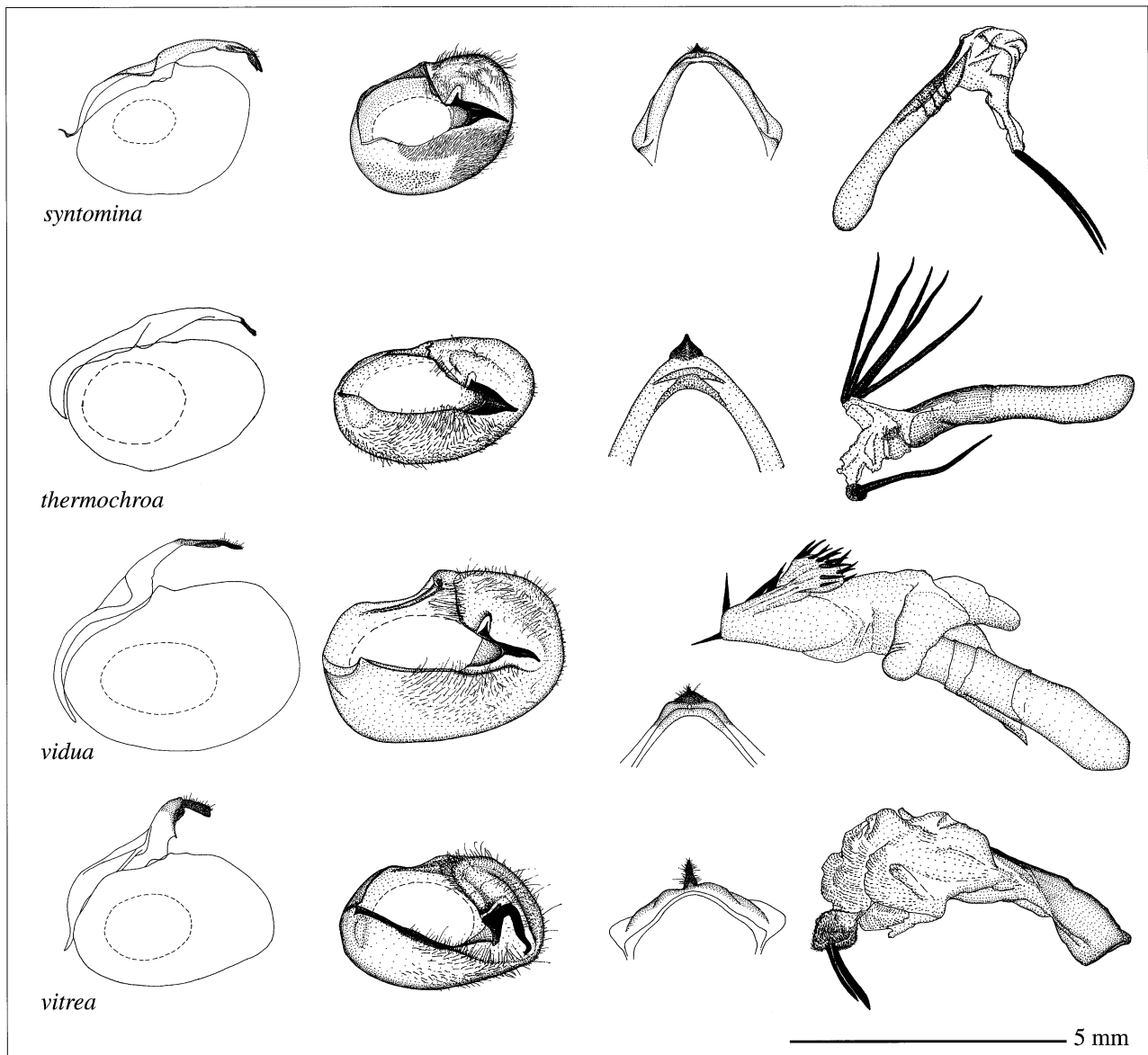


Plate 13. Male genitalia of African *Amerila* VI

Plates 8–13. Male genitalia of African *Amerila* species. From left to right: view on left side of vinculum and valva, lateral view; inner side of right valva; tegumen/uncus, dorsal view; aedeagus with vesica everted.

apex distinctly dark greyish brown; hw pale greyish ivory, weakly scaled. Head, thorax and base of abdomen dorsally pale grey; tegulae with a single faint black spot basally; outer sides of femora and tibiae pale greyish ivory, inner sides of femora, tibiae, and tarsi yellow. Abdomen dorsally yellow, ventrally pale greyish white, without obvious androconial organs.

Male genitalia (Plate 8). Uncus short, triangular, distally blunt. Valvae small, distally rounded, outer surface with long, extrusible, hirsute, tube-like coremata; inner sclerotized process

short and smooth, strongly bent at its base and continuing straight except for a hook-like, pointed tip. Vesica distally with two small, straight, parallel cornuti fused at their base.

Female. As male, abdomen dorsally somewhat more greyish ivory coloured, yellow only towards the tip.

Distribution. Seychelles; only recorded from Assumption Island.

Additional material examined. Seychelles: Assumption I., 1910 (1 ♂, 1 ♀, paralectotypes, BMNH).

***Amerila androfusca* (Pinhey) (Plates 3Y,Z; 4B,C)**

Rhodogastria androfusca Pinhey, 1952: 176. Holotype ♂ (examined): Kenya, Nairobi, 1937 (bred), R.N.H. Simmons/Brit.Mus. 1953–293/Holotype *Rhodogastria androfusca* Pnh. ♂/Type [BMNH]; note: the metathorax with the hw together with the abdomen of the specimen were apparently once broken off; the abdomen, however, has been glued back onto the specimen upside down. Type locality: KENYA: Nairobi.

Description

Male. Fw length 24–26 mm; fw dorsally creamy white, all veins finely lined with dark scales, a broader dark streak along the discal vein, and a faint dark line in the postdiscal area running from the subcosta to the media in a slight angle towards the outer margin; hw dorsally dark fuscous brown, costal and outer margin creamy white; fw ventrally cream-coloured, central area dark brown; hw ventrally dark brown near the inner margin and medial area, fading to dark ivory towards the outer and costal margins. Head, thorax, and outer sides of femora and tibiae ivory, the tarsi yellowish brown; inner sides of femora, tibiae, and tarsi yellow; tegulae with a weak black basal spot fading posteriorly into a thin line. Abdomen dorsally dark fuscous brown, ventrally creamy white; in the membranous area between segment VIII and the genital apparatus dorso-laterally on both sides with a large, brush-like androconial organs of long, dark, hair-like scales.

Male genitalia (Plate 8). Uncus small and short, triangular with a blunt tip. Valvae large, oval-shaped, distally rounded; outer surface with long, extrusible, hirsute, tube-like coremata; inner sclerotized process short and smooth, slightly curved. Vesica distally with two large, straight, parallel cornuti of slightly unequal length fused at their base, and two plate-like sclerotizations.

Female. Fw dorsally, head, and thorax as in male; hw dorsally creamy white, weakly scaled; fw and hw ventrally whitish cream-coloured, without any dark brown scales; abdomen dorsally creamy white at the base, pale yellow from segment III towards the tip, ventrally all segments white.

Distribution. East Africa; central Kenya, north-eastern Tanzania.

Comments. The male of this species are very distinct and cannot be confused easily with any other African *Amerila* species. The female, however, are similar to *A.lineolata*, but are larger and have uniformly white hw.

Additional material examined. KENYA: Nairobi, vi.1918 (1 ♂, BMNH), 1951 (1 ♂, 1 ♀ BMNH), ii.1957 (1 ♀, NMKE); Nairobi: Ngong, xii.1953 (1 ♂, NMKE); Kabete, 3.iii.1972 (1 ♂, ZSSM), 29.x.1972 (1 ♂, ZSSM), 24.–27.xii.1972 (5 ♂ ♂, ZSSM), 3.i.1973 (1 ♂, ZSSM), 6.iv.1973 (1 ♂, ZSSM);

Nyari, Treetops, viii.1970 (1 ♂, NMKE); TANZANIA: Tanga: Mal.Inst. Amani, iii.1962 (2 ♂ ♂, BMNH, NMBZ), E. Usambara, Amani, xi.1965 (1 ♂, NMKE).

***Amerila bauri* Möschler (Plate 6B)**

Amerila bauri Möschler, 1884: 289. Lectotype ♀ (here designated): Caffraria, Baziya, Br. 74./Type, Verh.z.b.Ges.Wien, 1883 p.289.t.XII.f.2/Coll. Möschl./Origin./Coll. Staudinger/Zool.Mus.Berlin/Arctiidae ♀, Genitalia Slide, VU no. 10.11/*Rh.bauri* Möschl./Lectotypus, *Amerila bauri* Möschler, 1884, designated by Häuser & Boppré [MNHU; abdomen dissected]. Type locality: SOUTH AFRICA: Baziya.

Description

Male. Fw length 27–30 mm; fw pale ochre from the base to the discal region, pale brown towards the apex, with a large, sharply bordered, central transparent area postdiscally; fw veins partly lined with darker scales, also along the outer margin of the transparent area; hw pale brownish ochre, weakly scaled. Head, thorax and outer sides of femora and tibiae pale ochre; inner sides of femora, tibiae, and tarsi red; tegulae with a single black spot basally. Abdomen dorsally pinkish red, ventrally pale ochre, without obvious androconial organs.

Male genitalia (Plate 8). Uncus small, broad triangular, and distally pointed. Valvae large, oval-shaped, and distally rounded, outer surface with long, extrusible, hirsute, tube-like coremata; inner sclerotized process short, strongly bent near its base, further distally curved and apically pointed, along the outer side finely serrated. Vesica distally with two large, straight, parallel cornuti of unequal length fused at their base, and several very small spines on a short papillate projection.

Female. As male.

Distribution. South-eastern Africa; from southern Mozambique, Zimbabwe to Natal.

Comments. This species was synonymized by Kirby (1892: 195) with *A.madagascariensis*. Hampson (1901: 504) first synonymized it with *A.astreus* (Drury), a species from India, but later he accepted *bauri* as a distinct species (Hampson, 1920: 526). *Amerila bauri* is similar to *A.madagascariensis* (which is restricted to Madagascar), but constant external and genitalic differences suggest ranking the two taxa as different species despite their allopatric distribution.

Additional material examined. MOZAMBIQUE: Delagoa Bai [= Baía de Lourenço Marques], 1894 (1 ♀, MNHU). ZIMBABWE: Gimson, 1908 (1 ♂, 1 ♀, BMNH, 1 ♀, MRAC). SOUTH AFRICA: Transvaal: Magoebos Klooft, 28.ii.1980 (1 ♂, MB); Natal: vii.1888 (1 ♀, BMNH), 1896 (1 ♀, MNHU), Pt.Natal (1 ♀, MNHU), Pietermaritzburg (2 ♂ ♂, BMNH),

Maritzburg (2 ♀♀, BMNH), Durban, v.1901 (1 ♀, BMNH), 12.ix.1906 (1 ♂, BMNH), 6.v.1959 (1 ♀, NMKE), Zululand, Eshowe, 3.x.1949 (1 ♀, NMKE); Cape Province: Namaqualand, Cochiane (1 ♂, BMNH), Graham's Town (1 ♂, 1 ♀, BMNH).

Amerila bipartita (Rothschild) (Plate 7F)

Rhodogastria bipartita Rothschild, 1910: 186. Holotype ♂ (examined): Tauta [= Taita], vii, 1891/*Rhodogastria bipartita* Rothschild. Type/Rothschild Bequest, B.M.1939-1/Type/Arctiidae genitalia slide no. 4372 [BMNH: abdomen dissected]. Type locality: KENYA: Taveta.

Description

Male. Fw length 24–28 mm; fw pale brownish grey to greyish white (almost white in worn specimens), discal and postdiscal area between the radius and vein m₃ transparent; fw veins finely lined with darker scales, broader along the discal vein; hw dorsally yellowish brown, darker towards the apex and outer margin, near the inner margin covered with long, hair-like scales; hw ventrally pale ochre, along the outer margin near the anal angle in most specimens large patches of a creamish white secretion(?); hw shape concave along the outer margin, with a distinct short projecting edge at the anal angle. Head, thorax, and outer sides of femora and tibiae greyish white; inner sides of femora, tibiae, and tarsi dark yellow; tegulae with a single faint black spot basally. Abdomen dorsally yellow, ventrally pale greyish brown, without obvious androconial organs.

Male genitalia (Plate 8). Uncus very small, triangular, and distally blunt. Valvae medium-sized, oval-shaped, distally not rounded, outer surface with long, extrusible, tube-like coremata; inner sclerotized process short, strongly curved and apically blunt, with several short spines along the outer side. Vesica medially with two large, strongly curved, hook-like cornuti.

Female. Unknown.

Distribution. East and South Africa; from south-eastern Kenya to South Africa (Transkei).

Comments. For much of its range, *A. bipartita* occurs sympatrically with *A. brunnea* ssp. *bipartitoides* (see below) from which it is best distinguished externally by the presence of a concave outer hindwing margin and a distinct short projection at the anal angle. The holotype of *A. bipartita* is a fairly worn specimen in which the fw are weakly scaled and appear almost white.

Additional material examined. KENYA: Coast: Taveta: Kitobo Forest, iii.1971 (1 ♂, NMKE), Taita: Tsavo West, Ngulia Safari Camp, 1200 m, 17.iii.1989 (1 ♂, ITZA), 14.xii.1991 (2 ♂♂, MB). TANZANIA: Tanga: Mal.Inst. Amani, iv.1962 (1

♂, BMNH); Urugura-Berge, 13.i.1962 (1 ♂, ZSSM). MALAWI: Southern: Mt.Mlanje, Lujeri Tea Estates, 6.xii.1970 (1 ♂, NMBZ). MOZAMBIQUE: Serra Rotanda, Mussopa R.Forest, 13.iii.1973 (2 ♂♂, NMBZ). ZIMBABWE: Melsetter: Mount Selinda, 31.iii.1981 (1 ♂, NMBZ); Haroni River, Chimanimani, 18.ix.1995 (1 ♂, NMBZ). SOUTH AFRICA: Transkei: Pondoland, Port St John, 15.–31.viii.1923 (1 ♂, BMNH).

Amerila brunnea (Hampson)

A. brunnea ssp. *brunnea* (Plates 3 W,X; 7A,B)

Rhodogastria brunnea Hampson, 1901: 501. Holotype ♂ (examined): R.Niger, Sapele, F.W.Sampson, 29–107./*Rhodogastria brunnea* type ♂. Hmpsn/Type [BMNH]. Type locality: NIGERIA: Sapele.

Rhodogastria subvitrea Bartel, 1903: 209. Synonymized by Hampson (1920: 517). Holotype ♂ (examined): Togo, Fruhstorfer/41143/♂/2112(?)/*Rhodogastria subvitrea* Bartel/Type/Genital-Präparat Nr.92–20, Chr.Häuser/Holotypus, *Rhodogastria subvitrea* Bartel, 1903, det. Chr.Häuser [MNHU; abdomen dissected]. Type locality: TOGO.

Description

Male. Fw length 24–26 mm; fw dark greyish brown, basally slightly paler, and postdiscally the area between the radius and vein m₂ transparent; fw veins finely lined with dark scales, a much broader dark streak along the discal vein; hw dark greyish brown at the apex and along the outer margin, central area partly transparent, along the inner margin with a pale yellowish fringe; hw dorsally near the inner margin with long, hair-like, androconial scales, ventrally along the outer margin near the anal angle in many specimens patches of a creamish white secretion(?). Head, thorax, and outer sides of legs pale to dark greyish brown, inner sides of femora and tibiae yellow; tegulae with a single black spot basally. Abdomen dorsally bright yellow, ventrally pale yellowish grey, without obvious androconial organs.

Male genitalia (Plate 9). Uncus very small, short, triangular, distally with a small, narrow tip. Valvae large, oval-shaped, distally rounded, outer surface with long, extrusible, tube-like coremata; inner sclerotized process short, curved, and distally blunt, with 3–6 larger spines along the outer side. Vesica medially with two areas of many small, parallel cornuti; the larger area with two larger, slightly curved, and numerous smaller, straight cornuti, the other smaller area with many medium-sized straight cornuti.

Female. Overall much paler, fw pattern as in male but paler grey; hw weakly scaled, uniformly pale whitish grey, without long hair-like scales. Abdomen dorsally pale yellow, ventrally whitish grey.

Distribution. West, Central, and East Africa; from Sierra Leone to Cameroon, Gabon, and Angola, Zaire, and western Kenya.

Comments. In several of the male specimens examined from Zaire, Uganda and Kenya the fw ground colour is paler grey, but this might also be due to old age. The status of the type material of *subvitrea* is given by Goodger & Watson (1995: 4) as syntype(s), but the description by Bartel (l.c.) is clearly based on a single male specimen which therefore must be regarded as holotype.

Additional material examined. SIERRA LEONE: vi.–vii.1931 (1 ♂, BMNH); Seraba (1 ♂, ZSSM); Northern Province: Free Town, ix.1899 (1 ♂, BMNH), Pt.Lokho, 1902 (1 ♀, BMNH). LIBERIA: Nimba, Grassfield, vii.–viii.1967 (1 ♂, NMKE). CÔTE D'IVOIRE: vii.1978 (1 ♂, BMNH); Mankono, Marahou Ranch, 330–400 m, 8.22 N 6.23 W, 18.–20.xi.1981 (3 ♂♂, RS), 20.–30.v.1986 (2 ♂♂, 10 ♀♀, RS), 4.–8.vi.1986 (10 ♂♂, 15 ♀♀, RS), 14.–17.vi.1986 (13 ♂♂, 14 ♀♀, RS), 21.–28.vi.1986 (10 ♂♂, 9 ♀♀, RS); Daloa, 21.vii.1983 (1 ♂, ITZA); Badenou, S Mbingue, 9.50 N 5.50 W, 9.ii.1983 (1 ♀, RS); Titekro, 20 km E Bouaflé, 7.xii.1983 (1 ♂, ITZA); Bouafra, 9.vii.1977 (1 ♂, ZSSM); Tai N.P., 17.xii.1983 (3 ♂♂, 3 ♀♀, RS), Tai N.P., Station Mata, 5.27 N 6.53 W, 25.–26.iii.1983 (1 ♂, 2 ♀♀, RS); Bingerville, 25.–30.vi.1915 (1 ♂, 2 ♀♀, BMNH). GHANA: Ashanti: Kumasi-Kwadaso, 300 m, vii.1970 (1 ♂, 1 ♀, ZSSM), 29.iv.1995 (2 ♂♂, 2 ♀♀, MB); Bobiri Forest Reserve, nr Kubease, 14.iv.1995 (1 ♂, SMNS), 27.iv.1995 (4 ♂♂, MB), 8.v.1995 (1 ♂, MB); Central: Kakum NP, 29.–30.v.1995 (2 ♂♂, MB); Eastern: Abetifi, 24.–31.viii.1993 (1 ♀, LK); Anfoega, 1956 (2 ♂♂, AMES), 15.iv.1958 (1 ♂, AMES). BENIN: Danyi-Apéyémé, xi.1989 (1 ♂, MB). NIGERIA: Oyo: Ibadan, i.–vi.1954 (2 ♂♂, 2 ♀♀, ZMUC), Ilesha (1 ♀, BMNH); Lagos (1 ♀, BMNH); Bendei: Wari, vii.1897 (1 ♂, BMNH); Cross River: Ikom, 26.–28.v.1974 (1 ♂, ZSSM), Ogoja, 29.v.1974 (1 ♂, ZSSM). NIGERIA/CAMEROON: Owenna, 12.–20.vii.1957 (4 ♂♂, 1 ♀, ZMUC). CAMEROON: Nord: Adamaoua, ≈ 20 km S Minim, 6.49 N, 12.52 E, 1200 m, 14.iii.–6.iv.1979 (1 ♂, BGSS); Bang Manengabu-Geb., 700 m, viii.1910 (1 ♀, MNHU); Est: Lomié, 4.–7.ix.1962 (2 ♂♂, 2 ♀♀, NMBZ). GABON: Woleu-N'tem: env. Tchimbele, 24. + 26.i.1990 (2 ♂♂, ITZA). ZAIRE: Léopoldville, 18.viii.1953 (1 ♂, MRAC), 21.i.1956 (1 ♂, MRAC); Kivu: Amakoma, N.W.coast of L.Edward, Grass country, v.1924 (1 ♀, BMNH), Middle Lova valley, south of Walikali, 24.iii. (1 ♀, BMNH). UGANDA: Entebbe, Zika Forest, ii.–iv.1961 (1 ♂, 1 ♀, NMBZ), vi.1961 (1 ♂, NMBZ); Ankole, Kalinzu Forest, ix.1961 (1 ♀, NMKE); Masaka, Katera Sango Bay, x.1960 (1 ♂, NMKE). KENYA: Kakamega: Kakamega Forest, 2.vii.1980 (1 ♂, MB), iv.1988 (4 ♂♂, 5 ♀♀, MB), 1989 (1 ♂, MB). ANGOLA: Cuanza Norte: Quicolungo, 120 km N. of Lucala, 800 m, iv.1936 (1 ♀, BMNH).

A.brunnea bipartitoides ssp.n. (Plate 7C)

Holotype ♂: T.T.O.-Afrika, Makoa, 16.–20.ii.1959, Lindner leg./Makoa, 6.–25.ii.59, Lindner leg./Holotypus, *Amerila*

brunnea spp. *bipartitoides* Häuser & Boppré [SMNS]. Type locality: TANZANIA: Chagga: Kilimanjaro W-side, Makoa. Paratypes: KENYA: Coast: Kwale: Shimba Hills, 1985 (1 ♂, MB). TANZANIA: Tanga: Mal.Inst. Amani, iv.1961 (1 ♂, BMNH), iv.1962 (1 ♂, BMNH), v.1962 (1 ♂, NMBZ), v.1965 (1 ♂, BMNH); E.Usambara, Amani, xi.1965 (2 ♂♂, BMNH, NMKE); Makoa, 7.–27.i.1959 (2 ♂♂, SMNS); Muhera, Amani, 2.i.1987, K.Kalumile (1 ♂, BJ); Kilombero, Sanje, 350 m (3 ♂♂, BJ, MB).

Description

Male. Fw length 24–27 mm; fw greyish white, postdiscally the area between the radius and vein m2 transparent; fw veins finely lined with dark scales, but discal vein without a broader streak; hw pale greyish brown, darker at the apex and along the outer margin, yellowish towards the inner margin and around the anal angle, the central area less transparent than in the nominate subspecies; hw dorsally near the inner margin with long, hair-like, androconial scales; hw ventrally along the outer margin near the anal angle in most specimens with patches of a creamish white secretion(?). Head, thorax, and outer sides of femora and tibiae creamy white; inner sides of legs and all tarsi yellow; tegulae with a single black spot basally. Abdomen dorsally bright yellow, ventrally pale greyish white.

Male genitalia. As in the nominate subspecies.

Female. Unknown.

Distribution. East and South Africa; from south-eastern Kenya to Zimbabwe.

Comments. The males of this subspecies are externally very similar to *A.bipartita* despite the considerable differences in genitalia. In *A.brunnea bipartitoides*, the fw ground colour is more pale grey, particularly in fresh specimens, the hw apical region is darker grey, and a distinct projection at the hw anal angle is absent. As the two taxa apparently coexist for most of their ranges, the external similarity could be enforced by Müllerian mimicry. The nominate subspecies of *A.brunnea* occurs in western Kenya (Kakamega) and no intermediate forms between the two subspecies have been taken, but *A.brunnea* has not yet been recorded from central Kenya.

Additional material examined. MOZAMBIQUE: Serra Rotanda, Mussopa R.Forest (1 ♂, NMBZ); Amatonga, 31.viii.1962 (1 ♂, NMBZ). ZIMBABWE: Honde Valley, Aberfoyle (1 ♂, MB); Vumba, 6.x.1963 (1 ♂, NMBZ), 4.i.1964 (1 ♂, NMBZ).

Amerila bubo (Walker) (Plates 2E,F; 5A,B)

Canopus bubo Walker, 1855: 747. Holotype ♂ (examined): Congo, A.Curror, 43–56/1. *Canopus Bubo.*/Type/Arctiidae

♂ Genitalia Slide VU no. 6.54/Arctiidae genitalia slide no. 3036 [BMNH; abdomen dissected]. Type locality: ZAIRE.

Description

Male. Fw length 26–32 mm; wings, head, thorax, and base of abdomen white; all wings weakly scaled, partly transparent, fw veins dark; fw costa with a short, broad areole near the base; hw outer margin slightly concave towards the anal angle. Head at the clypeo-frons with an erect tuft of scales pointing dorsally; tegulae with a single, usually faint black spot basally; outer sides of legs white, inner sides of femora, tibiae, and tarsi yellow. Abdomen dorsally pale yellow, ventrally white; laterally in the membranous area posterior segment VIII on both sides with brush-like androconial organs of long, hair-like scales anterior to the genital apparatus.

Male genitalia (Plate 9). Uncus long, narrow, and terminally bifurcate. Valvae large, oval-shaped, distally not rounded; outer surface with extrusible, long and slender tube-like coremata; inner sclerotized process long and almost straight, finely serrated along the dorsal side. Vesica distally with two small, slightly curved, parallel cornuti fused at their base, and with a conical sclerotization at the opening of the ductus ejaculatorius.

Female. As male, fw slightly weaker scaled; areole at fw costa absent, and without tuft of scales on the forehead; hw outer margin less concave. The abdomen with the same conspicuous hairpencils located laterally at segment VIII as in male.

Female genitalia. Bursa copulatrix small, without an appendix; ductus bursae narrow, corpus bursae with longitudinal, denticulate signa, bifurcate anteriorly.

Distribution. Central, East, and South Africa; from Zaire and Southern Ethiopia to Angola and South Africa.

Comments. This species is similar to *A.catinca* and *A.shimbaensis*, specimens of which have formerly been united under *A.bubo* (see below). From both species *A.bubo* can be distinguished by its white hw, and the tuft of scales on the frons as well as the short fw costal areole present in males.

Additional material examined. ZAIRE: Shaba: Elisabethville [= Lubumbashi], 4.i.1949 (1 ♀, ZSSM), 11.–12.viii.1958 (1 ♂, 1 ♀, ZSSM); Haut-Zaire: Ituri, Nioka, 1750 m, i.–ii.1975 (2 ♂♂, SMNS), v.–xi.1976 (12 ♂♂, 2 ♀♀, SMNS); Kivu: Lwiro, vii.1965 (1 ♂, SMNS), 15.i.1967 (2 ♂♂, SMNS), ii.–iii.1967 (1 ♂, SMNS), Jirangi, vii.1965 (1 ♂, SMNS), Irangi, Hombo, v.1967 (19 ♂♂, 19 ♀♀, SMNS, ZFMK), Irangi, 850 m, 20.ix.–7.x.1993 (1 ♀, SMNS). RWANDA: Kigali, 7.i.1981 (1 ♂, ZMUC). UGANDA: Western: E. Ruwenzori, 7000 ft, 2.iv.1906 (1 ♂, BMNH); Central Province: Entebbe, 1905 (1 ♂, BMNH); Kisoro, 7.x.1970 (1 ♂, NMBZ). ETHIOPIA: Jilubabor: Gore, 2007 m, 35°31'E 8°8'N, 8.–23.xii.1959 (2 ♀♀, SMNS); Gwejam: Bahar Dar, 23.x.–

1.xi.1968 (3 ♂♂, 6 ♀♀, SMNS); Kefa: Jimma, 1779 m, 36°49'E 78°39'N, 5.–29.i.1960 (1 ♂, 5 ♀♀, SMNS), 6.–11.v.1967 (1 ♂, ZMUC); Gemu-Gwefa: Gidole, 2200 m, 37°26'E 5°34'N, 23.ii.–5.iii.1960 (2 ♀♀, SMNS). KENYA: Western: Kakamega, 23.iv.1973 (1 ♂, ZSSM), Kakamega Forest, 2.vii.1980 (1 ♂, MB); Kericho, vii.1982 (1 ♀, BJ); Nyeri: Aberdares mts., The Ark, 11.xii.1991 (1 ♂, 2 ♀♀, MB); Meru: Nkubu, 1500 m, 12.–25.x.1982 (1 ♂, WT); Central: Limuru Forest, 4.viii.1972 (1 ♂, 1 ♀, ZSSM); Nairobi, 27.ix.1970 (1 ♀, ZSSM), Nairobi, Karuna Forest, 20.vii.1973 (1 ♀, ZSSM); Taita: Tsavo West, Ngulia Safari Camp, 1200 m, 17.iii.1989 (1 ♂, ITZA), ii.1984 (1 ♂, 1 ♀, MB); Kwale: Shimba Hills, 28.–29.vi.1980 (4 ♂♂, MB). TANZANIA: West Lake: Bukoba, Minziro For., 1180 m, 4.ii.1995 (1 ♂, BJ); Mwanza: Nyanza, Südende des Victoria, Insel Ukerewe, v.1993 (1 ♂, ITZA); Kigoma: Tubira Forest, 1100 m, 8.vi.1989 (1 ♀, BJ), 21.vii. + 4.viii.1989 (2 ♂♂, BJ), Luegele, Mibanga, 24.v.1965 (1 ♂, BJ); Rukwa: Mpanda, Nkungwe, c.1150 m, 9.ii.1956 (1 ♂, BJ), Mpanda, Sibweza, 1100 m, 11.iii.1966 (1 ♀, BJ); Arusha: nr.Tarangira Nat.Park, Babati, 4°12'S 35°45'E, 31.iii.1995 (2 ♂♂, 3 ♀♀, SMNS); Mt.Meru Nat. Park, 2000 m, 7.vii.1970 (1 ♂, ZMUC); Chagga: Makoa [near Moshi], iv.1959 (1 ♀, SMNS); Tanga: Mal.Inst. Amani, vi.1965 (1 ♀, BMNH); Iringa: Iringa, 17.ii.1972 (1 ♀, BJ); Morogoro: Uluguru Mts., Morningside, 1200 m, 30.ii.1982 (1 ♂, BJ); Dar Es Salaam, 20.vi.1979 (1 ♂, ZMUC); Ruo Valley, Port E.Africa, iv.1913 (1 ♂, BMNH); Bumbuli bei Mombo, 1250 m, 25. + 30.iv.1933 (1 ♂, 1 ♀, SMFM); Mweka, 1.vii.1970 (1 ♀, ZMUC); Kidugallo, 1952 (1 ♀, ZMUC). ANGOLA: Cuanza Norte: 30 km N Ouiculungo, Ganzele, 27.ix.1957 (2 ♀♀, ZSSM). ZAMBIA: Kopperbelt: Ndola, Fatima School, 31.xii.1972 (1 ♀, ZSSM). MALAWI: Nyasaland, Mlanji Boma, 2400 ft, 26.iv.–4.v.1910 (2 ♀♀, BMNH), Nyasaland, Mt.Mljanje, 4.vii.1913 (1 ♂, BMNH), 28.ix.1913 (1 ♀, BMNH), Nyasa, Mlanje, ii.1923 (1 ♂, BMNH). NAMIBIA: Ovamboland: Andoni Plains, 18°29'S 16°48'E, 4.–5.iii.1994 (1 ♂, SMWN). ZIMBABWE: Salisbury, 20.iv.1963 (1 ♂, NMBZ); Umtali: Xmas Pass, 15.–16.iii.1926 (2 ♂♂, 1 ♀, BMNH), Chitara Hills, Banti Forest, above 5000 ft, 4.ix.1967 (1 ♀, NMBZ); Vumba, 18.v.1974 (1 ♂ MB), 12.x.1993 (2 ♂♂, MB); Melsetter: Mount Selinda, Chirinda Forest, 24.ix.1973 (1 ♂, NMBZ). Muller (1980: 78) lists several specimens of *A.bubo* from South Africa in TMPR.

Amerila castanea (Hampson) (Plate 7L)

Rhodogastria castanea Hampson, 1911: 412. Holotype ♂ (examined): Old Calabar, S.D.Crompton, 1901–1965. *Rhodogastria castanea* type ♂ Hmpsn./Type/Arctiidae genitalia slide no. 4386 [BMNH; abdomen dissected]. Type locality: NIGERIA: Old Calabar.

Description

Male. Fw length 24 mm; fw dark brown, the central area weakly scaled and largely transparent; fw veins finely lined with brown scales, somewhat broader along the discal vein;

hw weakly scaled, dark brown near the anterior and outer margin, centrally transparent, along the inner margin pale ochre. Head and thorax dorsally dark brown; tegulae with a single black spot basally; outer sides of legs dark brown, inner sides of femora, tibiae, and tarsi pinkish red. Abdomen dorsally reddish pink, without obvious androconial organs.

Male genitalia (Plate 9). Uncus short, with a roundish, setose flap, distally not pointed. Valvae large, triangular and distally tapering, outer surface with extrusible, long, hirsute, tube-like coremata. Inner sclerotized process large and smooth, strongly bent at its base, distally curved and extending beyond the ventral margin of the valva. Vesica distally with two strong, parallel, straight cornuti of unequal length fused at their base.

Female. Unknown.

Distribution. Nigeria; only known from the type locality.

Comments. This species is only based on the male holotype, but the distinctly shaped valvae of the male genitalia leave little doubt about its species status. Externally, however, it is similar to *A.fennia*, *A.puella*, *A.roseomarginata* and *A.vidua*. In *A.castanea*, the fw ground colour is paler brown than in *A.fennia* and *A.puella* (except the ssp. *invidua*), the central transparent area is more sharply bordered than in *A.vidua*, and the hw lacks the pinkish red tint present in *A.fennia* and *A.roseomarginata*.

***Amerila catinca* sp.n. (Plates 2C,D; 5D,E)**

Holotype ♂: Kenya, Shimba Hills, 19.viii.1979, leg. Boppré/*R.bubo* Walker/Genital-Präparat Nr. 95–60, Chr.Häuser/Holotypus, *Amerila catinca* Häuser & Boppré [SMNS; abdomen dissected]. Type locality. KENYA: Kwale: Shimba Hills. Paratypes: 61 ♂♂, 27 ♀♀, same locality data, 8.–29.vi.1980, 3.vi.1983, ix.1983, 15.vii.–27.ix.1985, 10.–16.ix.1987 (MB, BMNH, MNHU, SMNS, ZSSM).

Description

Male. Fw length 24–28 mm; wings, head, thorax, and base of abdomen white with a creamy tint; wings weakly scaled, partly transparent; fw veins dark, costa with a long areole extending from the base to about one-third of the total winglength, broad at the base and gradually tapering distally; fw basally and hw along outer and inner margins ivory-coloured. Tegulae with a conspicuous black spot basally and another, sometimes faint spot distally; legs yellow, outer sides of fore and mid femora and tibiae dusted with greyish ivory. Abdomen dorsally yellow, ventrally white; medially at the anterior margins of sternites IV to VI each a pocket with an extrusible brush of hair-like scales (cf. Plate 1B).

Male genitalia (Plate 9). Uncus short, triangular and distally pointed. Valvae large, oval-shaped, and distally rounded, outer

surface with long extrusible, hirsute, tube-like coremata. Inner sclerotized process large and smooth, slightly curved and apically pointed. Vesica distally with a single large, slender cornutus, strongly bent at its base, distally curved and apically pointed.

Female. As male, except fw costa without areole, hw white, and no abdominal androconial organs.

Distribution. East Africa; north-eastern Kenya to northern Tanzania; only known from the coastal region.

Comments. Specimens of this species have been known for some time, but in collections they were mostly misplaced under *A.bubo*. The male specimen in BMNH from Amani, Tanzania, is a paratype of *A.howardi*, and the male from Saadani, Tanzania, in MNHU is a paralectotype of *A.phaedra* (see below). From both *A.bubo* and *A.shimbaensis*, *A.catinca* is best told apart by the long areole in the male fw costa, and the presence of two conspicuous black spots on the tegulae.

Additional material examined. TANZANIA: Tanga: E.Usambara, Amani, ii.1953 (1 ♂, BMNH), xi.1965 (3 ♂♂, NMKE), 30.i.1981 (1 ♂, BJ); Arusha: nr. Tarangira Nat.Park, Babati, 31.iii.1996 (1 ♂, MB); Coast: Pwani, Saadani, 1891 (1 ♂, MNHU), Bagamoyo, Kiono Forest, Saadani, 16.i.1986 (1 ♂, BJ).

***Amerila femina* (Berio) (Plate 7G)**

Rhodogastria femina Berio, 1935: 26. Holotype ♂ (examined): Buea, 800–1200 m, 21.vi.902/*foemina*, Berio/20/*Rhod.fennia*, det. Dra.Aurivillius/Typus/Präparat Nr. 93–87, Chr.Häuser [MCSN; abdomen dissected]. Type locality: CAMEROON: Buea.

Description

Male. Fw length 31 mm; fw pale ochre-brown, the central area from base to the postdiscal region largely transparent; fw veins finely lined by brown scales, along the discal vein a broader border of pale brown scales; hw weakly scaled, pale pinkish ochre towards the apex, outer and anal margins. Head, thorax and base of abdomen dorsally pale brown; tegulae with a single black spot basally; outer sides of femora and tibiae dark brown, inner sides and tarsi pinkish red. Abdomen dorsally reddish, ventrally pale ochre, without obvious androconial organs.

Male genitalia (Plate 9). Uncus very short, broad and pointed. Valvae large, oval-shaped, distally with a distinct notch around the protruding inner sclerotized process, which is almost straight, smooth, and distally pointed. Vesica distally with two long, parallel, straight cornuti of unequal length fused at their base.

Female. Unknown.

Distribution. Cameroon; only known from the area of Mt Cameroon.

Comments. In the original description, the holotype is said to be a female (Berio, 1935: 26). The single male specimen present in the collection of MCSN, Genova, however, fits well the original description and has all corresponding labels, so the statement by Berio was presumably made erroneously.

The species is phenotypically similar to *A.fennia*, *A.puella*, *A.roseomarginata*, and *A.vidua*. Apart from its distinct male genitalia, it is larger than the other species.

Additional material examined. CAMEROON: Mt.Cam[eroon], 4.iv.1958 (1 ♂, ZMUC).

***Amerila fennia* (Druce) (Plates 3R; 7I)**

Pelochyta fennia Druce, 1887: 669. Lectotype ♂ (designated by Hampson, 1901: 503; examined): Gambia, A.Moloney/Joicey Bequest Brit.Mus. 1934–120./*Pelochyta fennia* Druce Type/Type/Arctiidae genitalia slide no. 4399 [BMNH; abdomen dissected]. Type locality: GAMBIA.

Rhodogastrina metasarca Hampson, 1911: 412. *Holotype* ♂ (examined): R.Niger. Sapele., F.W.Sampson, 99–107./*Rhodogastrina metasarca* type ♂. Hmpsn./Type/Arctiidae genitalia slide no. 4411 [BMNH; abdomen dissected]. Type locality: NIGERIA: Sapele. **Syn.n.**

Description

Male. Fw length 24–26 mm; fw dark brown with central area semitransparent, discally suffused with brown scales but postdiscally a well-defined transparent area between the radius and vein m2 with a sharp border towards the outer margin; fw veins finely lined with dark brown scales, a much broader dark streak along the discal vein; hw pinkish red, the central area partly transparent, and the apex and outer margin suffused with dark greyish brown scales. Head, thorax, and outer sides of hind legs dark ochre-brown, fore and mid legs on outer sides dark greyish brown, inner sides of all legs red; tegulae with a single black spot basally. Abdomen dorsally pinkish red, ventrally pale brown, sometimes with a reddish tint; two long brush-like androconial organs of pale-coloured hairs placed ventro-laterally in the intersegmental membrane anteriorly of the genital apparatus.

Male genitalia (Plate 9). Uncus short, broad triangular, with a small tip. Valvae short, oval-shaped and posteriorly rounded, outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process short and smooth, strongly curved and apically pointed. Vesica distally with two strong, straight, parallel cornuti fused at their base.

Female. As male but with slightly paler fw coloration.

Distribution. West, Central and East Africa; from Gambia to Nigeria, Cameroon, Gabon, Zaire, and Uganda.

Comments. In male genitalia, this species is very close to *A.roseomarginata*, and for some time we had been tempted to regard the two taxa as conspecific; also, there is no record of a truly sympatric occurrence of the two species despite their largely overlapping distribution ranges. The distinct phenotypic differences and minor but constant differences in the male genitalia give reason to classify them as different species. In *A.fennia*, the valvae are somewhat larger and more oval shaped, the inner sclerotized process has a distinct bend near its base which is orientated more dorsoventrally than in *A.roseomarginata*, and the membranous part of the vesica has two basal papillae which originate at about the same distance from the aedeagus.

In specimens from West Africa, Nigeria and Gabon the hw apex and the posterior half towards the outer margin is suffused with dark brown whereas Central and East African specimens tend to have more uniformly pink coloured hw.

Additional material examined. LIBERIA: Nimba, Grassfield, vi.–vii.1967 (1 ♀, NMKE), vii.–viii.1968 (1 ♂, NMKE). CÔTE D'IVOIRE: Tai N.P., 17.xii.1983 (2 ♂♂, RS); Tai N.P., Station Mata, 5.27 N 6.53 W, 18.–20.xi.1981 (2 ♂♂, 2 ♀♀, RS), 25.–26.iii.1983 (2 ♂♂, 1 ♀, RS); Bingerville, 10.–16.v.1915 (1 ♂, BMNH). GHANA: Central: Kakum National Park, nr. Cape Coast, 16.iv.1995 (1 ♂, MB), Kakum National Park, 30.v.1995 (1 ♂, MB). NIGERIA/CAMEROON: Owena, 14.vii.1957 (1 ♀, ZMUC). CAMEROON: Sud-Ouest: Kumba, 28.iii.1959 (2 ♂♂, ZMUC); Johann-Albrechts-Höhe, 1898 (1 ♀, BMNH); Elegele, 18.iii.1958 (1 ♀, ZMUC). GABON: Ogooué-Maritime: Port Gentil, viii.1969 (1 ♂, ZFMK); Moyen Ogooué: Lambarene (1 ♂, BMNH); N'Gounié: Muila (1 ♂, NMKE). ZAIRE: Kasai Occidental: Luluabourg [= Kananga], ix.1963 (2 ♂♂, 1 ♀, MRAC); Oriental: Sankuru, Lusambo, 13.viii.1950 (1 ♂, MRAC); Shaba: Lulua, Kapanga (1 ♀, MRAC). UGANDA: Toro, Kibale Forest, v.1966 (1 ♂, NMKE); Kallinzu Forest, 7.–10.i.1965 (1 ♂, ZSSM), Kalinzu Forest, vi.1970 (1 ♂, NMKE).

***Amerila fuscivena* (Hampson) (Plate 4A)**

Rhodogastrina fuscivena Hampson, 1916: 240. *Holotype* ♂ (examined): Uganda. Toro. Mpanga Forest. 4800 ft 16.xi.1911. S.A.Neave. 1912–204./*Rhodogastrina fuscivena* type ♂ Hmpsn./Type, H.T./Arctiidae genitalia slide no. 4371 [BMNH; abdomen dissected]. Type locality: UGANDA: Toro, Mpanga Forest.

Description

Male. Fw length 26 mm; all wings pale brownish to ivory-coloured, weakly scaled; fw overall partly transparent but veins dark, and costa with a long areole extending from the base to one third of the total winglength, broad at base and gradually

tapering distally; hw veins not darkened. Head, patagiae, tegulae, and thorax dorsally brownish ivory; tegulae with two black spots, one basally and another one distally; outer sides of femora and tibiae brownish ivory, inner sides of femora and tibiae, as well as tarsi pinkish red. Abdomen dorsally brownish ivory, the terminal half suffused with pinkish red.

Male genitalia (Plate 10). Uncus short, triangular, distally not pointed. Valvae large, oval-shaped, distally rounded; outer surface without extrusible coremata; inner sclerotized process short and strongly bent, with a group of larger spines at the outer side of its base. Vesica distally with two large, straight, parallel cornuti which are not fused at their base.

Female. Unknown.

Distribution. East Africa; Uganda.

Comments. This distinctive species is only known from the male holotype.

***Amerila howardi* (Pinhey) (Plates 2H; 5I)**

Rhodogastria howardi Pinhey, 1955: 14. Holotype ♂ (examined): Amani Ta., E.Usambara Mts., ii.1953, E.Pinhey/Holotype *Rhodogastria howardi* Pinh. ♂ 1954/Brit.Mus., 1954–346./Type [BMNH]. Type locality: TANZANIA: Usambara Mountains, Amani.

Description

Male. Fw length 26–29 mm; fw white, weakly scaled and largely transparent, veins dark; fw costa with a long areole extending from the base to about one third of the total winglength, broad at base and sharply tapering distally; hw white on the anterior half, posteriorly and towards the anal angle cream- to ivory-coloured, more densely scaled, and interspersed with long, hair-like androconial scales; hw shape slightly concave at the outer margin towards the anal angle. Head, thorax, and base of abdomen dorsally white; outer sides of femora and tibiae greyish white, inner sides of femora, tibiae, and tarsi red; tegulae with two faint black spots, one basally and another one apically. Abdomen dorsally yellow, ventrally white; the anterior margin of sternite IV covered with a band of velvet-like scales.

Male genitalia (Plate 10). Uncus very small, triangular and pointed. Valvae short, distally not rounded; outer surface without extrusible coremata; inner sclerotized process short, strongly bent inwards, and with about a dozen short spines on the outer side of its base. Vesica distally with a single large, slender, slightly curved cornutus.

Female. Similar to male; fw without areole, hw uniformly white, without the ivory-coloured posterior half and the hair-like scales, and the anal angle rounded.

Distribution. East Africa; north-eastern Tanzania; only known from the Usambara mountains.

Comments. This species is similar to *A.catinca*, with which it occurs sympatrically. When examining the type series of *A.howardi* deposited at the BMNH, a male paratype was actually found to belong to *A.catinca* (see above). Apart from the differences in genitalia, males of the two species can best be told apart by the hw shape: in *A.catinca*, the outer hw margin is straight and the anal angle is rounded, whereas it is concave in *A.howardi* with the anal angle somewhat protruding. Furthermore, the inner sides of femora, tibiae, and tarsae are red in *A.howardi* but yellow in *A.catinca*.

Additional material examined. TANZANIA: Tanga: E.Usambara Mts, Amani, ii.1953 (1 ♂, BMNH); Mal.Inst. Amani, vi.1965 (1 ♂, BMNH); Usambara-Berge, Amani, 7.–23.iv.1962 (2 ♂♂, 1 ♀, ZSSM); Bumbuli bei Mombo, 1250 m, 25.iv.1933 (1 ♂, SMFM).

***Amerila kiellandi* sp.n. (Plate 5 M)**

Holotype ♂: 35383, 22.ix.1967, Kampisa J.K., Mpanda, 1500 m/Genital-Präparat Nr. 96–24, Chr.Häuser/Holotypus, *Amerila kiellandi* Häuser & Boppré [presented to BMNH; abdomen dissected]. Type locality: TANZANIA: Mpanda, Kampisa.

Description

Male. Fw length 24 mm; wings, head, thorax and abdomen dorsally white; wings weakly scaled, partly transparent; fw costa with a long areole which extends from the base to about one third of the total winglength, broad at base and gradually tapering distally. Antennae black, red towards the base; tegulae with two faint black spots, one basally and one distally; legs pinkish red, outer sides of femora and tibiae white. Abdomen ventrally pale yellowish brown, the anterior margins of abdominal tergites III and IV with a band of dark, velvet-like scales.

Male genitalia (Plate 10). Uncus small, broad triangular, and distally not pointed. Valvae large, oval-shaped, and distally rounded; outer surface without extrusible coremata; inner sclerotized process short, distally bent inwards and pointed, and with a group of spines on the outer side towards its base. Vesica distally with a single strong, relatively short and pointed, almost straight cornutus.

Distribution. East Africa; Tanzania; only known from the type locality.

Comments. With some reluctance we base the description of this new species on the single specimen available. The unique features of the male genitalia together with the phenotypic characters, however, clearly support species status. Superficially

A.kiellandi is quite similar to *A.mulleri*, from which it is readily distinguished by the presence of the long fw areole.

The species is dedicated to the late Jan Kielland, a renowned worker on the butterflies of Tanzania, who also collected many moths at light traps among which was the holotype of this species.

***Amerila leucoptera* (Hampson) (Plates 2I,K; 5N,O)**

Rhodogastris leucoptera Hampson, 1901: 506. Holotype ♀ (examined): S.Leone, 94–214/*Rhodogastris leucoptera*., type ♀. Hmpsn./Type/Arctiidae ♀ Genitalia Slide VU no. 831/Arctiidae genitalia slide no. 3048 [BMNH; abdomen dissected]. Type locality: SIERRA LEONE.

Rhodogastris pannosa Grünberg, 1908: 62. Holotype ♂ (examined): Uganda, Grauer S.V./*Rhodogastris* n. sp./*Rhodogastris pannosa* Grünberg, 1908 Sitz.ber.naturf.Gs. Berlin, p.62., t.3, f.4./2113a/77234/Holotypus, *Rhodogastris pannosa* Grünberg, 1908, det. Chr.Häuser [MNHU]. Type locality: UGANDA. **Syn.n.**

Rhodogastris sarconota Hampson, 1911: 411. Synonymized with *Rhodogastris pannosa* by Hampson (1920: 518). Holotype ♂ (examined): S.Nigeria., Aro, 1.iii.1910, C.M. Gray, 1910–257./*Rhodogastris sarconota*., type ♂. Hmpsn./Type/Arctiidae genitalia slide no. 4393 [BMNH; abdomen dissected]. Type locality: NIGERIA: Aro.

Description

Male. Fw length 21–25 mm; fw pale to dark brown, the discal cell and the postdiscal area between the radius and vein m2 transparent; the discal vein finely lined with dark scales; hw anteriorly of vein m3 dark brown, the posterior part pale yellowish brown, towards the inner angle dorsally with long, hair-like scales; hw shape concave along the outer margin towards the anal angle. Head, thorax, outer sides of femora and hind tibiae pale greyish brown; outer sides of fore and mid tibiae dark brown, inner sides of legs and tarsi red; tegulae with a single black conspicuous basal spot. Abdomen dorsally pale pink, the last one or two segments red, ventrally pale brown, without obvious androconial organs.

Male genitalia (Plate 10). Uncus small, triangular, and distally pointed. Valvae short and broad, almost square-shaped, distally not rounded; outer surface with a long extrusible, tube-like corema; inner sclerotized process curved, with 3–5 large spines along the outer side. Vesica basally with two large, parallel, slightly curved cornuti, and distally with an area of numerous parallel, small to medium-size, mostly straight cornuti.

Female. Fw length 25–27 mm; wings, body, and base of abdomen white; wings weakly scaled, but veins not dark; hw shape as in male. Abdomen dorsally red, ventrally white.

Female genitalia. Bursa copulatrix with three rows of spinose signa and a plate-like sclerotization, without any appendix.

Distribution. West, Central, and East Africa; from southern Senegal to Uganda, western Tanzania, and Zambia.

Comments. The striking sexual dimorphism in this species has caused considerable taxonomic confusion in the past. Previously, both in the literature and in collections, females of *A.leucoptera* were generally incorrectly associated with males of other white-coloured species with a red abdomen, in particular with *A.niveivitrea* (see below), whereas *A.pannosa* has hitherto been always treated as a quite different species (Gaede, 1926; Goodger & Watson, 1995). It was only through breeding experiments in the laboratory (M. Boppré, unpublished data) that the conspecificity of the sexes could be demonstrated. In this respect *A.leucoptera* is similar to *A.phaedra* (see below), which is confined to Eastern Africa. As the first rearings had been conducted with the latter species, Boppré (1981b) first synonymized *A.leucoptera* erroneously with *A.phaedra*.

Additional material examined. SENEGAL: Casamance: Sédhiou, 4.i.1917 (1 ♂, BMNH); Mfak, 11 km S Ziguinchor, 8.xi.1977 (1 ♀, DSLU). SIERRA LEONE: (1 ♀, BMNH); Free Town, 4.ix.1899 (1 ♀, BMNH); Makeni, 27.–28.xi.1993 (3 ♀♀, DSLU). CÔTE D'IVOIRE: Tai Nationalpark, 12.xi.1983 (1 ♀, ZSSM); Mankono, Marahou Ranch, 330–400 m, 18.v.–26.vi.1986 (81 ♂♂, 14 ♀♀, RS, SMNS, ZFMK); 20 km E Bouaflé, Titekro, 25.i.1984 (1 ♂, ITZA). GHANA: Ashanti: Kumasi-Kwadaso, 300 m, iv.1970 (4 ♀♀, ZSSM), Kwadaso, 26.iv.–12.v.1995 (1 ♂, 4 ♀♀, MB); Eastern: Abetifi, 24.–31.viii.1993 (1 ♀, LK). BENIN: Zou, Bohicon, Lama-Forest, 14.–21.xi.1991 (8 ♂♂, 9 ♀♀, MB). NIGERIA: Oyo: Ibadan, i.–vi.1954 (2 ♂♂, ZMUC); Federal Capital Territory: Abuja, ix.1981 (2 ♀♀, ZFMK); Kaduna: Kaduna, 1.–27.vii.1970 (2 ♂♂, 6 ♀♀, ZSSM), 7.–24.ix.1970 (3 ♂♂, 3 ♀♀, ZSSM), 21.v.1971 (1 ♀, ZSSM), 12.–28.vii.1971 (2 ♂♂, ZSSM); Cross River: Calabar, i.1975 (1 ♀, ZFMK). CAMEROON: Camaroon (1 ♀, MNHU); Nord: Adamaoua, ≈ 20 km S Minim, 6.49 N, 12.50 E, 1200 m, 12.xi.–12.xii.1979 (1 ♂, BGSS). ZAIRE: Leopoldville [= Kinshasa], 20.v.1949 (1 ♂, MRAC), 19.vii.1955 (1 ♂, MRAC), 12.xii.1955 (1 ♂, MRAC); Kasai Oriental: Lusambo, x.1950 (1 ♂, MRAC); Haut-Zaire: Ituri, Nioka, vi.–x.1976 (1 ♂, SMNS). UGANDA: Entebbe, Zika Forest, ii.–iv.1961 (1 ♂, NMBZ). TANZANIA: Kigoma: 5 km N Basanza, 1180 m, 5.i.1990 (1 ♂, BJ); Mpanda: Mpanda road, 37 km S Uvinza, 1550 m, 18.viii.1989 (1 ♂, BJ). ZAMBIA: N.Mwinilunga, Sakeji River, Ikelenge, 11.iv.1972 (2 ♂♂, NMBZ), 6.V.1972 (1 ♂, NMBZ).

***Amerila lineolata* (Kiriakoff) (Plates 2A; 4H)**

Gastrochrysis lineolata Kiriakoff, 1954: 187. Holotype ♀ (examined): Elisabethville, 13.iv.1953; genitalia slide no. 61 [MRAC; abdomen dissected]. Type locality: ZAIRE: Lubumbashi.

Description

Male. Fw length 20 mm; fw dorsally pale ivory-coloured, all veins finely lined with dark scales, a broader dark streak along the discal vein; all wings uniformly scaled, without any transparent area; hw pale yellowish brown, weakly scaled, the anterior margin white; fw ventrally white, the medial area yellowish brown. Head, thorax, and dorsal base of abdomen pale ivory-coloured; outer sides of femora, tibiae and basal tarsal segments white, inside of fore femora red, inner sides of mid and hind legs creamy yellow, tarsi yellowish brown; tegulae with a single weak black spot anteriorly extending posteriorly into a faded line. Abdomen dorsally pale yellow, ventrally white; in the membraneous area between segment VIII and the genital apparatus dorso-laterally on both sides with large, androconial brushes of long, dark, hair-like scales.

Male genitalia (Plate 10). Uncus short, triangular, with a blunt tip. Valvae small, oval-shaped, distally rounded, outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process short, slender, smooth, and curved. Vesica distally with two straight, parallel cornuti of slightly unequal size, fused at their base.

Female. As male.

Distribution. Central Africa; southern Zaire; only known from Lubumbashi.

Comments. The female of this species is similar to *A. androfusca*, but considerably smaller. In the male genitalia, *A. lineolata* is also close to *A. androfusca* and agrees well with other African *Amerila*. Therefore, we see no reason to place this species in a separate genus as proposed in the original description by Kiriakoff (1954).

Additional material examined. ZAIRE: Elisabethville [= Lubumbashi], 9.x.1958 (1 ♂, ZSSM).

***Amerila lupia* (Druce) (Plates 2B; 4F)**

Pelochyta lupia Druce, 1887: 669. Holotype ♂ (examined): Delagoa Bay, Mrs. Monteiro; *Pelochyta lupia*, type Druce./ Joicey Bequest., Brit. Mus. 1934–120./Type, H.T./Arctiidae ♂ Genitalia Slide VU no. 7.28/Arctiidae genitalia slide no. 3520 [BMNH; abdomen dissected]. Type locality: MOZAMBIQUE: Delagoa Bay [= Baía de Lourenço Marques].

Amerila nivaria Weymer, 1892: 105. Synonymized by Hampson (1901: 499). Holotype ♀ (examined): Saadani, 1891 Schubart/2109./Coll. Weymer/2109./Type/*Amerila nivaria*. Stett. Ztg. 92, 105./Holotypus, *Amerila nivaria* Weymer, det. Chr. Häuser [MNHU]. Type locality: TANZANIA: Sadani.

Rhodogastria sanguinota Strand, 1911: 586. Synonymized by Gaede (1926: 109). Holotype ♂ (examined): D.O. Afrika, Daressalam, ii.1909, Reuss S.G.; 134./♂./*Rhodogastria*,

fehlt bei, Hampson ! (2115–2123)/Type/*Rhodogastria sanguinota*, Strand det., m. ♂/Holotypus, *Rhodogastria sanguinota* Strand, 1911, det. Chr. Häuser [MNHU]. Type locality: TANZANIA: Daressalam.

Description

Male. Fw length 18–21 mm; fw white, weakly scaled, and central area partly transparent; fw veins dark, the discal vein finely lined with dark grey scales, and postdiscally a narrow, faint, transversal grey line; hw uniformly white, weakly scaled. Head, thorax, and base of abdomen white; tegulae with a single small, often faint black spot basally; legs all white, but inner sides of femora, tibiae, and tarsi of forelegs, and mid- and hindtarsi red. Abdomen dorsally pinkish red, ventrally white, without obvious androconial organs.

Male genitalia (Plate 10). Uncus very small, triangular, and setose. Valvae small, roundish, distally rounded, outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process short, slender, and smooth, only slightly curved. Vesica distally with two small, slender, almost straight cornuti fused at their base.

Female. As male.

Female genitalia. Bursa copulatrix small, corpus bursae with several small signa along a U-shaped line, and one larger spinose signa.

Distribution. East and South Africa; from central and eastern Kenya to the Cape.

Comments. In the original description of *A. sanguinota* by Strand (l.c.), the type is said to be a female. This statement is clearly erroneous as on the determination label attached to the specimen, presumably in Strand's own hand, is correctly indicated '♂'.

This species is similar to *A. ruffifemur* from Zaire and Angola, of which only two female specimens are known. As no area of sympatric occurrence is known, the two taxa could be conspecific and might just represent different subspecies. Here, we follow previous authors (Hampson, 1901; Gaede, 1926; Goodger & Watson, 1995) and retain them as different species, a view which can be further supported by differences in the arrangement of the signa in the bursa copulatrix.

Additional material examined. KENYA: Eastern: Marsabit, x.–xi.1971 (1 ♂, NMKE); Central: Kyambu, 18.vii.1919 (1 ♂, 1 ♀, BMNH), Nairobi, Ngong, vii.1951 (1 ♂, NMKE); Coast: Kilifi: Gedi, Sokoke Forest, i.1967 (1 ♂, NMKE); Kwale: Mombasa, Nyali, 29.vi.1980 (1 ♀, MB), Shimba Hills, 29.vi.1980 (1 ♂, MB), 11.–12.vii.1980 (2 ♀♀, MB), 3.–21.viii.1983 (4 ♂♂, 8 ♀♀, MB), 27.viii.1985 (3 ♂♂, MB). TANZANIA: Tanga: Amani, iv.1961 (1 ♂, BMNH), Mal.Inst. Amani, x.1962 (1 ♂, NMBZ), E.Usambara, Amani, xi.1965 (1 ♂, NMKE), 3.i.1981 (1 ♂, BJ), Mombo, B.L.J. Amani (1 ♂,

MNHU), Bumbuli bei Mombo, 1250 m, 31.iii.1933 (1 ♂, SMFM); Morogoro: Uluguru, 5000', 6.xii.1967 (1 ♂, BJ), Uluguru Mts, Morningside, 1200 m, 30.xi.–2.xii.1982 (1 ♂, 2 ♀♀, BJ). ZIMBABWE: Vumba, 26.x.1961 (1 ♀, NMBZ); Gimson, 1908 (1 ♂, 1 ♀, BMNH). SOUTH AFRICA: Transkei: East Pondoland (1 ♂, BMNH), Pondoland, Port St. John, 6.–25.ii.1924 (1 ♀, BMNH); Transvaal: Bushveld, Krodilspoorberge, 25 km SE Nelspruit, 1500 m, 31.i.–2.ii.1989 (2 ♂♂, WT); Natal: Tongaat, 21.iv.1971 (1 ♀, NMBZ), Sodwana Bay, 0 m, 9.–10.ii.1989 (3 ♂♂, WT), St. Lucia, Carters Creek, 0 m, 11.ii.1989 (4 ♂♂, 2 ♀♀, WT), St. Lucia Estuary, 0–20 m, 12.–13.ii.1989 (1 ♀, WT), Durban, viii.1901 (1 ♀, BMNH), 2.vii.1906 (1 ♂, ZSSM), iii.1907 (1 ♂, 1 ♀, BMNH), 1920 (1 ♂, BMNH).

Amerila luteibarba (Hampson) (Plates 30; 6D)

Rhodogastria luteibarba Hampson, 1901: 502. Lectotype ♂ (here designated): S.Nigeria, Abutshi., P.H.Newman, 1900–181./*Rhodogastria luteibarba*., type ♂. Hmpsn./Type/Lectotype ♂, *Rhodogastria luteibarba* Hampson, des. by S.Muller, 1980/Arctiidae ♂ Genitalia Slide VU 12.54/Arctiidae genitalia slide no. 3051/Lecto-Type [BMNH; abdomen dissected]. Type locality: NIGERIA: Abutshi.

Description

Male. Fw length 19–21 mm; fw along costal and inner margin pale greyish brown, the apex darker brown, and the central area largely transparent, towards the apex sharply defined; fw veins finely lined with dark scales, particularly along the discal vein; hw greyish brown along the costal and outer margin, the apex somewhat darker, pale ochre along the inner margin, and the central area transparent. Head, thorax, and base of abdomen dorsally dark greyish brown; tegulae with a single conspicuous black spot basally, and another small, sometimes faint spot distally; coxae dark fuscous brown, outer sides of femora, tibiae, and tarsi pale brown, inner sides red. Abdomen dorsally pinkish red, slightly darker red towards the tip, ventrally pale ochre, sometimes with a faint pinkish tint; the anterior margin of the abdominal tergites III to VI with a narrow band of velvet-like, presumably androconial scales, somewhat broader on segments III and IV (cf. Plate 1C); laterally, the intersegmental pleural membrane between the abdominal segments IV and VI each with an extrusible, small roundish, membranous, vesicle-like projection.

Male genitalia (Plate 11). Uncus small, short, narrow triangular and distally pointed. Valvae short, oval-shaped, and distally rounded; outer surface without extrusible coremata; inner sclerotized process short, slender, orientated ventrally, curved, and apically pointed, with a few spines on the outer side at the base. Vesica with two separate cornuti; distally a large, almost straight cornutus, and medially a somewhat shorter, curved cornutus.

Female. As male, except for the abdominal androconial organs.

Distribution. West, Central, and East Africa; from Sierra Leone to Cameroon and Angola, Zaire, Uganda, western Kenya, and northern Tanzania.

Comments. *Amerila luteibarba* is similar to *A. affinis* with which it coexists in southern Zaire, Kenya, and Tanzania; for differentiating characters, see under that species.

Additional material examined. SIERRA LEONE: Southern: Moyamba, 6.iii.1902 (1 ♂, BMNH). LIBERIA: Bong Town, 6.48 N, 10.21 W, 18.iv.1985 (1 ♂, GA); Nimba, Grassfield, vi.–vii.1967 (1 ♂, NMKE). CÔTE D'IVOIRE: Mankono, Marahoue Ranch, 330–400 m, 8.22 N 6.23 W, 15.xi.–15.xii.1981 (4 ♂♂, 2 ♀♀, RS), 8.xi.1982 (1 ♂, RS), xii.1983 (3 ♂♂, RS), 24.–28.v.1986 (10 ♂♂, 2 ♀♀, RS), 3.–17.vi.1986 (42 ♂♂, 12 ♀♀, RS), 22.vi.1986 (3 ♂♂, 1 ♀, RS), 28.vi.1986 (2 ♀♀, RS); Badenou, S Mbingue, 9.50 N 5.50 W, 2.xii.1983 (1 ♂, RS); Tai Nationalpark, 16.iv.1982 (1 ♂, ZSSM), 17.xii.1983 (4 ♂♂, RS), Station Mata, 5.27 N 6.53 W, 18.–20.xi.1981 (1 ♂, RS); Bingerville, xi.1913 (1 ♂, BMNH), 20.v.–20.vi.1915 (5 ♂♂, BMNH), 1.vii.–25.viii.1915 (11 ♂, BMNH); Deimba, 17.ii.1903 (1 ♂, BMNH); Asorokrou, 18.–20.ii.1903 (3 ♂♂, BMNH); Morisano, 15.ii.1903 (3 ♂♂, BMNH); Daloa, 22.vii.1983 (1 ♂, ITZA); Bouaflé, 11.viii.1983 (2 ♀♀, ITZA), 24.viii.1983 (1 ♂, ITZA), 15 km E Bouaflé, Pakodji near Degbézéré, 21.xi.1983 (1 ♂, ITZA), 23.i.1984 (1 ♂, ITZA), Bouitha near Degbézéré, 31.i.1984 (1 ♂, 1 ♀, ITZA), 20 km E Bouaflé, Titekro, 18.i.1984 (1 ♀, ITZA); vic. Man, 9.viii.1986 (1 ♂, SMNS). GHANA: Brong Ahafo: Yamfo, 15.–20.x.1993 (1 ♂, 1 ♀, LK); Abetifi, 24.–31.viii.1993 (2 ♂♂, 2 ♀♀, LK); Ashanti: Kumasi-Kwadaso, 300 m, 29.i.–1.ii.1970 (6 ♂♂, 3 ♀♀, ZSSM), iv.1970 (2 ♂♂, ZSSM), vii.1970 (2 ♂♂, ZSSM), Kumasi (3 ♂♂, BMNH), Kwadaso, 29.iv.1995 (2 ♂♂, 2 ♀♀, MB), 22.–31.v.1995 (2 ♂♂, 4 ♀♀, MB), Bobiri, 27.iv.1995 (9 ♂♂, 1 ♀, MB), 8.v.1995 (13 ♂♂, 1 ♀, MB); Central: Kakum NP, 29.–30.v.1995 (43 ♂♂, MB); Anfoega, 1956 (1 ♂, AMES), 20.v.1958 (1 ♂, AMES); Ho, 20.vi. + 1.vii.1956 (2 ♂♂, AMES). BENIN: Zou, Bohicon, Lama-Forest, 19.xi.–20.xii.1991 (1 ♀, MB). NIGERIA: Oyo: Ibadan, i.–vi.1954 (5 ♂♂, 1 ♀, ZMUC); Lagos (3 ♀♀, BMNH); Bendei: Wari, vi.1897 (1 ♂, BMNH); Federal Capital Territory: Abuja, ix.1981 (2 ♂♂, ZFMK); Cross River: Calabar, i.1975 (1 ♀, ZFMK). NIGERIA/CAMEROON: Owenna, 19.–20.vii.1957 (2 ♂♂, 1 ♀, ZMUC). CAMEROON: Nord: Adamaoua, ≈ 20 km S Minim, 6.49 N, 12.50 E, 1200 m, 5.ii.–5.iii.1980 (1 ♂, BGSS); Bitey, Ja River, 2000 ft (1 ♂, 1 ♀, BMNH); NW Bafia, 5 km N Bayomen, 14.i.1978 (1 ♂, 2 ♀♀, DSLU); Momfe (2 ♂♂, SMFM); Est: Lomié, 4.ix.1962 (1 ♂, NMBZ). GABON: Gamba Terminao, 1 km van zee, iii.1967 (1 ♂, ITZA). ZAIRE: Kikwit, Pay, 29.i.1982 (1 ♂, MB); Kivu: Irangi, Enbe, xi.1966 (1 ♂, SMNS), 4.iv.1967 (1 ♂, SMNS). RWANDA: Cyangugu, Gitura, 1700 m, 8.x.1993 (1 ♂, SMNS). UGANDA: Entebbe, Zika Forest, vii.1961 (1 ♂, NMBZ); Masindi: Budongo Forest, Sousou, vii.–viii.1995 (24 ♂♂, 3 ♀♀, SMNS, ZFMK); Kallinzu Forest, viii.1964 (2 ♀♀, ZSSM), 7.–10.i.1965 (1 ♂, 1 ♀,

ZSSM); S.Toro, Mbarara-Ft Portal Rd., 3,800–4200 ft, 27.x.1911 (1 ♂, BMNH); Kisubi, 8.v.1964 (1 ♀, SMNS); Bwamba Toro (1 ♂, NMBZ). KENYA: Kakamega: Kakamega Forest, 22.viii.1979 (2 ♂♂, MB), 1.ix.1983 (1 ♂, MB), 16.vi.1991 (1 ♂, MB). TANZANIA: West Lake: Bukoba, Minziro For., 1180 m, 16.ii.1993 (1 ♂, BJ); Bukoba, Kikuru F., Ruzinga, c.1200 m, 14.iii.1993 (1 ♂, BJ); Mwanza: Geita district, Rubondo Island, 1140 m, 26.i.1991 (1 ♂, BJ). ANGOLA: Cuanza Norte: 30 km N Ouiculungo, Canzele, 12.ix.1957 (2 ♂♂, ZSSM), 18. + 22.x.1957 (1 ♂, 3 ♀♀, ZSSM).

***Amerila madagascariensis* (Boisduval) (Plate 6I)**

Chelonia madagascariensis Boisduval, 1847: 598. Syntypes [current depository unknown, possibly lost]. Type locality: SOUTH AFRICA: 'Baie de Port-Natal' [most probably erroneous].

Aganais vitripennis Blanchard, 1849: pl. 13. Synonymized by Hampson (1920: 524). Syntypes [current depository unknown, possibly lost]. Type locality: MADAGASCAR.

Amblythyris radama Mabille, 1879: 137. Synonymized by Kirby (1892: 194). Lectotype ♀ (designated by Viette & Fletcher, 1968: 406; examined): Mab./Rhadama Bd madagascaar/Ex Musaeo Dris. Boisduval; Ex Oberthür Coll., Brit.Mus. 1927–3./*Amblythyris radama* Mabille Lectotype ♀, D.S.Fletcher sel. 1966./Lecto-Type [BMNH]. Type locality: MADAGASCAR.

Description

Male. Fw length 31–33 mm; fw pale orange ochre, with the central area transparent almost from the base to the postdiscal region, sharply bordered towards the outer margin; fw veins dark, discal vein broadly lined with pale brown scales; hw pinkish red, weakly scaled and almost transparent, more densely scaled towards the anal margin. Head, thorax and outer sides of femora pale ochre with a pinkish-orange tint, inner sides of femora and distal parts of all legs red; tegulae with a single black spot basally. Abdomen dorsally bright pinkish red, ventrally greyish white, without obvious androconial organs.

Male genitalia (Plate 11). Uncus short, broad triangular, and distally pointed. Valvae large, posteriorly square-shaped, and distally rounded; outer surface without extrusible coremata; inner sclerotized process short and smooth, bent at a right angle near its base, distally straight, and apically pointed with a small hook. Vesica distally with two strong, parallel, slightly curved cornuti of unequal length fused at their base.

Female. As male.

Distribution. Confined to Madagascar.

Comments. *Amerila madagascariensis* was synonymized erroneously by Hampson (1901: 504) with *A.astreus* (Drury,

1773), a species from India, but subsequently he accepted *madagascariensis* as a separate species (Hampson, 1920: 524). Despite the fact that the types of *A.madagascariensis* and *A.radama* could not be examined, the identity of the taxa listed above appears well established from the original descriptions. *Amerila madagascariensis* is generally similar to *A.bauri* from South Africa, but easily distinguished both externally and from the ♂ genitalia.

Additional material examined. MADAGASCAR: Diego Suarez, 3.v.1917 (1 ♀, BMNH), 12.vii.–25.viii.1917 (3 ♂♂, 3 ♀♀, BMNH); Miarinarivo (1 ♂, 1 ♀, BMNH); Ambrosita (1 ♂, BMNH); Tananarive (1 ♀, BMNH); Flanarantsoa, Ambodi Kimba, 1000 m, 1934 (1 ♂, SMFM); R.N.7, 64 km E Tuléar, Foret d'Andranovary, 500 m, 15.–21.i.1969 (1 ♂, MB).

***Amerila magnifica* (Rothschild) (Plate 6G)**

Rhodogastria magnifica Rothschild, 1910: 183. Holotype ♂ (examined): Brit.E.Africa/*Rhodogastria magnifica* Rothsch. Type/Rothschild Bequest, B.M.1939–1./Type/Arctiidae genitalia slide no. 4427 [BMNH; abdomen dissected]. Type locality: KENYA.

Description

Male. Fw length 33 mm; fw ground-colour white, discal area with a broad transverse fuscous brown band from the costal margin to the outer angle of the hind margin; fw apex also fuscous brown extending further along the costal and outer margin; fw veins dark, discal vein lined with dark brown scales, costa with a short, very broad areole at the base and a short, narrow, transverse dark brown band; hw white, weakly scaled, shape of outer margin slightly concave towards the anal angle. Head, thorax, and base of abdomen dorsally white; tegulae with a single conspicuous black spot basally; outer sides of femora white, fore tibiae and tarsi dark brown, inner sides and all other parts of the legs yellow. Abdomen dorsally white from base to segment IV, the posterior segments dark red, ventrally all white.

Male genitalia (Plate 11). Uncus long and narrow, the tip curved ventrally and pointed. Valvae large, oval-shaped but not very broad; outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process large, strongly curved and hook-like, apically pointed. Vesica distally with a plate-like sclerotization, but without any cornuti.

Female. As male but larger (fw length 36 mm) and fw costa without areole.

Distribution. East Africa; Kenya, Zimbabwe.

Comments. Despite its conspicuous appearance this species is only known from four specimens. Both in phenotype and

genitalia, *A. magnifica* is quite distinct from other African *Amerila*.

Additional material examined. KENYA: Siluve, 26.i.1963 (1 ♀, BMNH), 'Siluve P.E.A., 15.i.1964 (1 ♀, NMBZ). ZIMBABWE: Vumba, 12.i.1962 (1 ♂, NMBZ).

***Amerila makadara* sp.n. (Plates 3S; 7E)**

Holotype ♂: Kenya – Coast, Kwale district, Shimba Hills NR, 10.–16.ix.1987, M.Boppré leg./Genital-Präparat Nr. 95–61, Chr.Häuser/Holotypus, *Amerila makadara* Häuser & Boppré [SMNS; abdomen dissected]. Type locality: KENYA: Coast: Kwale: Shimba Hills. Paratypes: same data as holotype: 2 ♂♂ 27.–28.vi.1980, 1 ♀ 10.viii.1983, 1 ♀ 1984, 3 ♂♂ 15.vii.–27.ix.1985, 1 ♂ xii.1991, 3 ♂♂, 1 ♀ 10.–16.ix.1987; 1 ♂: Kwale, Shimba Hills, 700 m, 8.iv.1995, H.Probst leg. [MB, BMNH, SMNS].

Description

Male. Fw length 23–27 mm; fw dark reddish brown with the central area semitransparent, partly suffused with brown scales; fw veins finely lined with brown scales, a broader dark streak along the discal vein; hw pinkish red, weakly scaled, the central area partly transparent, darker towards the outer margin. Head, thorax, and outer sides of fore and mid tibiae and tarsi dark reddish brown, femora, inner sides and hind legs red; tegulae with a single black spot basally. Abdomen dorsally pinkish red, darker red towards the tip, ventrally pale brown with a pinkish tint, without obvious androconial organs.

Male genitalia (Plate 11). Uncus small, broad triangular, and distally pointed. Valvae large, oval-shaped, and distally rounded; outer surface with long extrusible, hirsute, tube-like coremata which end distally in a brush of fine hairs; inner process short, slender and smooth, slightly curved and apically pointed, extending narrowly beyond the posterior margin of the valva. Vesica distally with two long, slightly curved, parallel cornuti of unequal size fused at their base.

Female. As male.

Distribution. East Africa; Kenya, Tanzania.

Comments. This species is externally similar to *A. fennia* (which is not known to occur in eastern Africa), *A. puella* ssp. *carneola*, and *A. roseomarginata*. In *A. makadara*, the central fw area is much less transparent than in *A. roseomarginata*, and the ground coloration is more pinkish red than in either of the two species. With regard to male genitalia, *A. makadara* is similar to *A. puella*, which has a more roundish valva, a shorter inner sclerotized process, and longer, more curved cornuti on the vesica. In addition, the tube-like coremata in *A. makadara* have distally fine hairs, not broad scales. In contrast to *A. fennia*

and *A. roseomarginata*, *A. makadara* has no androconial brushes anteriorly of the genital apparatus.

Additional material examined. KENYA: Aberdares, The Ark, 11.xii.1991 (1 ♂, MB). TANZANIA: Tanga: Amani (1 ♂, BMNH); Amani, Usambara, 1000 m, 27.vi.1970 (1 ♀, ZMUC), E.Usambara Mts., Amani, ii. 1953 (1 ♀, NMKE); Kilimandjaro, Marangu, 1500 m, 1958 (1 ♂, ZSSM), 22.ix.1968 (1 ♂, ZSSM), Marangu, 9.viii.1978 (1 ♂, ZMUC), 29.iii.1995 (1 ♂, MB).

***Amerila mulleri* sp.n. (Plate 4D,E)**

Holotype ♂: Zimbabwe, Vumba, Zimbabwe, 12–10–93/ Zimbabwe – Vumba, Laurenceville, 12.x.1993, N.J.Duke leg./ Genital-Präparat Nr. 94–03, Chr.Häuser/Holotypus, *Amerila mulleri* Häuser & Boppré [SMNS; abdomen dissected]. Type locality: ZIMBABWE: Vumba. Paratypes: 6 ♂♂, 5 ♀♀: same data as holotype [BMNH, SMNS, MB, and in coll. M.Duke]; 1 ♂: Laurenceville, Vumba, S.Rh., 6–12.iii.1964, Vári & van Son [TMPR]; 2 ♂♂: Laurenceville, Vumba, Zimbabwe, 18–22.x.1989, N.J.Duke, 1 ♀, Laurenceville, Vumba, Zimbabwe, 10–15.x.1990, N.J.Duke [TMPR]; 1 ♂: Mt.Selinda, S.Rhod., 3.iii.54, H.Cookson [TMPR]; 2 ♀♀: Mt.Selinda, S.Rhod., 10.iii.1954, H.Cookson [TMPR].

Description

Male. Fw length 21–25 mm; wings, head, thorax and dorsal base of abdomen white; all wings weakly scaled, partly transparent, but fw veins dark. Antennae brown with a reddish tint; tegulae with a single, often weak black spot anteriorly; outer sides of femora and tibiae white, inner sides of femora, tibiae, and all tarsi red. Abdomen dorsally towards the terminal segments pinkish red, often dusted with white scales, ventrally white, without obvious androconial organs except for two small scale-brushes found ventrally near the vinculum.

Male genitalia (Plate 11). Uncus long and narrow, distally with a small pointed tip ventrally; the tegumen-vinculum area much wider than in other *Amerila* species. Valvae short and square-shaped, distally not rounded; outer surface without extrusible coremata; inner sclerotized process short and strong, hook-like, distally pointed, and situated inside a membranous pocket. Vesica medially with a small, plate-like sclerotization, but without any cornuti.

Female. As male; abdomen dorsally white.

Female genitalia. Bursa copulatrix without signa or other conspicuous sclerotizations.

Distribution. East and South Africa; from eastern Zaire and western Kenya to Zimbabwe and Zwaziland.

Comments. This species had been first discovered by Simon Muller when examining material from TMPR and BMNH,

who had given it the name 'alba' in an unpublished graduation thesis (Muller, 1980: 65). As a valid description of that name has never been published, we take the pleasure to name this species in dedication to its discoverer. The male genitalia of *A. mulleri* is fairly distinct from other African *Amerila* except *A. magnifica*, and these species probably represent a well differentiated subgroup within the genus.

Additional material examined. ZAIRE: Haut-Zaire: Ituri, Nioka, 28.–31.vii.1953 (1 ♂, 1 ♀, MRAC), 13.x.1953 (1 ♂, MRAC). KENYA: Western: Kakamega: Kakamega Forest, ix.1985 (2 ♀♀, MB, SMNS); Kabete, 3.iii.1972 (2 ♂♂, ZSSM), 3.iv.1972 (1 ♂, ZSSM). SWAZILAND: Malolotja, 18.ix.1993 (1 ♀, TMPR); Malagwane Hill, Mbabane, 20.i.1994 (1 ♀, TMPR).

Amerila nigrivenosa (Grünberg) (Plate 5F)

Rhodogastria nigrivenosa Grünberg, 1910: Societas Entomologica, 24, 146. Lectotype ♂ (here designated): C.Afr. Kiwu-S., Kissenji, v.Stegmann S.G./*Rhodogastria nigrivenosa* Grünb, Type !/Type/Type/Genital-Präparat Nr. 91–43 Chr.Häuser/Lectotypus, *Rhodogastria nigrivenosa* Grünberg, 1910, designated by Häuser & Boppré [MHNU; abdomen dissected]; note: the specimen had been severely damaged and all wings were apparently once broken off; the left hindwing has been glued onto the right side of the specimen upside down, and the right wing has been fixed to a piece of cardboard. Type locality: RWANDA: Gisenye.

Description

Male. Fw length 26 mm; fw and hw whitish, weakly scaled and largely transparent, fw veins dark. Head, thorax and base of abdomen dorsally dark ivory-coloured; tegulae with a single black spot anteriorly; outer sides of femora and tibiae yellowish white, inner sides and tarsi red. Abdomen dorsally red, yellowish white at its base and towards the tip, laterally on the pleural region with a single black stripe, ventrally whitish grey, without obvious androconial organs.

Male genitalia (Plate 11). Uncus very small, short, broad triangular and distally blunt. Valvae large, oval-shaped, outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process short, slightly curved and finely serrated. Vesica T-shaped, with two large, curved, parallel cornuti which are fused at their base at one end, and 10–15 small, straight cornuti arranged parallel in 2–3 rows at the other end; opening of ductus ejaculatorius located centrally, somewhat sclerotized.

Distribution. Central Africa; Rwanda.

Comments. So far only known from the male holotype. The distinct sclerotizations of the vesica support the species status of this taxon and clearly separate it from all other African *Amerila* species.

Amerila nigroapicalis (Aurivillius) (Plate 6H)

Pelochyta nigroapicalis Aurivillius, 1899: 242. Holotype ♂ (examined): Kamerun Int., Barombi Station, 1889. Preuss/*Pelochyta nigroapicalis* Auriv. (zu 31)/Staudinger K. 1283/Holotypus, *Pelochyta nigroapicalis* Aurivillius, 1889, det. Chr.L.Häuser [MNHU]. Type locality: CAMEROON: Barombi station.

Description

Male. Fw length 30–32 mm; fw along the costal and inner margin greyish white, at the apex and along the outer margin dark greyish brown, with the central area transparent; fw veins dark, the costal vein with a long areole extending from the base to about one third of the total winglength, broad at base and gradually tapering distally; hw whitish, weakly scaled, the posterior half, particularly along the inner margin, cream-to ivory-coloured, the apex sometimes dark greyish brown. Head and thorax dorsally white; tegulae with two conspicuous black spots, one basally and another one apically; outer sides of femora and tibiae greyish white, inner sides of femora and tibiae, as well as tarsi red. Abdomen dorsally red, ventrally greyish white; ventrally between sternites III and IV medially a pocket with an extrusible brush of long, hair-like scales.

Male genitalia (Plate 12). Uncus short, triangular, and distally pointed. Valvae large, distally broadened, almost square-shaped; outer surface with long extrusible, tube-like coremata; inner sclerotized process short and smooth, curved inwards, and distally pointed. Vesica short and broad, distally with a single large, hook-like cornutus, strongly bent at its base.

Female. Unknown.

Distribution. West and Central Africa; Nigeria to southern Zaire.

Comments. So far only known from male specimens. The status of the type material of *A. nigroapicalis* is given by Goodger & Watson (1995: 5) as 'syntype(s)', but the original description (l.c.) is evidently based on a single specimen said to be a female from the Staudinger collection. As the male specimen in MNHU listed above agrees well with the description and has all corresponding labels, it is here regarded as the holotype.

Additional material examined. NIGERIA: Forcados, 21.x.1914 (1 ♂, BMNH); R. Niger, Akassa to Onusha (1 ♂, BMNH). EQUATORIAL GUINEA: Bioko: Fernando Po (2 ♂♂, MNHU). ZAIRE: Leopoldville [= Kinshasa], 30.v.1955 (1 ♂, MRAC); Kasai Occidental: Lulua, Kapanga, vii.1933 (1 ♂, MRAC); Kasai Oriental: Lusambo, 4.ix.1949 (1 ♂, MRAC); Shaba: Kafakumba, xii.1932 (1 ♂, MRAC).

***Amerila niveivitre* (Bartel) (Plate 5G,H)**

Rhodogastria niveivitre Bartel, 1903: 208. Lectotype ♂ (here designated): N.-Kamerun, Rangwe 1000 m, v.1899, G.Conrad S./*Rhodogastria niveivitre* Bartel; 41150/Genital-Präparat Nr. 91–38 Chr.Häuser/Lectotypus, *Rhodogastria niveivitre* Bartel, 1903, designated by Häuser & Boppré [MNHU; abdomen dissected]. Type locality: CAMEROON: Rangwe, 1000 m.

Description

Male. Fw length 26–29 mm; wings, head, thorax, and base of abdomen white; wings weakly scaled, partly transparent, veins of fw dark; fw costa with a long areole from base up to one third of the wing, broad at base and gradually tapering distally. Antennae brown, red at the base; tegulae with a conspicuous black spot anteriorly and another, usually faint spot posteriorly; legs red, lateral sides of mid and hind femora white. Abdomen dorsally red, ventrally white; medially at intersegmental membrane between sternites III and IV an extrusible brush with long, hair-like scales inside a pocket.

Male genitalia (Plate 12). Uncus short, broad triangular, and distally with a short pointed tip. Valvae large, almost square-shaped, outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process large and smooth, curved, strongly bent towards the pointed tip. Vesica distally with a single large, curved, apically pointed cornutus strongly bent at its base.

Female. As in male, except for the abdominal androconial organ and without an areole in fw costa; abdominal sternite VI sharply pointed at the posterior end laterally at both sides.

Female genitalia. Bursa copulatrix with several signa, distally with a small, papilla-like appendix bursae.

Distribution. West, Central, and East Africa; from southern Mali and Côte d'Ivoire to Cameroon and Angola; in Zaire, Uganda, and in eastern Africa from southern Ethiopia to Tanzania.

Comments. This species had been synonymized by Hampson (1920: 515) with *A.bubo*, but subsequent authors accepted it as a separate species (Gaede, 1926; Goodger & Watson, 1995). Muller (1980: 88) called it *Rhodogastria cinyra* in his unpublished thesis.

Additional material examined. MALI: Banamba, 15.vii.1972 (1 ♀, ITZA). BURKINA FASO: Bobo, 9.viii.1975 (1 ♂, ZSSM). CÔTE D'IVOIRE: Badenou S Mbingué, 9.50 N, 5.50 W, 10.–12.xi.1983 (1 ♂, 1 ♀, RS), 30.xi.1983 (1 ♀, RS); Séguébé SE Sirasso, 9.11 N, 6.03 W, 11.xi.1983 (4 ♂♂, 1 ♀, RS), 21.–29.xi.1983 (2 ♂♂, 2 ♀♀, RS); Marahue-Ranch bei Mankono, 330–400 m, 8.22 N, 6.23 W, 15.xi.–15.xii.1981 (4 ♂♂, 1 ♀, RS), xii.1983 (1 ♂, RS), 28.v.1986 (1 ♂, 1 ♀,

RS), 21.vi.1986 (1 ♂, RS); 15 km E Bouaflé, Pakodji near Degbézéré, 14.xi.1983 (1 ♀, ITZA), 1.xii.1983 (1 ♀, ITZA), 6.ii.1984 (1 ♂, ITZA). GHANA: Ashanti: Kwadoso, 26. + 29.iv.1995 (2 ♂♂, MB), 29.v.1995 (1 ♀, MB); Eastern: Abetifi, 24.–31.viii.1993 (1 ♂, 2 ♀♀, LK); Kete-Krachi, 1924 (1 ♀, BMNH); Anfoega, 1956 (1 ♀, AMES), 1.iv.1959 (1 ♂, AMES). TOGO: near Lama-Kara, road to Bafilo, 9°30'30''N, 1°12'30''E, 11. + 20.xi.1987 (2 ♀♀, GA). BENIN: Lama Forest nr. Bohicon, 9.–17.xii.1992 (2 ♂♂, 5 ♀♀, MB). NIGERIA: Oyo: Ibadan, i.–vi.1954 (2 ♀♀, ZMUC); Federal Capital Territory: Abuja, ix.1981 (1 ♂, 1 ♀, ZFMK); Kaduna: Kaduna, 9.vii.1970 (1 ♀, ZSSM), 28.vii.1971 (1 ♀, ZSSM), 26.x.1971 (1 ♀, ZSSM). CAMEROON: Sud-Ouest: Buea, 1000–1200 m, 1.–10.xi.1910 (1 ♀, MNHU); Victoria, 1892 (1 ♂, 1 ♀, MNHU); Nord: Adamaoua, ≈ 20 km S Minim, 6.49 N, 12.52 E, 1200 m, 14.iii.–6.iv.1979 (1 ♀, BGSS). ZAIRE: Shaba: Elisabethville [= Lubumbashi], 12. + 14.xi.1958 (2 ♀♀, ZSSM); (MRAC). UGANDA: Masindi: Budongo Forest, Souso, vii.–viii.1995 (2 ♂♂, SMNS). ETHIOPIA: Jjubabor: Gore, 2000 m, 8.–27.xii.1959 (2 ♂♂, 1 ♀, SMNS); Kefa: Jimma, 1770 m, 5.–29.i.1960 (3 ♂♂, 3 ♀♀, SMNS), 6.–11.v.1967 (1 ♂, ZMUC). KENYA: Kakamega: Kakamega Forest, 4.–5.vii.1980 (3 ♂♂, 2 ♀♀, MB), iv.1988 (5 ♂♂, 2 ♀♀, MB). TANZANIA: Kigoma: Tubira Forest, 1100 m, 29.iv.1989 (1 ♀, BJ). ANGOLA: Cuanza Norte: 30 km N Ouiculungo, Canzele, 18.x.1957 (1 ♂, ZSSM); Cuanza Sul: 30 km von Calulo, Quitondo, 2.ix.1957 (1 ♂, ZSSM).

***Amerila phaedra* Weymer (Plates 2L,M; 5K,L)**

Amerila phaedra Weymer, 1892: 106. Lectotype ♂ (designated by Boppré, 1981b: 163; examined): Saadani, 1871, Schubert/*Amerila phaedra* m ♂, Stt.Zg. 1892, 106/Coll. Weymer; 2116c/Typus/Lectotypus, *Amerila phaedra* Weymer, 1892, designated by M.Boppré (1981) Mitt. Münch. Ent. Ges., 71: 163, det. C.Häuser, 1996 [MNHU]. Type locality: TANZANIA: Sadani.

Rhodogastria subleucoptera Strand, 1911: 587. Holotype ♀ (examined): D.O.Afrika, Daressalam, iv.1909, Reuss S.G./*Rhodogastria subleucoptera* m., ♀ Strand det./Type/*Rhodogastria* am ähnlichsten *leucoptera* Hmps. (2122)/365/Genital-Präparat Nr. 91–41, Chr.Häuser/Holotypus, *Rhodogastria subleucoptera* Strand, 1911, det. Chr.Häuser [MNHU; abdomen dissected]. Type locality: TANZANIA: Daressalam. **Syn.n.**

Description

Male. Fw length 24–27 mm; fw uniformly pale brown, without any transparent area; fw veins slightly dark, a faint dark brown streak along the discal vein; hw pale yellowish ochre, densely scaled; hw outer margin slightly concave towards the anal angle; underside of all wings bright ochre. Head, thorax dorsally, and fore coxae grey; tegulae with a single black spot basally; outer sides of fore and mid tibiae and tarsi dark brown, inner sides of legs red. Abdomen dorsally pinkish

red, darker red towards the tip, ventrally bright ochre, without obvious androconial organs.

Male genitalia (Plate 12). Uncus short and narrow, distally pointed. Valvae large but not very broad, oval-shaped, and distally rounded; outer surface with short extrusible, tube-like coremata; inner sclerotized process short but large, curved, distally pointed, and with several spines along the outer side. Vesica distally with a single very large, almost straight cornutus, and medially with more than 15 small, straight, parallel cornuti.

Female. Wings, head, thorax, and dorsal base of abdomen white; wings weakly scaled, but veins not dark; hw shape as in male. Abdomen dorsally red, ventrally white.

Female genitalia. Bursa copulatrix large, corpus bursae distally with broad appendix.

Distribution. East and South Africa; from southern Kenya to Zimbabwe and Mozambique.

Comments. The profound sexual dimorphism in this species, which is exactly paralleled in *A.leucoptera* (see above), has been the cause of considerable taxonomic confusion in the past, and the situation could only be resolved after successful laboratory breeding experiments (Boppré, 1981b). *Amerila phaedra* was first synonymized by Hampson (1901: 504) with *A.astreus* from India, but later he corrected this view and accepted *A.phaedra* as a separate species (Hampson, 1920: 524). *Amerila subleucoptera* was synonymized with *A.niveivitrea* (Gaede, 1926; Goodger & Watson, 1995), and all females of *A.phaedra* have been in the past generally placed under that species or under *A.leucoptera*. Muller (1980: 105) called it *Rhodogastria orientis* in his unpublished thesis.

In contrast, the original type-series of *A.phaedra* was already reported by Weymer (l.c.) to consist of a male and a white-coloured, sexually dimorphic female. This second specimen, however, represents a male of *A.catinca* (see above). The conspecificity of the two specimens had already been doubted by Bartel (1903) and was confirmed by Boppré (1981b). In order to provide stability for the current use of the name of this species, the listing of the other male specimen as the 'holotype' of *A.phaedra* by Boppré (1981b: 163) is accepted here as effective lectotype designation for this species.

Additional material examined. KENYA: Kwale: Shimba Hills, 21.–22.viii.1979 (3 ♂♂, MB), 2.vi.–11.vii.1980 (10 ♂♂, 6 ♀♀, MB), 3.viii.1983 (5 ♂♂, 1 ♀, MB); South coast, 4.vi.1980 (1 ♂, MB). TANZANIA: Tanga: Mombo (1 ♂, MNHU); Pwani: Saadani (3 ♂♂, MNHU), Kidugallo, 26.xii.1951 (1 ♂, ZMUC); Daressalam (2 ♂♂, 1 ♀, BMNH, 1 ♀, MNHU), iv.1909 (1 ♀, MNHU); Morogoro: Kilossa, 15.v.1921 (1 ♀, BMNH), Ilonga Kilosa, 16. + 19.ii.1966 (2 ♂♂, BMNH), 26.v.–10.vi.1967 (4 ♂♂, BMNH), Morogoro Town, 26.ii.1992 (1 ♂, BJ); Mtwara: Lindi (1 ♂, 1 ♀, BMNH), Mikindani, i.–v.1897 (1 ♀, BMNH). MOZAMBIQUE: 1911 (1 ♀, BMNH); Amatonga, 31.viii.1962 (1 ♂, NMBZ); Sofala: Beira [= Sofala], 26.viii.1971 (1 ♀, NMBZ). ZIMBABWE:

Sabi Valley, Nyamadzi R., iii.1962 (1 ♂, NMBZ); Nyanyadzi River, 30.ix.1962 (1 ♂, NMBZ).

***Amerila puella* (Fabricius)**

***A.puella* ssp. *puella* (Plate 7 M)**

Bombyx puella Fabricius, 1794: 474. Lectotype ♂ (here designated): Mus.Seh. e T.L./siehe Präparat Nr. 93–80, Chr.Häuser/Lectotypus, *Bombyx puella* Fabricius, 1794, designated by Häuser & Boppré [ZMUC; abdomen dissected]. Paralectotype ♀: *puella*/siehe Präparat Nr. 92–22, Chr.Häuser/Paralectotypus, *Bombyx puella* Fabricius, 1794, designated by Häuser & Boppré [ZMUC; abdomen dissected]. Type locality: West-AFRICA.

Rhodogastria uniformis Berio, 1935: 27. Holotype ♂ (examined): Princp. Inf. D. H., 100–300 m, 16.iii. 901/21/uniformis, Berio/*Rhod. fennia* var., Det. Aurivillius/Typus/Genital-Präparat Nr. 93–86, Chr.Häuser [MCSN; abdomen dissected]. Type locality: SAO TOME & PRINCIPE: La Roca Infante Henrique. **Syn.n.**

Description

Male. Fw length 22–25 mm; fw dark ochre, central area, from the base to the postdiscal region weakly scaled and partly transparent, suffused with brown scales and not sharply delimited; fw veins finely lined with dark scales, a broader streak along the discal vein; basally of the discal vein a broad, very faint, dark grey transversal band, often hardly visible; hw pale creamy brown, overall weakly scaled, darker at the apex and sometimes with a pinkish tint. Head, thorax, and dorsal base of abdomen dark greyish ochre; outer sides of femora, tibiae, and tarsi dark brown; inner sides of legs pinkish red; tegulae with a single black spot basally. Abdomen dorsally pink at the base, darker red towards the tip, ventrally pale ochre suffused with pink, without obvious androconial organs.

Male genitalia (Plate 12). Uncus short, triangular, and distally with a small pointed tip. Valvae large, oval-shaped, distally rounded; outer surface with long extrusible, hirsute, tube-like coremata which distally bear a bush of long, broad, spade-like scales; inner sclerotized process short and smooth, curved, and apically pointed. Vesica long and tube-like, distally with two very long, slender, parallel, curved cornuti fused at their base.

Female. As male.

Distribution. West and Central Africa; from Ghana to Zaire; as different subspecies from Senegal to Côte d'Ivoire, Nigeria and East Africa.

Comments. *Amerila puella* had been synonymized with *A.vidua* by Hampson (1901: 503), a view which has since been followed by most authors (Strand, 1919; Gaede, 1926; Goodger

& Watson, 1995). Serial examinations of male genitalia, however, showed that two distinct species were united under that name. The type material of *A. puella* preserved at ZMUC has allowed us to allocate the name published by Fabricius (l.c.), and the other species is now being referred to as *A. vidua* (see below). *Amerila puella* was originally described from 'Guinea', which cannot be allocated to any specific present country or place in western Africa.

A number of similar taxa are here united under *A. puella* on the basis of almost identical ♂ genitalia, but three taxa are provisionally maintained as different subspecies, which show constant phenotypic differences. As the genitalia characters also show some variation, some of them might still prove to represent distinct species.

Amerila puella is externally very similar to *A. vidua* with which it had been synonymized in the past. The two species, however, are very distinct in the male genitalia, particularly with regard to the cornuti of the vesica. In *A. puella* the fw are more narrow than in *A. vidua*, and the faint dark discal transverse band in the fw is never present in *A. vidua*.

Additional material examined. GHANA: Western: Sekondi, 1.vi.1995 (1 ♂, MB); Central: Manso, N.E. of Cape Coast, iii.–iv.1922 (2 ♂♂, BMNH), Kakum NP, 29. + 30.v.1995 (35 ♂♂, MB); NIGERIA: Old Calabar (2 ♂♂, BMNH). SAO TOME & PRINCIPE: Principe, La Roce Infante Don Henrique, 16.iii.1901 (1 ♂, MCSN). ZAIRE: Zaire Central: Banana, 5.iii.1885 (1 ♀, SMFM); Leopoldville [= Kinshasa], 19.v.1949 (1 ♂, MRAC), 6.ii.1956 (1 ♀, MRAC); Chencoco, Falkenstein (1 ♂, MNHU); Congo, Kuiu (2 ♂♂, MNHU).

A. puella ssp. *invidua* (Bethune-Baker) (Plate 7N)

Rhodogastria invidua Bethune-Baker, 1925: 327. Holotype ♀ (examined): S.L./*Rhodogastria invidua* Type B-B./G.T.B.-Baker Coll., Brit. Mus. 1927–360./Type/Arctiidae genitalia slide no. 4394 [BMNH; abdomen dissected]. Type locality: SIERRA LEONE. **Comb.n.**

Description

Male. Fw colour generally paler than in the nominate subspecies, pale ochre-brown, the faint dark grey transversal discal band absent; coloration of hw and body as in the nominate subspecies. Abdomen dorsally pale ochre with yellow, sometimes terminally a tint of pinkish red, ventrally pale ochre.

Male genitalia. As in the nominate subspecies.

Female. As male; abdomen dorsally yellow.

Distribution. West Africa; from Senegal to Côte d'Ivoire.

Additional material examined. SENEGAL: Sédhiou, 1.–8.x.1917 (2 ♂♂, 1 ♀ BMNH). SIERRA LEONE: 1889 (1 ♂, MNHU). CÔTE D'IVOIRE: SE Sirasec, Séguébé, 9°11' N,

6°03' W, 11.xi.1983 (1 ♀, RS); Marahoue Ranch bei Mankono, 330–400 m, 8.22N 6.23 W, 24.vi.1986 (1 ♂, RS); Bingerville, 1.–20.vi.1915 (1 ♂, 1 ♀, BMNH), 25.–30.viii.1915 (1 ♂, BMNH); Dimbrok, 1914 (1 ♂, BMNH).

A. puella ssp. *rothi* (Rothschild) (Plate 7O)

Rhodogastria rothi Rothschild, 1910: 183. Lectotype ♂ (here designated): Warri, v.97 (Dr Roth)/*Rhodogastria rothi* Rothschild. Type/Rothschild Bequest, B.M.1939–1./Type/Arctiidae genitalia slide no. 4392 [BMNH; abdomen dissected]. Type locality: NIGERIA: Warri. **Comb.n.**

Description

Male. Fw colour darker than in the nominate subspecies, greyish brown; hw distinctly pinkish, the apex generally dark; otherwise as in the nominate subspecies.

Male genitalia. As in the nominate subspecies.

Female. Unknown.

Distribution. West Africa; southern Nigeria, Cameroon.

Additional material examined. NIGERIA: Warri, iv.1897, Dr Roth (1 ♂, BMNH, paralectotypus); Niger C.P., Warri, ii.1906, Dr Roth (1 ♂, BMNH); Niger, Ase, 10. + 18.vi.1901 (2 ♂♂, BMNH), 5.viii.1901 (2 ♂♂, BMNH); Niger, Agberi, 13.vi.1901 (1 ♂, BMNH); S.Nigeria, Ahoada, 9.ii.1927 (1 ♂, BMNH). CAMEROON: Beide Mandah, 13.–16.x.1950 (1 ♀, ZMUC).

A. puella ssp. *carneola* (Hampson) (Plate 7P)

Rhodogastria carneola Hampson, 1916: 239. Holotype ♂ (examined): Nyasaland., Mt. Mlanje, 31.x.1913., S.A. Neave., 1914–171./*Rhodogastria carneola*, type ♂. Hmpsn./Type, H.T. [BMNH; abdomen dissected]. Type locality: MALAWI: Mt. Mlanje. **Comb.n.**

Rhodogastria carneola spp. *nigricornis* Debauche, 1938: 21. Holotype ♂ (not examined): Kinchassa, Waelbroeck leg. [presumably in IRSN, but could not be located]. Type locality: ZAIRE. **Syn.n.**

Description

Male. Fw length 24–28 mm, larger than in the other subspecies; fw colour pale ochre-brown, the faint dark transverse discal band generally present; hw reddish pink, the apex not dark; otherwise as in the nominate subspecies.

Male genitalia. As in the nominate subspecies.

Female. As male; abdomen dorsally yellow.

Distribution. East Africa; from Ethiopia to Uganda and Tanzania.

Additional material examined. UGANDA: Central Province: Kampala, 1.vii.1932 (1 ♂, 1 ♀, BMNH). ETHIOPIA: Kefa: Jimma, 6.–11.v.1967 (3 ♂♂, ZMUC). KENYA: Marangu, 4800 ft, viii.1920 (1 ♀, BMNH); Western: Kakamega: Kakamega Forest, 2.–3.vii.1980 (4 ♂♂, 1 ♀, MB), 2.v.1984 (6 ♂♂, 3 ♀♀, MB), 1985 (1 ♂, MB), 16.vi.1991 (1 ♂, 1 ♀, MB); Central: Kyambu, 18.vii.1919 (1 ♀, BMNH); Coast: Kwale: Shimba Hills, 27.vi.–3.vii.1980 (3 ♂♂, MB). TANZANIA: Kilimanjaro: Moschi, 14.ii.1894 (1 ♀, BMNH); Arusha: Arusha, 3.–7.xi.1950 (1 ♂, BMNH). MALAWI: Southern: Zomba (1 ♀, BMNH).

Amerila roseomarginata (Rothschild) (Plates 3P; 7H)

Rhodogastria roseomarginata Rothschild, 1910: 183. Lectotype ♂ (here designated): Ogruga, River Niger/Rothschild Bequest B.M.1939–1./*Rhodogastria roseomarginata* Rothschild. Type/Type/Arctiidae genitalia slide no. 4398 [BMNH; abdomen dissected]. Type locality: NIGERIA: Ogruga.

Description

Male. Fw length 22–26 mm; fw at base, outer and inner margins pale ochre, darker at the apex and along the outer margin; the fw central area largely transparent, sharply delimited towards the apex; fw veins finely lined by brown scales, a broader streak along the discal vein; hw weakly scaled, centrally transparent, pale pinkish cream-coloured towards the inner and outer margins. Head, thorax and dorsal base of abdomen pale greyish brown; tegulae with a single black spot basally; outer sides of fore and mid femora, tibiae, and tarsi dark brown; inner sides and hind legs pinkish red. Abdomen dorsally pinkish red, ventrally pale greyish brown, sometimes with a reddish tint; two long brush-like androconial organs of pale-coloured hairs placed ventro-laterally in the intersegmental membrane anteriorly of the genital apparatus.

Male genitalia (Plate 12). Uncus short, broad triangular, with a small tip. Valvae short, roundish to oval-shaped, and posteriorly rounded, outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process short and smooth, strongly curved and apically pointed. Vesica distally with two strong, straight, parallel cornuti of unequal length fused at their base.

Female. As male.

Distribution. West, Central and East Africa; from Côte d'Ivoire to Nigeria, Gabon and Zaire; from Eritrea to Tanzania.

Comments. In male genitalia, this species is very similar to *A.fennia* which can be told apart by differences in the inner sclerotized process of the valva and the membranous papillae of the vesica (see above). With regard to the external appearance, *A.roseomarginata* is more similar to *A.castanea*, *A.puella* and *A.vidua*. A reliable diagnostic feature against those species is the well delimited transparent fw area in *A.roseomarginata*, particularly the sharp border towards the apex.

Additional material examined. CÔTE D'IVOIRE: Tai Nationalpark, 16.iv.1982 (1 ♂, ZSSM); Comoe N.P., 19.xii.1982 (1 ♂, RS); Mankono, Marahou Ranch, 8.22 N 6.23 W, 330–400 m, 15.xi.–15.xii.1981 (1 ♂, RS), 24.vi.1986 (1 ♂, ZFMK). GHANA: N.Territories, Kete-Krachi, 1925 (1 ♂, BMNH); Anfoega, 1956 (1 ♂, AMES). TOGO: Bismarckburg, 28.v.–17.vi.1893 (4 ♂♂, MNHU); Togoland, 1892–93 (1 ♂, BMNH). BENIN: nr. Bohicon, xii.1990 (2 ♂♂, SMNS, MB), Lama Forest nr. Bohicon. NIGERIA: Kaduna, 13.ix.1970 (1 ♀, ZSSM); Niger, Ogruga (1 ♂, 1 ♀, BMNH); Ibadan, i.–vi.1954 (1 ♀, ZMUC). GABON: Gabon, 1895 (1 ♂, SMNS). ZAIRE: Zaire Central: Banana, 6.v.1885 (1 ♂, SMFM); Kivu: Massif Ruwenzori, 1900 m, 7.i.1958 (1 ♂, MRAC). ERITREA: Asmara, 18. + 24.ix.1968 (3 ♂♂, 2 ♀♀, MCSN). KENYA: Western: Kakamega: Kakamega Forest, 5.vii.1980 (1 ♂, MB), 1.ix.1983 (1 ♂, MB), 16.vi.1991 (1 ♂, MB); Coast: Kwale: Shimba Hills, 27.–29.vi.1980 (5 ♂♂, MB), 3.viii.1983 (1 ♂, MB), 10.ix.1983 (2 ♂♂, 1 ♀, MB). TANZANIA: West Lake: Bukoba, Minziro For., 1180 m, 1.i.1995 (1 ♂, BJ), Bukoba: Minziro For., 1180 m, 1.i.1995 (1 ♀, BJ); Tanga: Usambara, Amani, 1000 m, 28.vi.1970 (2 ♀♀, ZMUC).

Amerila rufifemur (Walker) (Plate 4I)

Canopus rufifemur Walker, 1855: 747. Holotype ♀ (examined): Congo, A.Curror, 45–56/2. *Canopus rufifemur*./Type/Arctiidae genitalia slide no. 3528 [BMNH; abdomen dissected]. Type locality: ZAIRE.

Description

Female. Fw length 21 mm; fw creamy white to ivory-coloured, overall weakly scaled and almost transparent, except for the costal and hind margin; fw veins very narrowly lined with scales, slightly broader along discal vein; hw white, overall weakly scaled. Head, thorax, and base of abdomen dorsally ivory; tegulae without any black spots; legs overall ivory coloured, except for the inner sides of the fore legs which are pinkish red. Abdomen dorsally and ventrally yellowish ivory.

Female genitalia. Bursa copulatrix small, corpus bursae with several small signa along a straight line, and one larger spine-bearing signa.

Male. Unknown.

Distribution. Central Africa; Angola and Zaire.

Comments. So far only known from two female specimens. This species is similar to *A. lupia*, which has a dorsally red coloured abdomen and shows some differences in the arrangement of the signa of the bursa copulatrix.

Additional material examined. ANGOLA: Benguella, 1.vi.1899 (1 ♀, BMNH).

***Amerila shimbaensis* sp.n. (Plates 2G; 5C)**

Holotype ♂: Kenya East Africa, Kwale District, Shimba NR, at *Heliotropium* bait, 27.vi.1980, leg. M.Boppré [SMNS]. Type locality: KENYA: Coast: Kwale: Shimba Hills. Paratypes: ♂, same locality data as holotype, 1988, [MB]; ♂, Kenya East Africa, Shanzu MSA, at light, 02.vi.1980, [MB]; ♂, Mombasa, vi.1916 (van Someren), [BMNH]; ♂, Mbololo Forest, Taita Hills, Kenya ix.1969, B.Watulege, [NMKE].

Description

Male. Fw length 29–32 mm; wings, head, thorax, and base of abdomen ivory-coloured; wings densely scaled, fw veins finely lined with dark scales, a broader dark line along the discal vein; hw veins not dark; underside of both wings greyish white. Tegulae with a single black spot basally; legs yellow, outer sides of femora, tibiae, and proximal tarsal segments greyish white. Abdomen dorsally greyish white from base to segment III, posteriorly dull yellow, ventrally whitish grey, without obvious androconial organs.

Male genitalia (Plate 12). Uncus short, broad triangular, and distally blunt. Valvae large, oval-shaped, and distally rounded; outer surface without extrusible coremata; inner sclerotized process long, slightly curved, and apically pointed, finely serrated along the outer side. Vesica distally with two short, slender, parallel, slightly curved cornuti fused at their base, and two plate-like sclerotizations.

Female. Unknown.

Distribution. East Africa; south-eastern Kenya, Tanzania.

Comments. This species is similar to *A. bubo* and *A. catinca*, from which it can be distinguished by the ivory coloration, and the absence of an areole in the fw costa. Although the species is known from several different localities, it appears to be fairly rare as only single specimens have been taken.

Additional material examined. TANZANIA: Tanga: E. Usambara Mts, Amani, iv.1955 (1 ♂, NMBZ), iv.1961 (1 ♂, NMBZ); Morogoro: Uluguru Mts., Morningside, 1200 m, 30.xi.1982 (1 ♂, BJ).

***Amerila syntomina* (Butler)**

***A. syntomina* ssp. *syntomina* (Plates 3V; 4G)**

Caryatis syntomina Butler, 1878: 456. Lectotype ♂ (here designated): Old Calabar, 78–57/*Caryatis Syntomina* Butler Type/Type [BMNH]. Type locality: NIGERIA: Old Calabar. **Comb.n.**

Description

Male. Fw length 23–24 mm; fw dark brownish black, postdiscally with a broad, transverse, white band from the costal to the outer margin; fw veins pale discally and near the base; the base of the radial veins with a short red streak anterior to the two black dots; hw pale brownish white, apex and outer margin dark brown, towards the anal margin yellowish. Head and thorax pale greyish brown, the occiput and patagiae lined with red; tegulae with a broad, longitudinal black line; outer sides of femora and tibiae pale grey, inner sides of legs dark brown. Abdomen dorsally bright yellow, ventrally pale brown, without obvious androconial organs.

Male genitalia (Plate 13). Uncus very short, triangular, and distally pointed. Valvae large, oval-shaped, and distally rounded; outer surface with long extrusible, tube-like coremata; inner sclerotized process short and smooth, curved and apically pointed. Vesica long and tube-like, distally with two long, slender, curved, parallel cornuti fused at their base.

Female. As male.

Female genitalia. Bursa copulatrix small, corpus bursae short, roundish, and without signa.

Distribution. West and Central Africa; from Guinea to Zaire; in westernmost Tanzania as a different subspecies.

Comments. This species had originally been placed in the genus *Caryatis* Hübner 1819, which it resembles closely in wing pattern, and this view was followed by later authors (Hampson, 1901; Goodger & Watson, 1995). The characters of the male genitalia, however, clearly support its position in the present genus which is further supported by its phenotypic appearance. The remarkable deviation from the usual colour patterns found in *Amerila* is probably due to mimicry. Species of *Caryatis*, in particular *C. phileta* (Drury), occur sympatrically, sometimes even syntopically with *A. syntomina* in western Africa (Boppré, personal observation).

Additional material examined. GUINEA: Boffa, 1922–23 (1 ♂, 1 ♀, BMNH). SIERRA LEONE: Sierra Leone (1 ♂, 3 ♀♀, BMNH). CÔTE D'IVOIRE: Bingerville, 9.–12.vi.1915 (2 ♂♂, BMNH). GHANA: Ashanti: Kwadoso, 26. + 29.iv.1995 (3 ♂♂, 1 ♀, MB), Abetifi, 24.–31.viii.1993 (1 ♀, LK); Central: Kakum NP, 30.v.1995 (1 ♂, MB). BENIN: Zou, Bohicon, Lama-Forest, ix.1991 (5 ♂♂, MB), 9.–

17.xii.1992 (1 ♂, MB); Atlantique, Cotonou, 1992 e.o. (5 ♂♂, 7 ♀♀, MB). NIGERIA: Oyo: Ibadan, i.–vi.1954 (1 ♂, ZMUC); Lagos (1 ♂, BMNH), 10.viii.1906 (1 ♀, BMNH); Bendei: Assaba, R.Niger (2 ♀♀, BMNH); Cross River: Old Calabar, 1901 (1 ♀, BMNH). ZAIRE: Equateur: Eala, 25.iii.1918 (1 ♀, MRAC); Libunge, 1938 (1 ♂, MRAC).

***A. syntomina rubondo* ssp.n.**

Holotype ♂: Tanzania, Geita Distr, Rubondo Island, 1140 m 1.vi.1991, A. Bjørnstad, 30432/siehe Präparat Nr. 96–23, Chr.Häuser/Holotypus, *Amerila syntomina* ssp. *rubondo* Häuser & Boppré [presented to BMNH; abdomen dissected]. Type locality: TANZANIA: Geita: Rubondo Island [in Lake Victoria]. Paratypes: same locality as holotype, 26.i.1991, 1 ♂, 1 ♀ [BJ, SMNS].

Description

Male. Fw with a broader postdiscal transverse white band, widened towards the outer margin, but not reaching the costal margin; hw without a dark brown outer margin; fw base, head, and thorax without any red markings; other patterns as in the nominate subspecies.

Male genitalia. As in the nominate subspecies.

Female. As male.

Distribution. East Africa; western Tanzania; only known from the type locality.

***Amerila thermochroa* (Hampson) (Plates 3U; 6C)**

Rhodogastria thermochroa Hampson, 1916: 239. Holotype ♂ (examined): Brit.E.Africa, S.Kakamega Forest, Yala River, 4800–5300 ft, 23.v.1911, S.A.Neave/*Rhodogastria thermochroa* type ♂. Hmpsn./Type, H.T. [BMNH]. Type locality: KENYA: Western: Kakamega: S.Kakamega Forest, Yala River.

Description

Male. Fw length 23–24 mm; fw pale to dark ochre, with a clearly delimited, narrow transparent area postdiscally between the radius and vein m₂; fw veins finely lined with brown scales, a broader streak along the discal vein; hw pale creamy brown, weakly scaled, the central area partly transparent, darker brown at the apex and towards the outer margin. Head, thorax and dorsal base of abdomen pale greyish brown; tegulae with a black spot basally from which a faint dotted line extends posteriorly; outer sides of fore and mid femora and tibiae dark brown, those of the hind legs pale greyish brown, inner sides

of all legs red. Abdomen dorsally bright pale yellow, ventrally greyish yellow, without obvious androconial organs.

Male genitalia (Plate 13). Uncus short, broad triangular, distally with a short pointed tip. Valvae large, oval-shaped, and distally rounded; outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process short and broad, smooth, slightly curved and apically pointed. Vesica distally with six long, slender, straight, finger-like cornuti.

Female. As male.

Distribution. East Africa; Uganda, Kenya and Tanzania.

Comments. This species is distinctive both in external appearance and male genitalia, and cannot easily be confused with any other African *Amerila* species.

Additional material examined. UGANDA: Uganda (1 ♂, BMNH). KENYA: Western: Kakamega, vi.1931 (1 ♀, BMNH), v.1967 (1 ♂, NMKE), Kakamega Forest 2.–5.vii.1980 (11 ♂, 1 ♀, MB), 1.ix.1983 (2 ♂♂, MB), 16.vi.1991 (2 ♂♂, 3 ♀♀, MB); Malaba Forest, vi.1937 (1 ♂, NMKE). TANZANIA/RWANDA: Njavarongo River, viii.19 (1 ♂, BMNH).

***Amerila vidua* (Cramer) (Plates 3T; 7D)**

Phalaena vidua Cramer, 1780: 127; pl. 264, fig. C. Neotype ♂ (here designated): West Africa, Ghana, Kakum National Park, nr Cape Coast, 16.iv.1995, at *Heliotropium* bait, M. Boppré # 95–2011/Genitalia preparation, M. Boppré # 95–059 [presented to BMNH; abdomen dissected]. Type locality: GHANA: Kakum National Park, vicinity of Cape Coast.

Description

Male. Fw length 23–26 mm, comparatively broad; fw ochre, central area, from the base to the postdiscal region weakly scaled and partly transparent, suffused with brown scales but not sharply delimited; fw veins finely lined with dark scales, a slightly broader streak along the discal vein; hw pale creamy brown, overall weakly scaled, dark at the apex and with a pinkish tint. Head, thorax, and dorsal base of abdomen greyish ochre; tegulae with a single black spot basally; outer sides of fore and mid femora, tibiae, and tarsi dark brown; outer sides of hind femora and tibiae ochre, inner sides of all legs pinkish red. Abdomen dorsally pink at the base, darker red towards the tip, ventrally pale ochre suffused with pink, without obvious androconial organs.

Male genitalia (Plate 13). Uncus short, triangular, and distally with a small pointed tip. Valvae large, oval-shaped, distally rounded; outer surface with long extrusible, hirsute, tube-like coremata which distally bear a bush of long, broad, spade-like scales; inner sclerotized process short and smooth, curved, and apically pointed. Vesica distally with a small series

of small, straight, parallel cornuti of different sizes on a broad papillate appendage.

Female. As male.

Distribution. West and East Africa; from Sierra Leone to Cameroon and western Zaire; Kenya and Tanzania.

Comments. In the past, a conglomerate of species has been treated under this name, but the true identity of *vidua* remained unclear due to lack of type material. Most previous authors from Walker (1855) and Hampson (1901, 1920) to Goodger & Watson (1995) held the view that all African *Amerila* specimens with pale brown, partly suffused forewings belong to a single species, which was referred to as *A.vidua* or as *A.mauritia* (Stoll, 1781), a species described from Mauritius, and with which several other taxa have been synonymized (see Hampson, 1901). From examination of male genitalia during the course of this study, it became clear that in western Africa two common, externally similar, but genitally distinct species exist, which occur sympatrically over large parts of their range. For *A.puella*, one of the former junior synonyms, type material allowed to verify the identity of that taxon (see above). As no type material of Cramer's *vidua* could be found at ITZA nor in any of the other museum collections examined, and the original diagnosis and plate by Cramer (l.c.) could fit either one of the two taxa, a neotype had to be selected to clarify the identity and to stabilize the nomenclature. The species was originally described from the 'Cote de Guinée' (l.c.), which would restrict the type locality to western Africa somewhere around the Guinea gulf. A recently collected specimen from Ghana was chosen as neotype because of its good state.

For the differentiation between *A.vidua* and *A.puella* see the latter species.

Additional material examined. SIERRA LEONE: 1889 (1 ♂, MNHU); Banana I., i.1873 (1 ♂, BMNH). GHANA: Ashanti: Kwadoso, 25. + 29.v.1995 (2 ♂♂, MB), Bobiri, 27.iv. + 8.v.1995 (5 ♂♂, MB); Anfoega, 1956 (1 ♂, AMES). CAMEROON: S. of Bafia, xi.–xii.1914 (1 ♂, MNHU). ZAIRE: Leopoldville [= Kinshasa], iii.1902 (1 ♂, BMNH). KENYA: Western: Kakamega: Kakamega Forest, 2.–5.vii.1980 (2 ♂♂, MB); Coast: Kwale: Shimba Hills, 27.vii.1979 (1 ♂, MB), 7.–10.vi.1980 (2 ♂♂, 1 ♀, MB), 27.vi.1980 (2 ♂♂, MB), 2.–12.vii.1980 (3 ♂♂, MB), 10.viii.1982 (1 ♂, MB). TANZANIA: Tanga: Amani, 10.xi.1905 (1 ♂, MNHU); Bukoka, 27.xi.1962 (1 ♂, ZSSM).

***Amerila vitrea* Plötz**

***A.vitrea* ssp. *vitrea* (Plates 3N; 6E)**

Amerila vitrea Plötz, 1880: 84. Holotype: Eningo, R.Buchholz leg [not located; possibly in Zoological Museum, University of Greifswald; see Horn *et al.* (1990)]. Type locality: CAMEROON: 'Eningo'.

Description

Male. Fw length 20–24 mm; fw at base, and along outer and inner margin pale greyish brown, the apex darker, pale brown; the central fw area almost completely transparent, sharply delimited towards the apex and wing margins; fw veins finely lined with brown scales, a broader streak along the discal vein; hw weakly scaled, almost transparent, pale greyish brown at the tip of the apex and along the outer margin. Head, thorax, and dorsal base of abdomen pale brownish grey; tegulae with a single, weak black spot basally; outer sides of fore and mid tibiae and tarsi brown, outer sides of coxae, femora and hindlegs greyish white, inner sides of legs pinkish red. Abdomen dorsally bright pinkish red, ventrally greyish white, without obvious androconial organs.

Male genitalia (Plate 13). Uncus short and narrow, hirsute, somewhat elongated, and distally pointed. Valvae large, broad oval-shaped, and distally rounded; outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process short and slender, smooth, strongly bent at its base and with a hook-like tip. Vesica distally with two short, almost straight, parallel cornuti of unequal length fused at their base, originating from a distinct short membraneous papillate appendage.

Female. As male.

Distribution. The species is widespread across most of tropical and subtropical Africa, from the southern Arabian peninsular (Saudi Arabia, Yemen), Sudan and Eritrea south to the Cape and westwards to Senegal; on Madagascar and the Comoro Islands a different subspecies occurs.

Comments. This species had first been synonymized by Hampson (1901: 504) with *A.astreus* from India; later, however, he accepted *A.vitrea* as a separate species (Hampson, 1920: 527), as did most other authors (Gaede, 1926; Goodger & Watson, 1995). On the basis of the detailed original description, the identity of this taxon has never been in doubt, despite the fact that the type specimen apparently has never been examined.

Material examined. SENEGAL: Casamance: Sedhiou, 20.–30.viii.1917 (3 ♀♀, BMNH); Cap Skiring, 10.xi.1977 (1 ♂, 2 ♀♀, DSLU). GAMBIA: Kabafita Forest Park, 2.2 km NNW Brikama, 5.xi.1977 (1 ♂, DSLU); Gambia (1 ♂, MB). LIBERIA: Bong Town, 6°48'N, 10°21'W, 4.ix.1983 (1 ♀, GA), 29.iv.1985 (1 ♀, GA). BURKINA FASO: 4 km NE Deregone, Savanne, 26.i.–22.ii.1983 (1 ♀, BGSS). CÔTE D'IVOIRE: Badenou S Mbingue, 9.50 N, 5.50 W, 15.–16.xi.1982 (2, RS), 9.–13.xi.1983 (4, RS); Seguebe SE Sirasso, 9.11 N, 6.03 W, 11.xi.1983 (1 ♂, RS), 29.xi.1983 (1 ♂, RS); Marahoue-Ranch bei Mankono, 330–400 m, 8.22 N, 6.23 W, 15.xi.–15.xii.1981 (3 ♂♂, RS), 8.–9.xi.1982 (3 ♂♂, RS), xii.1983 (5 ♂♂, RS); Comoe Parc National, NE Kakpin, 8.45 N, 3.50 W, 15.–17.xii.1982 (2 ♂♂, RS); Riv. Bagoé, Guingereni, 9.32 N, 6.36 W, 1.iii.1983 (3 ♂♂, RS); Bundama, 12 km N Tawara, 9.45 N, 5.39 W, 9.ii.1983 (2 ♂♂, RS); 15 km E Bouafle, Pakodji near Degbezere, 7.xi.1983 (7 ♂♂, ITZA),

23.i.1984 (1 ♀, ITZA), 6.–7.ii.1984 (2 ♀♀, ITZA). GHANA: Brong Ahafo: Yamfo, 15.–20.x.1993 (2 ♂♂, 1 ♀, LK); Ashanti: Kwadoso, 26. + 29.iv.1995 (3 ♂♂, 8 ♀, MB), 12.–25.v.1995 (5 ♂♂, 3 ♀, MB), Bobiri, 27.iv.1995 (1 ♀, MB); Central: Kakum NP, 30.v.1995 (1 ♂, MB). BENIN: Bohicon, Lama-Forest, xii.1990 (1 ♂, MB), 9.–17.xii.1992 (2 ♂♂, 1 ♀, MB, SMNS). NIGERIA: Oyo: Ibadan, i.–vi.1954 (1 ♂, 1 ♀, ZMUC); Kwara [New] Bussa, Kainji, 27.v.1965 (1 ♀, ZFMK); Kaduna: Zaria, Samaru, 8.vi.1972 (1 ♀, NMBZ), Kaduna, 9. + 21.vii.1970 (1 ♂, 1 ♀, ZSSM); Federal Capital Territory: Abuja, ix.1981 (3 ♂♂, 1 ♀, ZFMK). CAMEROON: Nord: Adamaoua, ≈ 20 km S Minim, 6.49 N, 12.52 E, 1200 m, 14.iii.–6.iv.1979 (1 ♂, BGSS). ZAIRE: Leopoldville [= Kinshasa], 21.viii.1954 (1 ♀, MRAC); Shaba: Lubumbashi, 9.xi.1979 (1 ♂, MRAC); Kivu: 1967 (1 ♀, SMNS), Lwiro bei Bukuvu, 1800 m, 19.vi.–27.vii.1965 (3 ♂♂, 2 ♀♀, SMNS), i.1967 (1 ♀, SMNS), Rwanki (1 ♀, MRAC). RWANDA: Sud: Butare, 1750 m, 30.vi.1975 (3 ♂♂, 1 ♀, SMNS). BURUNDI: 65 km S Bujumbura, Tanganjika See, Hotel Resha, 780 m, 28.ii.1984 (1 ♂, ZSSM). UGANDA: Entebbe, Zika Forest, vi.1961 (1 ♀, NMBZ). SUDAN: Hudeiba, Ed Damer, 17.xii.1961 (1 ♂, ZSSM), 23.iii.1962 (1 ♀, ZSSM). ERITREA: Dorfu, 27.ix.1938 (1 ♀, MCSN). ETHIOPIA: Omo R., Bongozi, vi.1967 (1 ♀, NMKE). KENYA: Western: Kakamega, Kakamega Forest, 2.–5.vii.1980 (2 ♀♀, MB), Kakamega, xi.1967 (1 ♀, NMKE); Coast: Kwale: Shimba Hills, 8.–13.vi.1980 (1 ♂, 2 ♀♀, MB), 1984, e.o. (8 ♂♂, 6 ♀♀, MB), 1989, e.o. (4 ♂♂, 4 ♀♀, MB); Jardini, 21.–22.vi.1970 (1 ♂, 1 ♀, ZMUC); Mombasa, Shanzu, 4.vi.1980 (2 ♂♂, 2 ♀♀, MB), Galana R., 2 mi E. Tsavo Nat. Park, iv.1969 (1 ♂, NMKE), Tsavo West, Ngulia, ii.1984 (1 ♂, 4 ♀♀, MB), 14.xii.1991 (8 ♂♂, 5 ♀♀, MB), Kenami, Mtito Andei, iv.1969 (1 ♂, NMKE); Kitale, viii.1953 (1 ♀, NMKE). TANZANIA: Kigoma: Tubira Forest, 1100 m, 29.iv. + 7.v.1989 (1 ♂, 2 ♀♀, BJ); Rukwa: Mpanda, 1000 m, ii.1974 (1 ♀, BJ), Mpanda, Nkungwe, c. 1150 m, 2.iv.1957 (1 ♀, BJ); Arusha: Mount Meru Natl. P., 2000 m, 7.vii.1970 (1 ♀, ZMUC); Tanga: Mal. Inst. Amani, iv.1961 (1 ♀, BMNH), Muheza: E-Usambara, Amani, 8.vii.1982 (1 ♂, 1 ♀, BJ), Amani, Usambara, 1000 m, 27.vi.1970 (1 ♀, ZMUC), Lushoto, W-Usambara, Mazumbai, 1500 m, 12.vii.1982 (1 ♀, BJ); Morogoro: Uluguru Mts., Morningside, 1200 m, 30.xi. + 2.xii.1982 (2 ♀♀, BJ), Ilonga, Kilosa, vi.1967 (2 ♂♂, 7 ♀♀, BMNH); Coast: Kiono For., Sadani, 250 m, 17.i.1986 (1 ♀, BJ); Daressalam, iv.1909 (1 ♂, MNHU); Bumbuli bei Mombo, 1250 m, 4.v.1933 (1 ♀, SMFM). RWANDA: Kigali, 20.x.1980 (1 ♂, ZMUC). ZAMBIA: Northern: Abercorn [= Mbala], ix.1963 (1 ♀, NMKE). MOZAMBIQUE: Salone R., 25 m. S.W. of Marromeu, 21.v.1979 (1 ♀, NMBZ). NAMIBIA: Damaraland: Okahandja, 14.viii.1939 (1 ♂, SMWN). ZIMBABWE: 96 m. SE of Nuanetsi, 21°55'S 31°30'E, iv.1961 (1 ♀, NMBZ); Doddieburn Ranch, 21°27'S 29°23'E, 5.xii.1985 (1 ♂, NMBZ); Melsetter: Mount Selinda, Chirinda Forest, 19.ix.1973 (1 ♂, NMBZ). SWAZILAND: Mbabane, Mdagwane Hill, 13.xii.1992 (1 ♂, MB), 14.ii.1993 (1 ♀ MB), Lubambo Mts, Sileki, 20.xii.1992 (2 ♀♀, MB). SOUTH AFRICA: Transvaal: Bushveld, Krodilspoorberge, 21 km SE Nelspruit, 800 m, 31.i.–2.ii.1989 (5 ♂♂, WT), 25 km SE Nelspruit, 1500 m, 31.i.–2.ii.1989 (1

♂, 2 ♀♀, WT), Drakensberge, Montrose, 14 km W Nelspruit, 800 m, 28.–30.i.1989 (1 ♂, WT); Natal: See St.Lucia, Charters Creek, 0 m, 11.ii.1989 (1 ♀, WT), Sodwana Bay, 0 m, 9.–10.ii.1989 (3 ♂♂, 1 ♀, WT); Cape Province: St Johns, xi.1953 (1 ♀, NMKE).

***A.vitrea* ssp. *saalmuelleri* (Rothschild, 1911) (Plate 6F)**

Rhodogastria saalmuelleri Rothschild, 1911: 235. Synonymized with *A.vitrea* by de Toulgoet (1980: 39). Lectotype ♂ (here designated): Morondava, Madagascar./Rothschild Bequest, B.M. 1939–1./Lectotype ♂, *Rhodogastria saalmuelleri* des. by S.Muller 1980/Lectotype/Arctiidae Genitalia Slide VU no. 11.16/Arctiidae genitalia slide no. 3050 [BMNH; abdomen dissected]. Type locality: MADAGASCAR: Morondava.

Description

Male. Ground colour of fw, head, and thorax slightly more reddish ochre than in the nominate subspecies; hw discal vein broadly lined with dark greyish brown scales giving a distinctive lunule-shaped marking; otherwise as in the nominate subspecies.

Male genitalia. Generally as in the nominate subspecies, but the shape of the valvae more rounded, and the cornuti on the vesica slightly longer.

Female. As male.

Distribution. Madagascar and the Comoros Islands.

Comments. This taxon had been accepted as a separate species (Strand, 1919; Gaede, 1926) until de Toulgoet (1980) placed it as a subspecies of *A.vitrea*, a conclusion reached independently by Muller (1980: 153).

Additional material examined. MADAGASCAR: Diego Suarez, 16.–29.vii.1917 (3 ♂♂, 2 ♀♀, BMNH); 50 km SE Diego-Suarez, foret d'Analamerana, 80 m, 29.i.–3.ii.1959 (1 ♂, BMNH); Loucoube, 10.xii.1883 (1 ♂, SMFM); Majungga (1 ♀, SMFM); Mayotte, Convalescence, 300 m, ix.1958 (1 ♂, BMNH); Tulear Pr., Manombo s.l., 31.iii.1968 (1 ♀, BMNH). COMOROS ISLANDS: Grande Comore, Moroni, 7.viii.1988 (1 ♀, SMNS).

Unnamed African *Amerila*

In addition to the material listed above, we have examined several specimens during the course of this study which we have been unable to assign to any of the recognized taxa and some of which most probably represent new species. At the present state, however, we are reluctant to describe any of

them formally because of insufficient numbers, locality data, or state of preservation. The main purpose of the following list is to draw attention to the existence of these potentially new taxa and to encourage field workers and collectors to specifically look out for additional material of these forms.

***Amerila* sp.n. A**

1 ♂: Xmas Pass, S.Rhodesia, 15.ii.25, E.W.Lannin/Arctiidae Genitalia & Wing slide ♂ VU no. 4.02/Holotype/G.10583/W.3940/W.3941 [TMPR, abdomen and right wings dissected, antennae, right mid leg and hind legs missing].

Diagnosis

Fw length: 24 mm; wings, thorax, and outer sides of fore and mid femora and tibiae white; wings weakly scaled, veins of fw dark; tarsi and inner sides of fore and mid femora and tibiae red; tegulae with a single black spot basally.

Male genitalia. Uncus long and narrow, distally with a small tip pointed ventrally; tegumen well developed, broad; valvae long and narrow, oval-shaped, and distally rounded; inner sclerotized process long, straight, and distally hook-shaped; aedeagus short and broad, vesica without cornuti.

Comments. This specimen was meant to be the holotype of a new species to be described by Muller (1980) as '*Rhodogastrina lucida*'. With regard to the characters of the male genitalia, particularly the shape of the valva, this specimen clearly represents an undescribed species, but the state of preservation of both the specimen and the preparations is poor. In terms of colour pattern and genitalia characters, this species will probably prove to be related to *A.mulleri* (see above). Muller (1980: 59) had associated this male with several female specimens from Zimbabwe, Tanzania and Kenya, some of which appear to belong to *A.mulleri*.

***Amerila* sp.n. B**

1 ♂: Ngao ngao Forest, Teita Hills, Kenya. Aug.1969, B Watulege/Genital-Präparat Nr. 96–26, Chr.Häuser [NMKE; abdomen dissected, hind legs missing].

Diagnosis

Fw length: 28 mm; Wings, thorax, and outer sides of fore and mid femora and tibiae white; wings weakly scaled, veins not dark; fw costa with a short areole at base; no black dots on patagiae, tegulae, and thorax; antennae black; tarsi and inner sides of fore and mid legs pale pinkish red.

Male genitalia. Uncus long and narrow, distally with a small tip pointed ventrally; tegumen well developed, broad; valvae

long and narrow, oval-shaped, and distally rounded; inner sclerotized process long, straight, and distally hook-shaped; aedeagus short and broad, vesica without cornuti.

Comments. This specimen appears identical in genitalia with *Amerila* A (see above), but differs in size, wing shape, and body markings. If the two specimens prove not to be conspecific, then this species must also form part of the same species-group related to *A.mulleri*.

***Amerila* sp.n. C**

1 ♂: Ivory Coast/Paratype, *Rhodogastrina cinyra* sp.n., S.Muller 1980/Arctiidae ♂ Genitalia Slide VU no. 9.04/Arctiidae genitalia slide no. 3039 [BMNH; abdomen dissected].

Diagnosis

Fw length 25 mm; wings, head, and thorax white; wings weakly scaled, veins not dark; fw costa with a long areole extending from the base for almost half the fw length, broad at base and gradually tapering distally. Tegulae with a small, conspicuous black spot basally, and another faint, very small one distally; thorax ventrally and outer sides of femora and tibiae white, inner sides of femora, and tibiae, as well as tarsi red.

Male genitalia. Uncus short, triangular, presumably distally pointed. Valvae large, square-shaped, distally not rounded; outer surface with long extrusible, hirsute, tube-like coremata; inner sclerotized process slender and smooth, almost straight with a curved tip. Vesica medially with two large, short, almost parallel cornuti, one straight, the other cornutus with a marked bend near its base.

Comments. Judged from the characters of the male genitalia, in particular the cornuti of the vesica, this specimen represents most certainly an undescribed species. As the preparation is partly damaged and the locality data are imprecise, we refrain from naming it until more material becomes available. The specimen had been assigned by Muller (1980: 92) as paratype to a new species he intended to describe which, based on his selected holotype specimen, would have been a synonym of *A.niveivitrea* (see above).

Key to the African species of *Amerila*

As some *Amerila* species exhibit considerable sexual dimorphism, different keys are required for males and females, however, as the females of eight species are still unknown, only a key suitable for males is presented here. As the male genitalia are completely retracted in the posterior abdomen and not visible from outside, the sexes are best told apart by the presence of a retinaculum in male on the underside of each forewing.

The key is based exclusively on external characters and intended to allow identification in the field. In the case of females, the present key should work for most species too, with the exception of *A.androfusca*, *A.leucoptera* and *A.phaedra*.

As for several species only a few specimens were available to us, identifications obtained with this key should be cross-checked carefully with the descriptions and distribution records.

1. Fw upperside (apical region) and body white, ivory- or cream-coloured 2
 - Fw upperside (apical region) and body grey, ochre or brown, central area of fw often in part or completely transparent 17
2. Abdomen dorsally white, pinkish or red 3
 - Abdomen dorsally ivory, yellow or brown 9
3. Fw upperside evenly coloured (ivory or white) without any pattern or markings, except for dark veins or a narrow streak along the discal vein 4
 - Fw upperside mostly white, discal area with a broad transverse black band, and black at the apex ... *magnifica*
4. Fw costal vein widened as an areole from the base to about one third of the winglength, total length of fw usually > 25 mm 5
 - Fw costal vein not widened, without areole, total length of fw < 25 mm 8
5. Colour of upper wings and body plain white 6
 - Colour of upper wings and body creamy white to dark ivory 7
6. Length of fw 23–25 mm, antennae black *kiellandi*
 - Length of fw 26–29 mm, antennae brown *niveivitrea*
7. Colour of wings and body ivory-brown, tegulae with a black spot basally and another one distally, outer sides of femora and tibiae brownish *fuscivena*
 - Colour of wings and body whitish cream-coloured, tegulae with a single black spot basally, outer sides of femora and tibiae whitish *nigrivenosa*
8. Fw white with a shade of grey or ivory, discal vein with a streak of dark scales, sometimes another faded line postdiscally, length of fw 18–21 mm, abdomen dorsally bright red or pink *lupia*
 - Fw plain white, discal vein not with a dark streak, length of fw 21–25 mm, abdomen dorsally red suffused with white scales *mulleri*
9. Hw upperside, fw underside, and abdomen dorsally dark fuscous brown *androfusca*
 - Hw upperside white or ivory-coloured, abdomen dorsally whitish cream-coloured or yellow 10
10. Fw costal vein widened to a short or longer areole, from the wing base to one third of the winglength 11
 - Fw costal vein not widened, without an areole 13
11. Hw enlarged towards the inner margin, white on the anterior half but posteriorly cream-coloured, with long, wool-like hairs towards the anal margin *howardi*
 - Hw not enlarged towards the inner margin and without long hairs, generally plain white 12
12. Fw costal vein with a short areole at base, tegulae with a single spot basally *bubo*
 - Fw costal vein with a long areole from base to one third of the winglength, tegulae with two spots, one basally and another one distally *catinca*
13. Hw and fw distinctly different in colour, fw greyish white or cream-coloured, hw yellowish to pale brown 14
 - Hw and fw not different in colour, cream- to ivory coloured 16
14. Fw upperside cream- or ivory coloured, postdiscally without transparent areas *lineolata*
 - Fw upperside greyish white, postdiscally between radius and media fully or partly transparent 15
15. Hw outer margin distinctly concave towards the anal angle which forms a short projecting edge posteriorly, fw greyish brown *bipartita*
 - Hw outer margin not or only slightly concave, without the anal angle projecting posteriorly, fw pale grey to greyish white *brunnea* ssp. *bipartitoides*
16. Length of fw 20–22 mm, tegulae without any black spot. *ruffemur* ♀ (♂ unknown)
 - Length of fw 29–32 mm, tegulae with a single black spot basally *shimbaensis*
17. Length of fw 17–18 mm, fw apex dark greyish brown, clearly differentiated in colour from the central and basal parts of the fw *aldabrensis*
 - Length of fw usually > 22 mm, fw apex generally not much darker than the central or basal parts of the fw 18
18. Fw upperside dark brown, postdiscally with a broad transverse white band, tegulae with a longitudinal black stripe *syntomina*
 - Fw postdiscally without a transverse white band, tegulae with one or two black spots 19
19. Abdomen dorsally yellow 20
 - Abdomen dorsally red 21
20. Fw upperside and hw at apex and along outer margin dark greyish brown *brunnea*
 - Fw upperside and hw at apex and along outer margin not very dark, pale brown *thermochroa*
21. Fw upperside greyish white, apical region dark grey or black *nigroapicalis*
 - Fw upperside various shades of brown or ochre, often partly transparent, apical region not black 22
22. Fw densely scaled without larger transparent areas 23
 - Fw centrally in part or fully transparent, sometimes suffused 24
23. Fw upperside pale to dark brown, with the discal cell and postdiscally the area between radius and vein m3 transparent, hw dark brown anteriorly and pale ochre posteriorly *leucoptera*
 - Fw upperside pale brown without clearly transparent areas, hw uniformly yellowish *phaedra*
24. Length of fw > 27 mm, often 30 mm or longer 25
 - Length of fw generally < 26 mm 27
25. Fw reddish ochre, hw pinkish red, costal margin of fw nearly straight *madagascariensis*
 - Fw and hw pale ochre to brown, not pink or red, costal margin of fw clearly curved 26
26. Fw pale ochre distally but darker brown postdiscally, discal vein with a broad dark brown streak *bauri*
 - Fw uniformly pale brown, not noticeably darker

- postdiscally, discal vein only finely lined with brown scales *femina*
27. Fw with well defined, fully transparent areas, particularly sharply delimited towards the apex 28
 – Fw only with partly transparent areas, generally suffused and not clearly defined, without a sharp border towards the apex 32
28. Fw distinctly pale greyish ochre to dark greyish brown, hw usually not pinkish or red 29
 – Fw pale ochre to reddish brown but not grey, hw generally pinkish or red 31
29. Fw pale greyish ochre, underside of abdomen white or pale grey *vitrea*
 – Fw greyish brown, underside of abdomen pale brown or pinkish ochre 30
30. Head and thorax dorsally pale greyish brown, length of fw 21–24 mm *affinis*
 – Head and thorax dorsally dark greyish brown, length of fw 19–21 mm *luteibarba*
31. Fw dark ochre, discal area suffused with brown scales, hw distinctly pinkish or red *fennia*
 – Fw pale ochre, discal area mostly transparent, hw only with a pinkish tint *roseomarginata*
32. Fw dark reddish brown, hw distinctly pinkish red 33
 – Fw pale ochre to pale brown, if hw pinkish then fw with an oblique dark transverse discal band 34
33. Fw central transparent area almost completely suffused, dark brown *accra*
 – Fw central transparent area only partly suffused, reddish brown *makadara*
34. Fw comparatively narrow, costal margin less curved towards the apex, often with a faint dark, transverse discal band *puella*
 – Fw comparatively broad, costal margin more curved towards the apex, without any dark, transverse discal band 35
35. Fw transparent area comparatively more sharply delimited towards the apex, discal vein with a distinct brown streak *castanea*
 – Fw transparent area comparatively less sharply delimited towards the apex, more suffused, discal vein only finely lined with brown scales *vidua*

Afrotropical taxon to be excluded from *Amerila*

Cretonotos atrivena (Hampson) **comb.n.**

Rhodogastria atrivena Hampson, 1907: 240. Holotype ♂ (examined): Uganda, Entebbe. 05, E.A.Minchin., 1906–19./*Rhodogastria atrivena* type ♀ Hmpsn./Arctiidae genitalia slide No. 4370/Type [BMNH; abdomen dissected]. Type locality: UGANDA: Entebbe.

Comments. Although originally described in *Rhodogastria* and subsequently included in that genus or *Amerila* by all previous authors (Hampson, 1920; Gaede, 1926; Häuser, 1993; Goodger & Watson, 1995), this species is clearly not congeneric with *Amerila*. The male has pectinate antennae and the genitalia

are very different from all *Amerila* species examined. It is therefore removed here from *Amerila* and included in *Cretonotos*, which itself might prove to be a temporary placement awaiting further revisionary work on that genus.

General discussion

The total number of thirty-five *Amerila* species recognized here for the Afrotropical region shows no real difference from the thirty species accepted by Gaede (1926) and the thirty-four listed by Goodger & Watson (1995). However, the species recognized by us differ taxonomically in about 45% of all cases from those listed by Gaede (1926), and about 30% from those listed by Goodger & Watson (1995). Therefore, it would be quite incorrect to conclude *Amerila* is taxonomically well known. For eight species only males are known, of one only females are available, and a number of specimens are likely to represent new taxa. Thus, our results suggest that several more species still await to be discovered in Africa.

Because *Amerila* are fairly conspicuous, the paucity in knowledge not only of their biology but also their taxonomy is a surprise. Despite intense efforts to investigate specimens from as many areas as possible, we were unable to find any material from six countries (Guinea-Bissau, Congo, Central African Republic, Burundi, Somalia, Botswana), and from many countries only a few specimens have been available. At the same time, we recognized new species and subspecies in well-collected countries like Kenya and Tanzania. Several taxa described long ago are still very rare in collections. Although a comprehensive treatise of *Amerila* cannot be given to date, we believe that – in contrast to most other genera of moths – there are good chances to elucidate further the taxonomy and systematics of *Amerila* in the foreseeable future: with the knowledge of pharmacophagous attraction of both sexes of *Amerila* to baits containing pyrrolizidine alkaloids (PAs) simple means to collect specimens in the field exist, and easy rearing of *Amerila* on artificial diet further facilitates research not only on taxonomy but also ecology.

At first glance, the genus *Amerila* appears as a quite homogeneous taxon which might explain why, on the one hand, many species were long confused, and, on the other hand, why the group has received relatively little attention. However, looked at from physiological, ecological and evolutionary perspectives, this group is much deserving of interest. The information available already proves that detailed field and laboratory studies will not only give rise to most interesting findings in the broad context of chemical ecology, but also with respect to biogeography, speciation and phylogenetic systematics.

The uniformity of external characters of *Amerila* exhibits an interesting parallel, but also some differences with the nymphalid subfamily Danainae. The moths and the butterflies gather PAs as adults and store them for defence (see Boppré, 1990; M. Boppré *et al.* unpublished data). However, there seems to be no sex-bias in PA-related pharmacophagy in *Amerila*, while in danainae it is usually only the males that visit PA sources. Both groups are characterized by elaborate

androconial organs; in *Amerila* their morphology (cf. Plate 1) is even more diverse than in danaine genera (cf. Boppré & Vane-Wright, 1989). Male courtship pheromones are complex bouquets of chemicals of various types both in *Amerila* and in danaines, but the latter use PA-derivatives as major components which have not been found in *Amerila* (Schulz *et al.*, 1993; Schmidt, 1992). In conclusion, *Amerila* appear to be particularly suited for obtaining general insights about the evolution of communication systems and their relation to chemical defence, especially if the exclusively night-active *Amerila* and the day-active danaines are studied in comparison (cf. Vane-Wright & Boppré, 1993).

Batesian and Müllerian mimicry, well-known features of danaine biology that are thought to drive diversity in androconial morphology and chemistry, are not obvious in the equally aposematic *Amerila*. However, *Amerila* colour patterns might also be interpretable in a mimicry context. In *Amerila*, two distinct colour patterns (white and brown) are found which definitely do not represent two evolutionary lines as one might suspect from a superficial examination. Instead, the existence of striking sexual dimorphism in several species links both types of pattern. In sexually dimorphic species the males are always brown and the females white; interestingly, the opposite arrangement does not occur. At the same time, there are species with only moderate sexual dimorphisms and the majority of these lack not only distinct differences between the sexes but also to other taxa. Thus, neither similarity of species, nor sexual dimorphism or maximal similarity is typical for the genus.

What selective forces drive the colour patterns within such a relatively small taxon? Is it Müllerian mimicry? Perhaps *Amerila syntomina* holds the key to understanding the 'simultaneous' diversity and similarity in the outward appearances of *Amerila*. *Amerila syntomina* exhibits a wing pattern unique for the entire genus, but is almost identical to species of the arctiid genus *Caryatis* and very similar to *Nyctemera* (and several other moths the biology of which is entirely unknown). Because only *Nyctemera* but no *Amerila* or *Caryatis* species are day-flying, mimicry would not seem a plausible explanation. However, in favour of considering mimicry is the fact that *Nyctemera*, as with *Amerila*, is chemically well protected by PAs (Benn *et al.*, 1979; M. Boppré, unpublished data), although in *Nyctemera* not only do the adults gather PAs in a pharmacophagous way, but the larvae also feed exclusively on PA-containing plants (mainly of the asteraceous genus *Senecio*). Finding *A. syntomina rubondoii* in East Africa from where *Caryatis* is unknown gives rise to interesting speculations on 'who is the model' and calls for further studies.

Amerila exhibits not only visual but also acoustic aposematism. For the entire genus large tymbal organs are characteristic. These produce hissing sounds when a specimen is disturbed (Carpenter & Eltringham, 1938). Apparently, these sounds are neither species-specific nor do they exhibit sexual differences (M. Eckrich & M. Boppré, unpublished data), indicating a role in defence (Eckrich & Boppré, 1990) but without excluding a role in courtship behaviour. Upon disturbance hissing sounds are accompanied by intense frothing from prothoracic glands (Carpenter & Eltringham, 1938; Talbot,

1931; Plate 1F). The froth not only has an aversive odour to humans but also contains PAs which are likely taste-repelling (M. Boppré *et al.*, unpublished data).

With the taxonomic treatment given above, the grounds are laid for publication of various field observations, accounts of larval characters, and chemical, morphological and behavioural data which have been withheld to avoid taxonomic confusion (M. Boppré *et al.*, unpublished data). In addition, however, we hope that this paper also stimulates colleagues in Africa (and Asia) to pay more attention to *Amerila*, and contribute to the goal of developing a functional morphology and behavioural ecology framework for these peculiar arctiids, for interpretation within an evolutionary perspective. With additional data on host plant relationships, habitat requirements, seasonality, community ecology, larval characters, morphology and chemistry of scent organs, and from genetic fingerprinting, an extensive cladistic analysis is envisaged which will not only provide a better understanding of the genus but will also contribute to the question of values attributable to different character sets.

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References

- Aurivillius, C. (1899) Diagnosen neuer Lepidopteren aus Africa. *Entomologisk Tidskrift*, **20**, 242.
- Bartel, M. (1903) Neue aethiopische Arctiidae der Sammlung des Kgl. Museums für Naturkunde in Berlin. *Deutsche Entomologische Zeitschrift Iris*, **16**, 170–214.
- Benn, M., DeGrave, J., Gnanasunderam, C. & Hutchins, R. (1979) Host-plant pyrrolizidine alkaloids in *Nyctemera annulata* Boisduval: their persistence through the life-cycle and transfer to a parasite. *Experientia*, **35**, 731–732.
- Bergomaz, R. & Boppré, M. (1986) A simple semi-artificial diet for rearing *Rhodogastria* (Arctiidae) and various other moths (Lepidoptera). *Journal of the Lepidopterists' Society*, **40**, 131–137.
- Berio, E. (1935) Nuove Arctiidae d'Africa de Museo di Geneva. *Annali del Museo Civico di Storia Naturale Giacomo Doria*, **59**, 26.
- Bethune-Baker, G.T. (1925) On the scent-sacks in the genus *Rhodogastria*. *Transactions of the Entomological Society of London*, **1925**, 321–329.
- Blanchard, C.E. (1849) In: *Dictionnaire universel d'Histoire Naturelle, Atlas* (ed. by A. D. d'Orbigny), **2** (Ins. Lépidoptères), pl. 13, fig. 3.
- Boisduval, J.B.A.D. (1847) In: *Voyage dans l'Afrique australe 1838–1844* (ed. by A. Delegorgue), **2**, 598. A. René et Ce, Paris.
- Boppré, M. (1981a) Adult Lepidoptera 'feeding' at withered *Heliotropium* plants (Boraginaceae) in East Africa. *Ecological Entomology*, **6**, 449–452.
- Boppré, M. (1981b) A synonymy in the genus *Rhodogastria* (Lep., Arctiidae) resulting from sexual dimorphism. *Mitteilungen der Münchner Entomologischen Gesellschaft*, **71**, 163–165.
- Boppré, M. (1984) Redefining 'pharmacophagy'. *Journal of Chemical Ecology*, **10**, 1151–1154.
- Boppré, M. (1986) Insects pharmacophagously utilizing secondary plant substances (pyrrolizidine alkaloids). *Naturwissenschaften*, **73**, 17–26.
- Boppré, M. (1990) Lepidoptera and pyrrolizidine alkaloids: exemplification of complexity in chemical ecology. *Journal of Chemical Ecology*, **16**, 165–185.
- Boppré, M. (1996) The diverse chemoecology of pyrrolizidine alkaloids: facts, fiction, and prospects. *Chemoecology*, **7**, in press.
- Boppré, M. & Vane-Wright, R.I. (1989) Androconial system in Danainae (Lepidoptera): functional morphology of *Amauris*, *Danaus*, *Tirumala* and *Euploea*. *Zoological Journal of the Linnean Society*, **97**, 101–133.
- Butler, A.G. (1878) Descriptions of some new genera and species of Lepidoptera from Old Calabar and Madagascar. *The Annals and Magazine of Natural History* (5), **2**, 456.
- Carpenter, G.D.H. & Eltringham, H. (1938) Audible emission of froth by insects. *Proceedings of the Zoological Society*, **A**, **17**, 243–252.
- Common, I.F.B. (1990) *Moths of Australia*. Melbourne University Press, Carlton, Victoria.
- Cramer, P. (1780) *De Uitlandsche Kapellen voorkomend in de drei Waerld-Deelen Asia, Africa en America*, **3**, 127. Amsterdam & Utrecht.
- Dallwitz, M.J., Paine, T.A. & Zurcher, E.J. (1993) *User's Guide to the DELTA System: A General System for Processing Taxonomic Descriptions*, 4th edn. CSIRO Division of Entomology, Canberra.
- Debauche, H. (1938) Amatidae et Lithosiidae nouveaux ou peu connus. *Bulletin du Musée Royal d'Histoire Naturelle de Belgique*, **14** (9), 21.
- Druce, H. (1887) Descriptions of some new Species of Lepidoptera Heterocera, mostly from Tropical Africa. *Proceedings of the Zoological Society of London*, **1887**, 669.
- Eckrich, M. & Boppré, M. (1990) Chemical and acoustic cues in the defence of arctiid moths (Lepidoptera) against small mammals. *Verhandlungen der Deutschen Zoologischen Gesellschaft*, **83**, 632.
- Fabricius, J.C. (1794) *Entomologia systematica emendata et aucta*, **3** (1), 474.
- Fryer, J.C.F. (1912) The Lepidoptera of the Seychelles and Aldabra, exclusive of the Oneodidae and Pterophoridae and of the Tortricina and Tineina. *The Transactions of the Linnean Society of London. Zoology*, **15**(2), 6.
- Gaede, M. (1926) 5. Gattung *Rhodogastria* Hbn. In: *Die Gross-Schmetterlinge der Erde*, **14** (ed. by A. Seitz), pp. 108–109. Band: Die Afrikanischen Spinner und Schwärmer. A. Kernen Verlag, Stuttgart.
- Goodger, D.T. & Watson, A. (1995) *Catalogue of the African Tiger-Moths (Lepidoptera: Arctiidae: Arctiinae)*. Apollo Books, Stenstrup.
- Grünberg, K. (1908) Neue Lepidopteren aus Uganda. *Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin*, **1908**, 62.
- Häuser, C.L. (1993) A critical catalogue of species-group names of the genus *Amerila* Walker, 1855 (Lepidoptera: Arctiidae). *Nachrichtenblatt des entomologischen Vereins Apollo (Frankfurt/M)*, **N.F. 13**, 365–392.
- Hampson, G.F. (1900) The Moths of South Africa (Part I). *Annals of the South African Museum*, **2**, 33–66.
- Hampson, G.F. (1901) *Catalogue of the Lepidoptera Phalaenae in the British Museum*, Vol. III. British Museum (Natural History), London.
- Hampson, G.F. (1907) Descriptions of new Genera and Species of Syntomidae, Arctiidae, Agaristidae, and Noctuidae. *The Annals and Magazine of Natural History*, **19** (7), 240.
- Hampson, G.F. (1911) Descriptions of new Genera and Species of Syntomidae, Arctiidae, Agaristidae, and Noctuidae. *The Annals and Magazine of Natural History*, **8**(8), 411–412.
- Hampson, G.F. (1916) Descriptions of new species of the family Arctiidae in the British Museum. *Novitates Zoologicae*, **23**, 239–240.
- Hampson, G.F. (1920) *Catalogue of the Lepidoptera Phalaenae in the British Museum*, Supplement Vol. II. British Museum (Natural History), London.
- Holloway, J.D. (1988) *The Moths of Borneo*. Part 6. The Malayan Nature Society, Kuala Lumpur.
- Horn, W., Kahle, I., Friese, G. & Gaedike, R. (1990) *Collectiones entomologicae*. Akademie der Landwirtschaftswissenschaften der DDR, Berlin. 2 vols.
- Hulstaert, P.G. (1923) Hétérocères nouveaux du Congo belge. *Revue de Zoologie Africaine*, **11**, 411.
- Kirby, W.F. (1892) *A Synonymic Catalogue of Lepidoptera Heterocera (Moths)*. Volume I. London, xii, 951 pp.
- Kiriakoff, S.G. (1950) Recherches sur les organes tympaniques des Lépidoptères en rapport avec la classification. *Lambillionea*, **7–10**, 62–73.
- Kiriakoff, S.G. (1954) Hétérocères nouveaux ou peu connus du Katanga. *Revue de Zoologie et de Botanique Africaines*, **50**, 186.
- Kôda, N. (1987) A generic classification of the subfamily Arctiinae of the Palaearctic and Oriental regions based on male and female genitalia (Lepidoptera, Arctiidae). Part I. *Tyô to Ga*, **38**, 153–237.
- Mabille, P. (1879) Lepidoptera Madagascariensia; species novae. *Bulletin de la Société philomatique de Paris*, **3**(7), 137.
- Muller, S. (1980) *Some afrotropical moths placed in the genera Diacrisia and Rhodogastria (Lepidoptera: Arctiidae: Arctiinae)*. Dissertation thesis. Biologisch Laboratorium der Vrije Universiteit, Amsterdam.
- Möschler, E.B. (1884) Beiträge zur Schmetterlings-Fauna des Kaffernlandes. *Verhandlungen der k.k. zoologisch-botanischen Gesellschaft in Wien*, **33**, 289.
- Pinhey, E.C.G. (1952) Notes on Odonata and Lepidoptera made on a collecting trip in Uganda with descriptions of two new Arctiidae (Lep.) from Tanganyika and Kenya. *The Entomologist's monthly Magazine*, **88**, 169–176.

- Pinhey, E.C.G. (1955) Some new species of Lepidoptera from eastern Africa. *Occasional Papers of the Coryndon Museum Nairobi*, **4**, 14.
- Pinhey, E.C.G. (1975) *Moths of Southern Africa*. Tafelberg Publishers Ltd, Cape Town.
- Plötz, C. (1880) Verzeichniss der vom Professor Dr R. Buchholz in West-Africa gesammelten Schmetterlinge. *Entomologische Zeitung* [Stettin], **41**, 84.
- Rothschild, L.W. (1910) Descriptions of new species of Arctiinae in the Tring Museum. *Novitates Zoologicae*, **17**, 183, 186.
- Rothschild, L.W. (1911) A new Madagascar Arctiid. *The Annals and Magazine of Natural History*, **8**(8), 235.
- Rothschild, L.W. (1914) V. Subfamilie Arctiinae. In: *Die Gross-Schmetterlinge der Erde*, **10** (ed. by A. Seitz), pp. 236–264. Band: Die indo-australischen Spinner und Schwärmer. A. Kernen Verlag, Stuttgart.
- Schmidt, F. (1992) *Identifizierung und Synthese leichtflüchtiger Inhaltsstoffe von Schmetterlingen*. Dissertation, FB Chemie der Universität Hamburg.
- Schulz, S., Boppré, M. & Vane-Wright, R.I. (1993) Specific mixtures of secretions from male scent organs of African milkweed butterflies (Danainae). *Philosophical Transactions of the Royal Society of London B*, **342**, 161–181.
- Strand, E. (1911) Neue Gattungen und Arten Afrikanischer Heterocera. *Deutsche Entomologische Zeitschrift*, **1911**, 587.
- Strand, E. (ed.) (1919) Arctiidae: Subfam. Arctiinae. In: *Lepidoptorum Catalogus* **22**, 376. W. Junk, Berlin.
- Talbot, G. (1931) Protective device in *Rhodogastria*. *Proceedings of the Entomological Society of London*, **5**, 83.
- de Toulgoet, H. (1980) Note de nomenclature (Lep. Arctiidae). *Bulletin de la Société entomologique de France*, **85**, 37–41.
- Vane-Wright, R.I. & Boppré, M. (1993) Visual and chemical signalling in butterflies: functional and phylogenetic perspectives. *Philosophical Transactions of the Royal Society of London B*, **340**, 197–205.
- Vane-Wright, R.I., Schulz, S. & Boppré, M. (1992) The cladistics of *Amauris* butterflies: congruence, consensus and total evidence. *Cladistics*, **8**, 125–138.
- Viette, P. & Fletcher, D.S. (1968) The types of Lepidoptera Heterocera described by P. Mabille. *Bulletin of the British Museum (Natural History)*, *Entomology*, **21** (8), 389–425.
- Wallengren, H.D.J. (1858) Nya Fjäril-slågten. *Öfersigt af Kongliga Vetenskaps-Akademiens Förhandlingar* [Stockholm], **15**, 214.
- Walker, F. (1855) *List of the specimens of lepidopterous insects in the collection of the British Museum*, **3**. British Museum (Natural History), London.
- Watson, A., Fletcher, D.S. & Nye, I.W.B. (1980) *The Generic Names of Moths of the World* (ed. by I.W.B. Nye), Vol. 2. British Museum (Natural History), London.
- Weymer, G. (1892) Exotische Lepidopteren VI. *Stettiner Entomologische Zeitung* [Stettin], **53**, 106.

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