

A Review of African Blastobasinae  
(Lepidoptera: Gelechioidea:  
Coleophoridae), with New  
Taxa Reared from Native  
Fruits in Kenya

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## ABSTRACT

Adamski, David, Robert S. Copeland, Scott E. Miller, Paul D. N. Hebert, Carolyn Darrow, and Quentin Luke. A Review of African Blastobasinae (Lepidoptera: Gelechioidea: Coleophoridae), with New Taxa Reared from Native Fruits in Kenya. *Smithsonian Contributions to Zoology*, number 630, vi + 68 pages, 62 figures, 13 maps, 2 tables, 2010. — Twenty-five species of African Blastobasinae (Lepidoptera: Coleophoridae) are reviewed; 12 species are redescribed, and 13 species are described as new. Rearing of Lepidoptera ancillary to sampling efforts targeted for fruit flies (Diptera: Tephritidae) and their parasitoids was conducted in and near forested areas in coastal, central highland, and western highland habitats in Kenya. Reared moths were associated with fruits of 64 plant species in 34 families. Two new species, *Blastobasis millicentae* and *Neoblastobasis perisella*, were discovered in mixed original type series of species described by Meyrick and also reared from fruit. Eight new species, *Blastobasis acirfa*, *B. aynekiella*, *B. chuka*, *B. elgonae*, *B. kenya*, *B. glauconotata*, and *Neoblastobasis ximeniaella*, and *N. wangithiae*, are known only from specimens reared from fruit. One new species, *Blastobasis catappaella*, was reared from fruit and collected at black light. Finally, two new species, *Neoblastobasis laikipiae* and *Blastobasis mpala*, are known only from black light samples. DNA barcodes augmented the ability to discriminate between some closely related species within several genera. Male specimens of *Blastobasis kenya*, *B. acirfa*, and *B. aynekiella* and some associated female conspecifics, in particular, had distinctly different barcodes but were not initially diagnosed using standard morphological features. Subsequently, corroborative morphological features were found to support the DNA barcode data, and both data are discussed herein. Lectotypes are designated for *Blastobasis arguta* Meyrick, 1918; *B. byrsodepta* Meyrick, 1913; *B. egens* Meyrick, 1918; *B. eridryas* Meyrick, 1932; *B. extensa* Meyrick, 1918; *B. indigesta* Meyrick, 1931; *B. industria* Meyrick, 1913; and *B. trachilista* Meyrick, 1921. *Zenodochium arguta* Meyrick, 1918 is transferred to *Calosima* Dietz, 1910, new combination, and *Tecmerium irroratella* Walsingham, 1891 and *Blastobasis extensa* Meyrick, 1918 are transferred to *Holococera* Clemens, 1863, new combinations. *Neoblastobasis indigesta* (Meyrick, 1931), revised status, is transferred to *Blastobasis* Zeller, 1855. *Syndroma* Meyrick is a junior synonym of *Holococera* Clemens, 1863, and *Syndroma lignyodes* Meyrick, 1914 is transferred to *Holococera*, new combination. The first African records for *Holococera*, *Calosima*, and *Neoblastobasis* are reported. A key for all African Blastobasinae is included, together with photographs of the adults and illustrations of the male and female genitalia. Distribution maps are provided for all new species reared from fruits. All taxonomic decisions such as new species, lectotype designations, synonymies, and transfers are attributed to the senior author.

**Keywords:** Lepidoptera, *Blastobasis*, *Calosima*, *Holococera*, *Neoblastobasis*, Africa, fruit, DNA barcodes, cytochrome c oxidase I mitochondrial gene.

Cover images, from left to right: photographs of holotypes of *Blastobasis glauconotata*, *B. kenya*, and *Calosima arguta*.

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# A Review of African Blastobasinae (Lepidoptera: Gelechioidea: Coleophoridae), with New Taxa Reared from Native Fruits in Kenya

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## INTRODUCTION

Collaboration among the International Centre of Insect Physiology and Ecology (ICIPE), the Smithsonian Institution's National Museum of Natural History (USNM), the National Museums of Kenya (NMK), and the Department of Integrative Biology, University of Guelph, in understanding the Lepidoptera of Kenya has provided an opportunity to review the Blastobasinae (Coleophoridae) of Africa. From 1999 to 2004, Copeland directed an insect-rearing program from native fruit at sampling sites throughout Kenya. Much of the data from this study, which focused primarily on fruit flies (Tephritidae), has been published elsewhere (Copeland et al., 2002, 2004, 2005, 2006; De Meyer et al., 2002; White et al., 2003; Barr et al., 2006; Copeland and Wharton, 2006; De Meyer and Freidberg, 2006). Additionally, this study has provided the largest sample of reared Blastobasinae known from the African continent.

From 1998 to 2006, Miller (Miller, 2000) intensively sampled moths with black light at Mpala Research Centre (MRC) in central Kenya, thus providing a long-term view of the Blastobasinae at a single site. In order to provide a context for these samples, we examined the type material of all the previously described species of Blastobasinae from Africa. We used classical morphological characters and DNA barcodes (Hebert et al., 2003; Burns et al., 2007, 2008) to assess species limits. Although we are still accumulating samples of Blastobasinae from additional African localities, we are publishing this paper now to provide a taxonomic framework for further studies and to make the fruit-rearing data available for further analysis.

In the modern keys to moth families in Africa, only Delvare and Aberlenc (1989) and Holloway et al. (1987) included Blastobasinae; Janse (1932–1964), Pinhey (1975), and Scholtz and Holm (1985) did not. We follow Hodges (1998), who treated Blastobasidae sensu Meyrick (1894) as one of four subfamilies

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within Coleophoridae. Both Hodges (1998) and Adamski and Brown (1989) agree on the monophyly of the Blastobasinae. These small- to medium-sized moths can be identified by the following combination of characters: forewing with pterostigma between Sc and R<sub>1</sub>, base of CuA<sub>2</sub> at or near right angle to cubitus, subcubital retinaculum present in female, spiniform setae on abdominal terga, aedeagal sclerite present, valva divided, and anellus setose.

#### ACKNOWLEDGMENTS

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This work was supported by USAID grant PCE-G-00-98-0048-00 (in collaboration with the International Centre of Insect Physiology and Ecology and its African Fruit Fly Initiative) and in part by USDA/CSREES/IFAFS grant 00-52103-9651, both awarded to R. A. Wharton, Texas A&M University.

#### MATERIALS AND METHODS

This study is based on approximately 300 specimens, including primary types of all named species, over 250 genitalic dissections, and 169 cytochrome c oxidase I (COI) sequences.

As part of biodiversity inventories undertaken in collaboration among MRC, ICIPE, USNM, and NMK (Miller, 2000; Miller and Lazell, 2003; Miller and Rogo, 2003), moths were collected at MRC by Scott Miller and Tina Kuklenski on 24 nights from May 1998 to December 1999 and on an additional 8 nights from 2000 through 2003. Moths were collected at mercury vapor and

florescent black lights. The microlepidoptera were individually killed and spread in the field.

The MRC is a biological field station managed in collaboration with Kenya Wildlife Service, NMK, Princeton University, and the Smithsonian Institution. It is located in semiarid savanna on the Laikipia Plateau of central Kenya, west of Mount Kenya, 50 km north of the equator, and 50 km from Nanyuki town. MRC is at 1650 m elevation at 0.293°N and 36.899°E. Young et al. (1995, 1997), Keesing (1998, 2000), and the Mpala Wildlife Foundation (<http://www.mpala.org>) provide general descriptions of the environment. Annual mean rainfall at MRC is between 550 and 660 mm, but with substantial spatial and temporal heterogeneity (Berger, 1989). The vegetation is characteristic of semiarid African savannas, predominantly grassy savanna bushland, with patches of woodland and open grassland. Dominant trees include *Acacia* (Mimosaceae), *Balanites* (Balanitaceae), and *Boscia* (Capparaceae).

Although MRC has excellent facilities and is well situated in one of the most biologically interesting regions of Kenya, little invertebrate inventory work has been conducted there. Moreover, the Laikipia area has historically been ignored both by visiting biological expeditions and by local Kenyan residents, in part because it is outside of the famous wildlife parks. Early expeditions collected some insects in the Laikipia area, but they collected very few moths (e.g., von Höhnel, 1894; Chanler, 1896; Gregory, 1896; Rehn, 1936). On a purely historical note of interest, a nearby ranch was featured in the recent movie *I Dreamed of Africa*, based on the book by Kuki Gallmann (1991), and the natural history of another adjacent ranch has been recorded elegantly in popular essays by Grant (1995, 2001).

Rearing methods and sampling strategy for the native fruit-rearing program are provided by Copeland et al. (2002) and Copeland (2006). All fruits were collected from native plant species except for *Passiflora mollissima* (Kunth) L. H. Bailey (Passifloraceae). Ripe and unripe fruits were collected from plants and occasionally from the ground; samples showing noticeable rotting were discarded. Because of the rearing conditions and multiple techniques involved, the quality of adult moths varied. Thus, some specimens were not used in the analysis because of their poor condition.

The color standard for the description of the adult vestiture is from Kornerup and Wanscher (1978). Genitalia were dissected as described by Clarke (1941), except Mercurochrome and chlorazol black were used as stains. Pinned specimens and genital preparations were examined with dissecting and compound microscopes.



All descriptions and redescriptions are based on adult morphology. The descriptions of the male and female genitalia, with respect to the orientation of a structure or structures relative to each other, were made as they are observed on the body proper and not how they may be illustrated from a permanent slide preparation. Measurements of wings were made using a calibrated ocular micrometer. Label data are given verbatim within quotations for all primary types and for selected paratypes. Other label data for reared specimens having “R.S. Copeland,” “ICIPE/USAID,” and “Restrictions Apply, NMK/ICIPE, Agreement # 5,” and the prefix of all eight-digit barcodes are omitted from the text. Genitalia slide numbers are in D. Adamski series unless noted otherwise. Acronyms for the depositories of specimens examined are as follows.

|      |  |
|------|--|
| BMNH | Natural History Museum, London, UK   |
| NMK  | National Museums of Kenya, Nairobi, Kenya  |
| MRAC | Royal Museum of Central Africa, Tervuren, Belgium                                  |
| SAMC | South African Museum, Cape Town, South Africa                                      |
| TMP  | Transvaal Museum, Pretoria, South Africa   |
| USNM | National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA |

All new species are attributed to the senior author.

Sequences were produced at the University of Guelph. DNA was extracted from legs of adult specimens and amplified using a QIAGEN DNeasy Tissue Kit. Primers LepF1 and LepR1 (Hebert et al., 2004) were used to obtain a 658 base pair fragment of COI with a standard thermocycling regime (Hajibabaei et al., 2006). PCR products were sequenced subsequently on an ABI 3730 capillary sequencer. Sequences are available at the National Center for Biotechnology Information GenBank database (accession numbers GQ330121–GQ330289) and at the Barcode of Life Database (BOLD). Neighbor-joining (NJ) trees were generated from nucleotide sequences as implemented in BOLD (Ratnasingham and Hebert, 2007). Phylogenetic and molecular evolutionary analyses were conducted using Molecular Evolutionary Genetics Analysis (MEGA) version 4 (Tamura et al., 2007). While we recognize the limitations of NJ trees, they are an efficient means of analyzing and presenting DNA barcode data (Hajibabaei et al., 2006, 2007; DeSalle, 2007; Waugh et al., 2008). Our initial species identifications were based on morphology and were then tested against clustering based on DNA. We rechecked morphology when there were inconsistencies. DNA was especially helpful in associating conspecific

males and females, as well as revealing some initial errors in morphological identifications. In only three cases (see “DNA Sequence Data” in “Discussion”) did morphology and DNA not agree on species identification, likely because of contamination. Because we expect to add DNA sequences for many species in the future, we are delaying more detailed analysis of sequences.

In this study, we regard all specimens within a type series that contains two or more specimens of a species described by E. Meyrick as syntypes. Although Meyrick indicated to Janse (in personal correspondence) in October 1909 and July 1912 that he considered the specimens studied and returned to Transvaal as “types” (see Janse, 1968), Meyrick did not specify a “type” in his original descriptions. Therefore, the “gentleman’s agreement” between Meyrick and Janse is not binding under the International Code of Zoological Nomenclature (ICZN), and it is our opinion that Janse erroneously labeled such specimens as “holotype.” Gozmány and Váry (1973) support this view, citing ICZN article 73(b), and they further indicate that Janse’s “holotype” designations are actually “lectotype” selections. We do not agree with Gozmány and Váry’s conclusion about “lectotype” selections by Janse, but we believe that their decision originated from their belief that all specimens within a type series that contains two or more specimens of a species described by E. Meyrick were indeed syntypes. If this is true, then their view supports our argument. We thus treat all specimens within Meyrick’s type series as having equal status, and our “lectotype” designations are based on the quality of the specimens rather than present deposition.

## RESULTS

The taxon tree or phenogram (Figure 1) represents a total of 169 sequence samples for 15 species of Blastobasinae (Coleophoridae) reared from fruit or collected at black light in Kenya. Sequence data for *Blastobasis kenya* are represented by 57 samples and 1 “outlier” sequence of *Blastobasis chuka* (♂: 00196357, DA 5093).

*Blastobasis elgonae* is represented by two sequences (♂: 00196891, DA 5020 and ♀: 00196892, DA 5021) that cluster with one sample of *B. glauconotata* (♂: 00196387, DA 5019) and near one sample of *B. glauconotata* (♂: 00196367, DA 5106). Species assignments for these samples are resolved by examination of the male genitalia.

Four specimens from Shimba Hills diverge from the main *Blastobasis acirfa* cluster. Three of these (♂: 00196314,

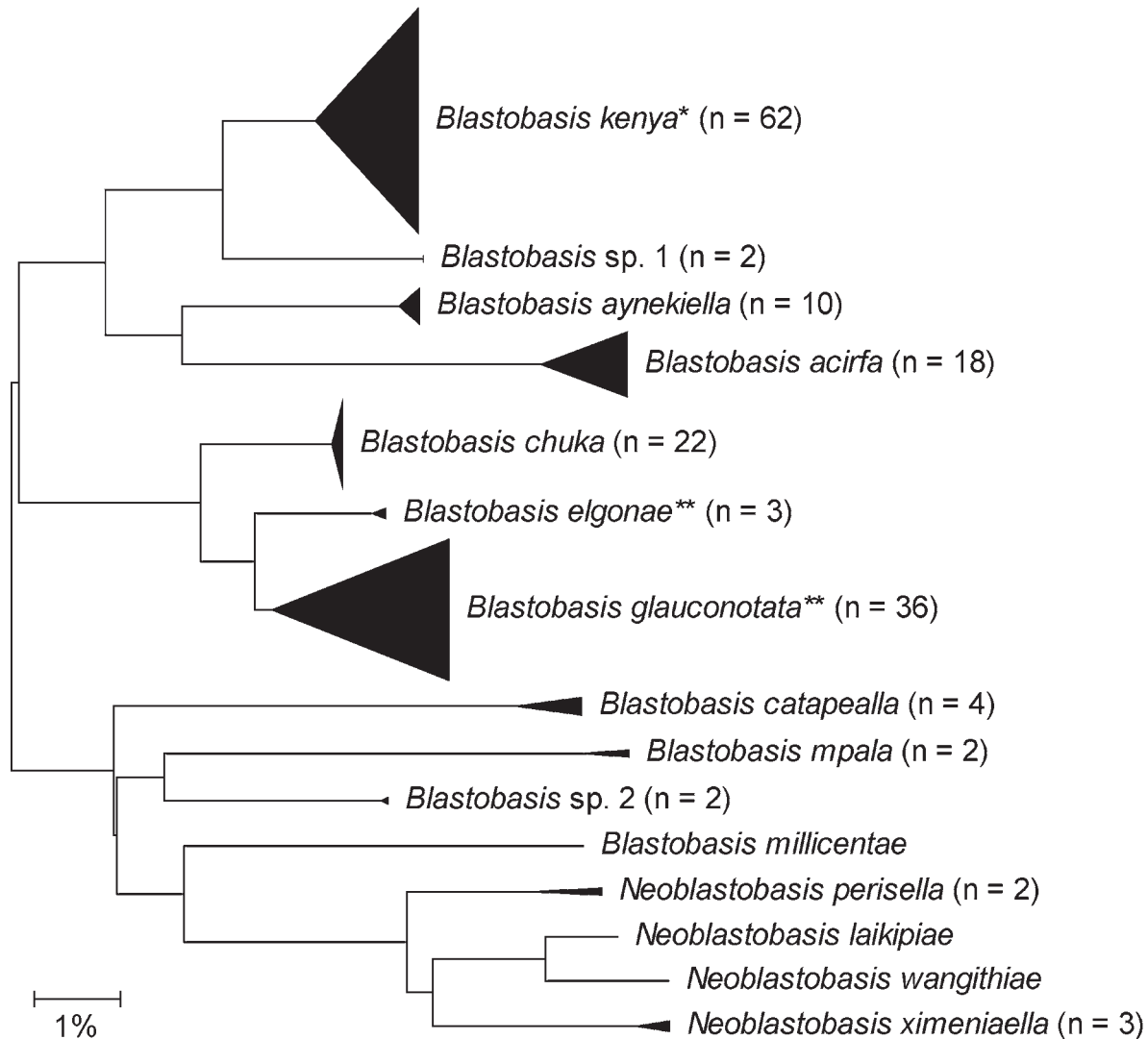


FIGURE 1. A compressed subtree sequence data of Blastobasinae (Coleophoridae) taken from 169 samples among 15 species from Kenya based upon neighbor-joining analysis with Kimura 2-parameter model using pairwise deletion of gaps and or missing data. The analysis shows that 168 of the 659 sites exhibited variability. Subtrees are compressed into triangles with a vertical scale of 2 pixels per specimen; the horizontal scale corresponds to divergence. A single asterisk (\*) indicates a sample of *Blastobasis kenya* with one “outlier” sample (USNM 00196357); \*\* indicates two “outlier” samples of *Blastobasis glauconotata* (USNM 00196387 and 00196367).

DA 5062; ♀: 00196381, DA 5121; ♀: 00196410) may represent an undescribed species, but we do not treat this in the taxonomic section because their identities are not clear because of the poor condition of the specimens. The fourth specimen in the divergent cluster (♂: 00196356, DA 5092) is identified as *Blastobasis chuka* and is treated below.

Two divergent samples (♀: 00196429 and ♀: 00196430) near *Blastobasis kenya* are treated as unassociated females and are not included in the taxonomic part of the text. Similarly, two divergent samples (♀: 00196893, DA 4361 and ♀: 00196405) near *Blastobasis mpala* are treated as unassociated females.

## KEY TO THE SPECIES OF BLASTOBASINAE (COLEOPHORIDAE) FROM AFRICA

1. Male ..... 2  
Female ..... 19
2. Juxta platelike; dorsoposterior margin of gnathos entire; Holcocerini [Figure 2] ..... *Calosima arguta*  
Juxta bandlike or divided; dorsoposterior margin of gnathos medially bidentate; Blastobasini [Figures 3–19] ..... 3
3. Lower part of valva with basal spinelike process [Figures 3–6] ..... 4  
Lower part of valva without such a process [Figures 7–19] ..... 7
4. Basal spinelike process extending less than or half length of lower part of valva [Figures 3–4] ..... 5  
Basal spinelike process extending more than half length of lower part of valva [Figures 5–6] ..... 6
5. First flagellomere of the antenna unmodified; anellus of aedeagus bilobed apically [Figure 3] ..... *Neoblastobasis laikipiae*  
First flagellomere of the antenna notched; anellus of aedeagus broadly rounded apically [Figure 4] .....  
..... *Neoblastobasis wangithiae*
6. Basal spinelike process extending to apicoventral margin of lower part of valva [Figure 6] ..... *Neoblastobasis ximieniaella*  
Basal spinelike process extending beyond apicoventral margin of lower part [Figure 5] ..... *Neoblastobasis perisella*
7. Juxta divided; valva bearing a large spinelike seta or a cluster of several elongate spinelike setae [Figures 7, 9] ..... 8  
Juxta not divided; valva not bearing a large spinelike seta or a cluster of several large spinelike setae [Figures 8, 10–19]  
..... 9
8. Base of digitate process of upper part of valve bearing one elongate spinelike seta; base of digitate process of upper part  
of valva without spinelike setae [Figure 9] ..... *Blastobasis millicentae*  
Base of digitate process of upper part of valva bearing a cluster of several spinelike setae [Figure 7] ..... *Blastobasis fatigata*
9. Dorsal strut of tegumen present [Figures 13–14] ..... 10  
Dorsal strut of tegumen absent [Figures 8, 10–12, 15–19] ..... 11
10. Basiventral margin of proximal flange emarginate [Figure 13] ..... *Blastobasis catappaella*  
Basiventral margin of proximal flange broadly rounded [Figure 14] ..... *Blastobasis glauconotata*
11. Gnathos narrow [Figures 10–12, 15–16] ..... 12  
Gnathos wide [Figures 8–9, 17–19] ..... 16
12. Vesica with hairlike cornuti [Figures 10–11] ..... 13  
Vesica without cornuti [Figures 12, 15–16] ..... 14
13. Dorsoposterior margin of gnathos widely bidentate medially [Figure 11] ..... *Blastobasis acirfa*  
Dorsoposterior margin of gnathos narrowly bidentate medially [Figure 10] ..... *Blastobasis kenya*
14. Apicoventral margin of lower part of valva broadly rounded [Figure 15] ..... *Blastobasis elgonae*  
Apicoventral margin of lower part of valva short and angular [Figures 12, 16] ..... 15
15. Dorsoposterior margin of gnathos near level of base of uncus; aedeagus acutely curved near apical 1/3 [Figure 16] .....  
..... *Blastobasis chuka*  
Dorsoposterior margin of gnathos anterior to level of uncus; aedeagus serpentine shaped [Figure 12] .....  
..... *Blastobasis aynekiella*
16. Uncus broadly rounded apically; aedeagus straight or nearly so [Figures 17, 19] ..... 17  
Uncus narrowly rounded apically; aedeagus broadly curved [Figures 8, 18] ..... 18
17. Dorsoposterior margin of gnathos protuberant medially; anellus of aedeagus wide thorough length [Figure 17] .....  
..... *Blastobasis mpala*  
Dorsoposterior margin of gnathos not protuberant; anellus of aedeagus gradually narrowed from base [Figure 19] .....  
..... *Blastobasis egens*
18. Microtrichiate part of valva subquadrate [Figure 8] ..... *Blastobasis indigesta*  
Microtrichiate part of valva elongate, narrowed distally [Figure 18] ..... *Blastobasis eridryas*
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Signum absent [Figure 33] ..... *Holcocera irroratella*

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### HOLCOCERINI Adamski & Brown, 1989

Holcocerini are the best-known blastobasine moths in the New World. This is likely because the tribe contains the largest species within the subfamily. Although the tribe contains over 160 described species, host associations for fewer than 13% of the total species are known. The Holcocerini can be distinguished by the following apomorphies: male aedeagus with a ring support at base and female having a telescopic ovipositor with three membranous subdivisions posterior to eighth segment, eighth sternum with anterior margin emarginated medially, ostium near anterior end of eighth sternum, and inception of ductus seminalis distant from ostium. In addition, there are several plesiomorphies found in most species of Holcocerini listed by Adamski and Brown (1989) that are helpful in differentiating them from species of Blastobasini.

### *Holcocera* Clemens, 1863

TYPE SPECIES. *Holcocera chalcfrontella* Clemens, 1863, by subsequent designation (Walsingham, 1907).

The genus contains more species than all other genera within the Holcocerini worldwide. However, this disparity may be a result of disproportionate sampling. This genus is recognized by having a gnathos with the ventrolateral margin weakly fused with the tegumen, anellus multise-tose, and a valva with the proximal flange not overlaid by microtrichiate membrane or sclerotized integumen.

### *Holcocera lignyodes* (Meyrick, 1914), new combination

*Syndroma lignyodes* Meyrick, 1914b:271, type species of *Syndroma* Meyrick, 1914b. New synonym.

*Syndroma lignyodes* Meyrick, 1914b:271.—Clarke, 1963: 497.

**HOLOTYPE.** ♂, “M[ount] Mlanje, Nyasaland [Malawi], 20.I.1914, S.A. Neave, 1914-SSC”; “*Syndroma lignyodes*, Meyr., Type M603”; “Genotype, *Syndroma* Meyrick”; “♂ wing venation on slide 13.V.1949, JFGC 9480” [wing only, abdomen missing] [BMNH].

**REMARKS.** The presence of a notched first flagellomere of the antenna combined with holcocerine venational characteristics of the holotype justifies synonymy of the genus. The species is not included in the key because the pattern is worn and the abdomen is missing from the holotype.

***Holcocera extensa* (Meyrick, 1918),  
new combination**

FIGURES 23, 42

*Blastobasis extensa* Meyrick, 1918:55.—Sinev, 2004:116.

**DIAGNOSIS.** Except for *Holcocera lignyodes*, *H. extensa* and *H. irroratella* are the only two species of *Holcocera* known from Africa. Although *H. extensa* is slightly larger and darker in appearance than *H. irroratella*, the female genitalia appear more reliable for differentiating the two species. *H. extensa* can be distinguished from *H. irroratella* by having a wider notch on the anterior margin of the eighth sternum, signum present within the corpus bursae, and the anterior part of the ductus bursae spinulate. Relationships of *Holcocera extensa* and *H. irroratella* are uncertain because males are not known and female genital characters tend to be conservative in nature throughout Blastobasinae.

**REDESCRIPTION.**

**Head:** Vertex and frontoclypeus with narrow pale gray scales. Outer surface of labial palpus grayish brown or gray intermixed with a few gray scales tipped with pale gray, white scales near subapical area of segment II and basal area of segment III, inner surface paler. Scape of antenna with scales grayish brown tipped with pale gray, flagellum grayish brown, gradually paler to apex. Proboscis with scales grayish brown tipped with pale gray.

**Thorax:** Tegula and mesonotum gray on anterior and posterior 1/3, pale gray on transverse median 1/3. Legs with scales grayish brown tipped with white with a white band near midfemur and apices of all segments and tarsomeres. Forewing (Figure 42) length 8.2–8.5 mm ( $n = 2$ ), grayish brown intermixed with grayish brown scales tipped

with pale gray and pale gray scales; two grayish brown streaks along radius and cubitus of cell; cell with a grayish brown spot on distal end near cubitus. Fringe grayish brown tipped with pale gray. Undersurface grayish brown. Hindwing: Pale grayish brown.

**Abdomen:** *Male genitalia:* Unknown. *Female genitalia* (Figure 23): Eighth sternum trapezoid, deeply emarginate medially on anterior end; antrum cuplike; inception of ductus seminalis on ductus bursae near anterior end of seventh sternum; posterior margin of seventh sternum straight; ductus bursae longer than ovipositor, slightly spiculate internally on anterior 2/3; corpus bursae ovoid, signum spiculate, ovoid.

**LECTOTYPE.** Designated herein, ♀, “[South Africa] Pret[oria], North, 12-2 [February]-1912, C.J. Swierstra”; “539”; “♀ Genitalia Slide by D. Adamski, No. 4489” [yellow label]; “*Blastobasis extensa* Meyr., Type No. 2551” [TMP]. A lectotype is designated in order to maintain stability of usage of the name of a taxon with congeners that look similar.

**PARALECTOTYPE.** ♀, “Pretoria, Transvaal, C.J. S[wierstra] 25-12 [December]-[19]16”; “*Blastobasis extensa* Meyr[ick], 1/1, E. Meyrick det., in Meyrick Coll[ection]”; “Meyrick Coll[ection], BM 1938-290”; “*extensa* Meyr[ick]” [abdomen missing] [BMNH].

**REMARKS.** Sinev (2004) treated two syntypes of *Blastobasis extensa* as blastobasine moths without examining the original type series and without designating a lectotype for the species. Therefore, the identifications for the two specimens that Sinev (2004) provided are unreliable.

***Holcocera irroratella* Walsingham, 1891,  
new combination**

FIGURES 33, 48

*Blastobasis irroratella* Walsingham, 1891:122, pl. VI, fig. 63.—Janse, 1917:192, check list.—Medler, 1980:307, check list.

*Tecmerium irroratella*: Sinev, 2004:117.

**DIAGNOSIS.** *H. irroratella* can be distinguished from *H. extensa* by having a narrower notch on the anterior margin of the eighth sternum, signum absent within the corpus bursae, and the anterior part of the ductus bursae absent of spinules. Relationships of *Holcocera irroratella* and *H. extensa* are uncertain because males are not known and female genital characters tend to be conservative in nature throughout Blastobasinae.

## REDESCRIPTION.

*Head:* Vertex and frontoclypeus white intermixed with a few white scales tipped with brown and a few brown scales. Outer surface of labial palpus brown intermixed with a few white scales and white scales tipped with brown, inner surface white intermixed with a few brown scales; segment II short; scape of antenna white intermixed with a few brown scales, flagellum white. Proboscis white.

*Thorax:* Tegula and mesonotum white intermixed with white scales tipped with brown and a few brown scales. Legs brown intermixed with white scales tipped with brown, with a white band near midfemur and apices of all segments and tarsomeres. Forewing (Figure 48) length 6.6 mm ( $n = 1$ ), white intermixed with white scales tipped with brown and some brown scales; median fascia and marginal spots absent; three distinct markings; brown streak near midcell, brown spot posterior midcell streak in area between CuP and margin, and large brown spot near crossvein extending to tornus. Fringe white tipped with brown. Undersurface brown. Hindwing pale brown, gradually darkening to apex.

*Abdomen:* *Male genitalia:* Unknown. *Female genitalia* (Figure 33): Eighth sternum deeply emarginated medially along anterior margin; posterior margin of seventh sternum straight; ductus bursae longer than ovipositor, gradually widening from ostium; inception of ductus seminalis anterior to posterior margin of seventh segment; corpus bursae spherical; signum absent.

**HOLOTYPE.** ♀, “Bathurst, GAMBIA, XI-1885, Carter, 1886, No. 881”; “Walsingham Collection, 1910-427”; “*Blastobasis irroratella* Wlsm. Tr. Ent. Soc. Lond. 1891. 122-3, Pl. VI-63, Type ♀, descr.”; “BM Genitalia Slide No. 30237” [BMNH].

**REMARKS.** Although Sinev (2004) examined the holotype female of *Blastobasis irroratella*, the absence of males makes generic assignment within the Holcocerini unreliable. However, the female features described above are more similar to *Holcocera* than *Tecmerium*.

***Calosima* Dietz, 1910**

**TYPE SPECIES.** *Calosima argyrosplendella* Dietz, 1910, by original designation.

As with *Holcocera*, there are fewer *Calosima* recorded from the Old World than from the New World. Four species of *Calosima* are known in Thailand, and one species is known from Africa. Species of this genus have an aedeagus that is bulbous basally, a gnathos with a median ridge, and a juxta with an emarginate ventral margin.

***Calosima arguta* (Meyrick, 1918),  
new combination**

FIGURES 2, 20, 51

*Blastobasis arguta* Meyrick, 1918:36.—Janse, 1917:192, check list.

*Zenodochium arguta*: Sinev, 2004:117.

**DIAGNOSIS.** *Calosima arguta* is most similar to *C. albafaciella* Adamski, 2002 from Thailand, but it differs from the latter species by having a wider gnathos, a narrower spinelike process of the lower part of the valva, and a longer and less curved aedeagus. In Africa, *Calosima arguta* is most similar to *Holcocera extensa* in sharing a spinulate anterior part of the ductus bursae and a platelike signum within the corpus bursae. However, because the male of *H. extensa* is not known, relationships between the two species are uncertain.

## REDESCRIPTION.

*Head:* Vertex and frontoclypeus with scales brown or pale brown tipped with white. Outer and inner surfaces of labial palpus with scales brown tipped with white, apical area of segment II and all of segment III paler. Scape of antenna with scales brown or pale brown tipped with white, flagellum gray, wider and with more cilia in male; first flagellomere unmodified in male. Proboscis with scales brown or pale brown tipped with white.

*Thorax:* Tegula and mesonotum with scales brown or pale brown tipped with white. Leg scales brown tipped with white intermixed with dark brown scales tipped with white, with a pale brown band near midfemur and apices of all segments and tarsomeres. Forewing (Figure 51) length 6.7–7.0 mm ( $n = 3$ ), scales brown or dark brown tipped with white, intermixed with pale brown scales, some tipped with white; basal and median fasciae brown or dark brown, complete, bisected by a wide, transverse, white band; apical 1/3 slightly paler than median fascia; large brown spot below distal end of cell near posterior margin. Fringe brown or pale brown tipped with white. Undersurface brown. Hindwing pale brown, slightly darkening to apex.

*Abdomen:* *Male genitalia* (Figure 2): Uncus setose, slightly elongate, ventrally keeled, ventral margin serrate; arms of gnathos projecting ventroanteriorly, fused medially, forming a widened band; vinculum narrow; juxta platelike; valva divided; upper part of valva widened basally, gradually narrowed from an abrupt, ventral emargination, produced into a digitate process, apex rounded; lower part of valva wide, subventral area reflexed to apicoventral angle,

distally produced into an inwardly curved, acuminate process; aedeagus and sclerite of aedeagus broadly curved from base to apex; anellus with several microsetae. *Female genitalia* (Figure 20): Eighth sternum trapezoid shaped, deeply emarginate anteriorly; posterior margin of seventh sternum straight; ductus bursae about twice as long as ovipositor, narrow throughout length, with microspinules from inception of ductus seminalis to corpus bursae; inception of ductus seminalis posterior to seventh sternum; corpus bursae subovate; signum spiculate, on posterior end of corpus bursae.

**LECTOTYPE.** Designated herein, ♂, “Umkomaas [Natal, South Africa], 6-1[Jan][19]14, A.J.T. Janse”; “M-3831”; “*Blastobasis arguta* M[eyrick]”; “♂ Genitalia Slide by D. Adamski, No. 4628” [yellow label]; “*Blastobasis arguta* M[eyrick] Type No. 805” [TMP]. A lectotype is being designated in order to maintain stability of usage of the name.

**PARALECTOTYPES** (I ♂, I ♀). ♂, “Syn-type” [round, blue-bordered label]; “Umkomaas, Natal, A.J.T.J. 18-1[Jan][19]14”; “*Blastobasis arguta* Meyr[ick], 1/1, E. Meyrick det., in Meyrick Coll[ection]”; “Meyrick Coll[ection], B.M. 1938-290”; “*arguta* Meyr[ick]”; “B.M. ♂ Genitalia Slide No. 30235” [BMNH]; ♀, “Umkomaas, [Natal], 6-1[Jan][19]14, A.J.T. Janse”; “M-3833”; “♀ Genitalia Slide by D. Adamski, No. 4629”; “*Blastobasis arguta* M[eyrick], Cotype No. 806” [TMP].

**REMARKS.** Sinev (2004) erroneously transferred *Blastobasis arguta* to *Zenodochium*. Adamski and Brown (1989) synonymized *Zenodochium* with *Blastobasis*, and *H. arguta* possesses holcocerine characters and not blastobasine characters (see Figures 2 and 20).

### **BLASTOBASINI Meyrick, 1894**

On the basis of holdings in museum collections, Blastobasini are the more numerous of the two tribes of Blastobasinae. Many Old World species have unique male genital features, and the acknowledgment of these features may result in a proliferation of new genera by future workers. Species within Blastobasini may be recognized by having a forewing with a reduced tornus, male tegumen with tergal setae dorsolateral area, vinculum wide, juxta bandlike, anellus with stout setae or with macrosetae, gnathos with arms projecting ventrolaterally, anellus separate from juxta, female with telescopic ovipositor with four membranous divisions posterior to eighth segment, eighth tergum with a darkly pigmented median longitudinal streak, ostium slightly posterior to seventh sternum, and signum hornlike or spinelike.

### ***Neoblastobasis* Kuznetsov & Sinev, 1985**

**TYPE SPECIES.** *Blastobasis biceratala* Park, 1984, by subsequent designation (Kuznetsov and Sinev, 1985).

*Neoblastobasis* contains about eight species that are found only in the Old World. Members of the genus can be recognized by having a large spinelike projection arising from the base of the lower part of the valva.

### ***Neoblastobasis laikipiae* Adamski, new species**

FIGURES 3, 58, MAP 1

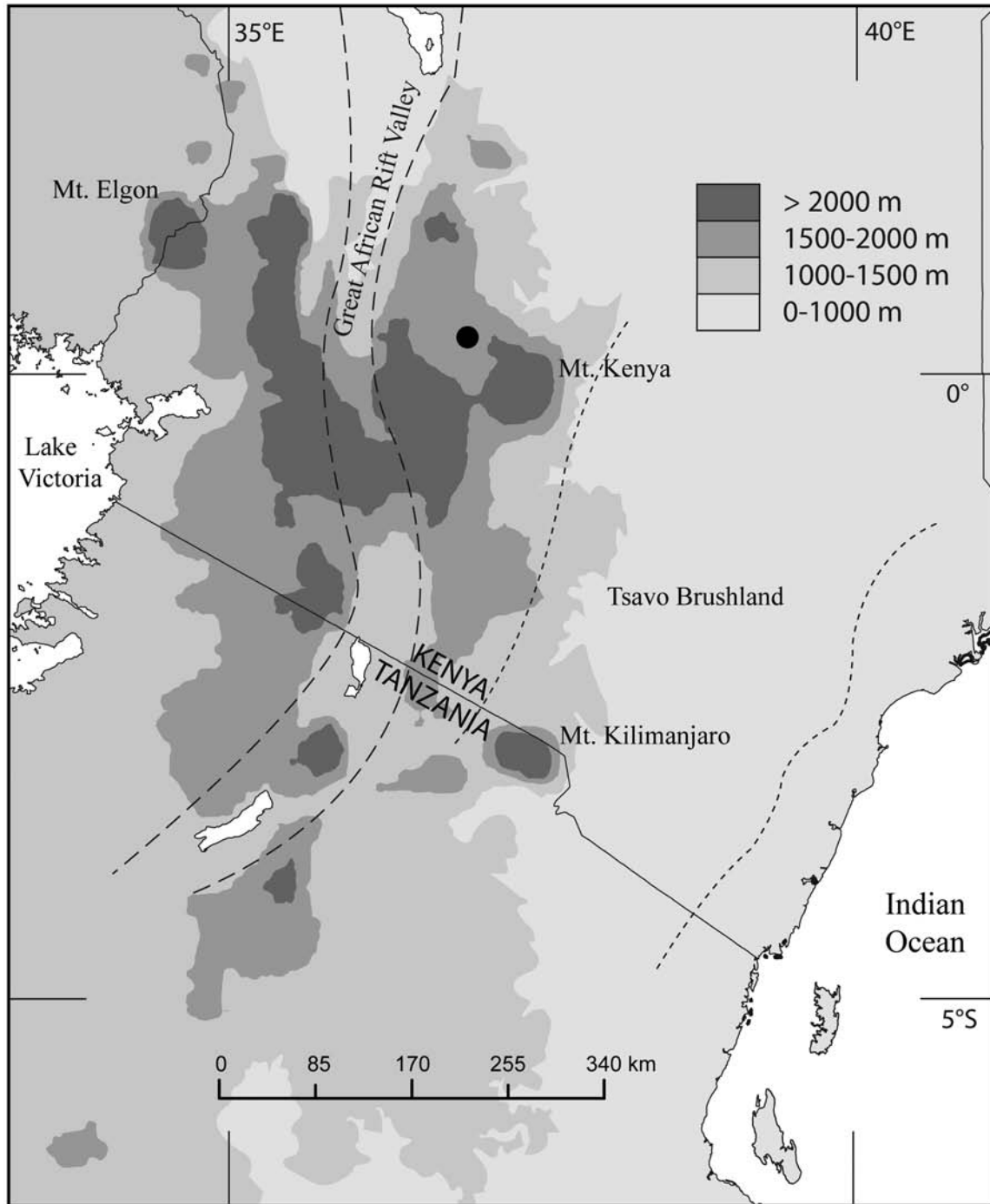
**DIAGNOSIS.** *Neoblastobasis laikipiae* is similar to *N. wangithiae* in wing pattern and male genitalia but differs from the latter by being larger and having the first flagellomere of the antenna unmodified in the male.

#### **DESCRIPTION.**

**Head:** Vertex and frontoclypeus with scales brownish gray tipped with pale gray; labial palpus with outer surface of segments I and II dark brownish gray intermixed with pale gray scales to apical margin, segment III dark brownish gray intermixed with a few pale gray scales; scape of antenna pale gray, flagellum gray; first flagellomere in male unmodified; proboscis pale gray.

**Thorax:** Tegula and mesonotum pale brownish gray intermixed with pale gray. Legs brownish gray, with a pale gray band on apices of all segments and tarsomeres. Forewing (Figure 58) length 6.3 mm ( $n = 1$ ), brownish gray intermixed with gray and pale gray; cell with two small gray spots on distal end near crossvein, middle obliterated by gray submedian fascia; submedian fascia complete; area basad of submedian fascia pale gray, base gray; area distad of submedian fascia pale gray, gradually darkening to margin; submarginal spots faint. Undersurface brownish gray. Hindwing pale gray.

**Abdomen:** *Male genitalia* (Figure 3): Uncus abruptly curved subapically, apex narrowly rounded; gnathos narrow, dorsoposterior margin bidentate medially; membrane below gnathos microtrichiate; vinculum wide; juxta bandlike; valva divided; upper part with costa distally produced into a setose, digitate process, apical part lobe-like; base of costa overlaid by a triangular, densely microtrichiate, membranous covering; lower part of valva wide, bearing a short, basal spinelike process, extending to near 1/3 length of costa; subventral area reflexed to apicoventral margin; apicoventral margin broadly rounded, produced into an inwardly curved, acuminate process; aedeagus and



MAP 1. Distribution of *Neoblastobasis laikipiae*.

sclerite of aedeagus slightly curved near apical 1/3; anellus apically bilobed, bearing several conical setae. *Female genitalia*: Unknown.

**HOLOTYPE.** ♂, "Kenya: Laikipia Plateau, Mpala Research Centre, 0.293°N, 36.899°E, 23-26 Dec. 1999,

1650 m, S.E. Miller & T.M. Kuklenski"; "Restrictions Apply, NMK-ICIPE, Agreement # 5" [purple label]; "♂ Genitalia Slide by D. Adamski, No. 4144" [yellow label]; "USNM ENT 00194974" [barcode label] [hindwings in gelatin capsule attached to pinned specimen] [NMK].



**ETYMOLOGY.** The species epithet, *laikipiae*, is derived from the geographical locality where the species is known to occur.

**DISTRIBUTION.** *Neoblastobasis laikipiae* is known only from the eastern escarpment of the Rift Valley, known as the Laikipia Plateau.

**REMARKS.** *Neoblastobasis laikipiae* and the following three species represent the first records of *Neoblastobasis* in Africa.

### ***Neoblastobasis wangithiae* Adamski, new species**

FIGURES 4, 54, MAP 2

**DIAGNOSIS.** *Neoblastobasis wangithiae* is similar to *N. laikipiae* in wing pattern and male genitalia but differs from the latter by having the first flagellomere of the antenna notched in the male.

#### **DESCRIPTION.**

**Head:** Vertex and frontoclypeus pale brown, most scales missing; labial palpi missing; scape of antenna pale brown, flagellum gray; first flagellomere of male basally dilated, forming a notchlike concavity; proboscis pale brown.

**Thorax:** Tegula pale brown; mesonotum dark brownish gray anteriorly, pale brown posteriorly. Legs missing. Forewing (Figure 54) length 4.1 mm ( $n = 1$ ), pale brown intermixed with brown and brown scales tipped with white; median fascia faint; cell with three small, faint spots, one near middle and two on tornus; marginal spots faint. Undersurface dark brown. Hindwing pale gray.

**Abdomen:** *Male genitalia* (Figure 4): Uncus abruptly curved subapically, apex broadly rounded; gnathos narrow, dorsoposterior margin bidentate medially; membrane below gnathos sparsely microtrichiate; vinculum wide; juxta bandlike; valva divided; upper part wide basally, developed apically into a setose, digitate process, apical part lobelike; base of costa overlaid by a triangular, microtrichiate, membranous covering; lower part of valva wide, bearing a short, basal spinelike process, extending about 1/3 length of costa, subventral area reflexed to apicoventral margin; apicoventral margin angular, produced into an inwardly curved, acuminate process; aedeagus slightly curved near middle, sclerite of aedeagus curved near apical 1/3; anellus subconical, bearing several conical setae. *Female genitalia:* Unknown.

**HOLOTYPE.** ♂, “Kenya: Gongoni Forest, 4°24.37'S, 39°28.26'E, 3 May 2001, A & M Coll[ection] # 1255, R.S. Copeland, ICIPE/USAID, r.f. *Pleiocarpa pycnantha*”; “Restrictions Apply, NMK-ICIPE, Agreement #

5” [purple label]; “♂ Genitalia Slide by D. Adamski, No. 5044” [yellow label]; “USNM ENT 00196948” [barcode label] [NMK].

**ETYMOLOGY.** This species is named in honor of Juliet Wangithi Muriuki, who provided technical support for the collection of fruit and reared many of the moth specimens included in this paper.

**DISTRIBUTION.** *Neoblastobasis wangithiae* is restricted to coastal lowland habitats in southeastern Kenya.

**HOST.** *Pleiocarpa pycnantha* (K. Schum.) (Apocynaceae).

### ***Neoblastobasis perisella* Adamski, new species**

FIGURES 5, 21, 62, MAP 3

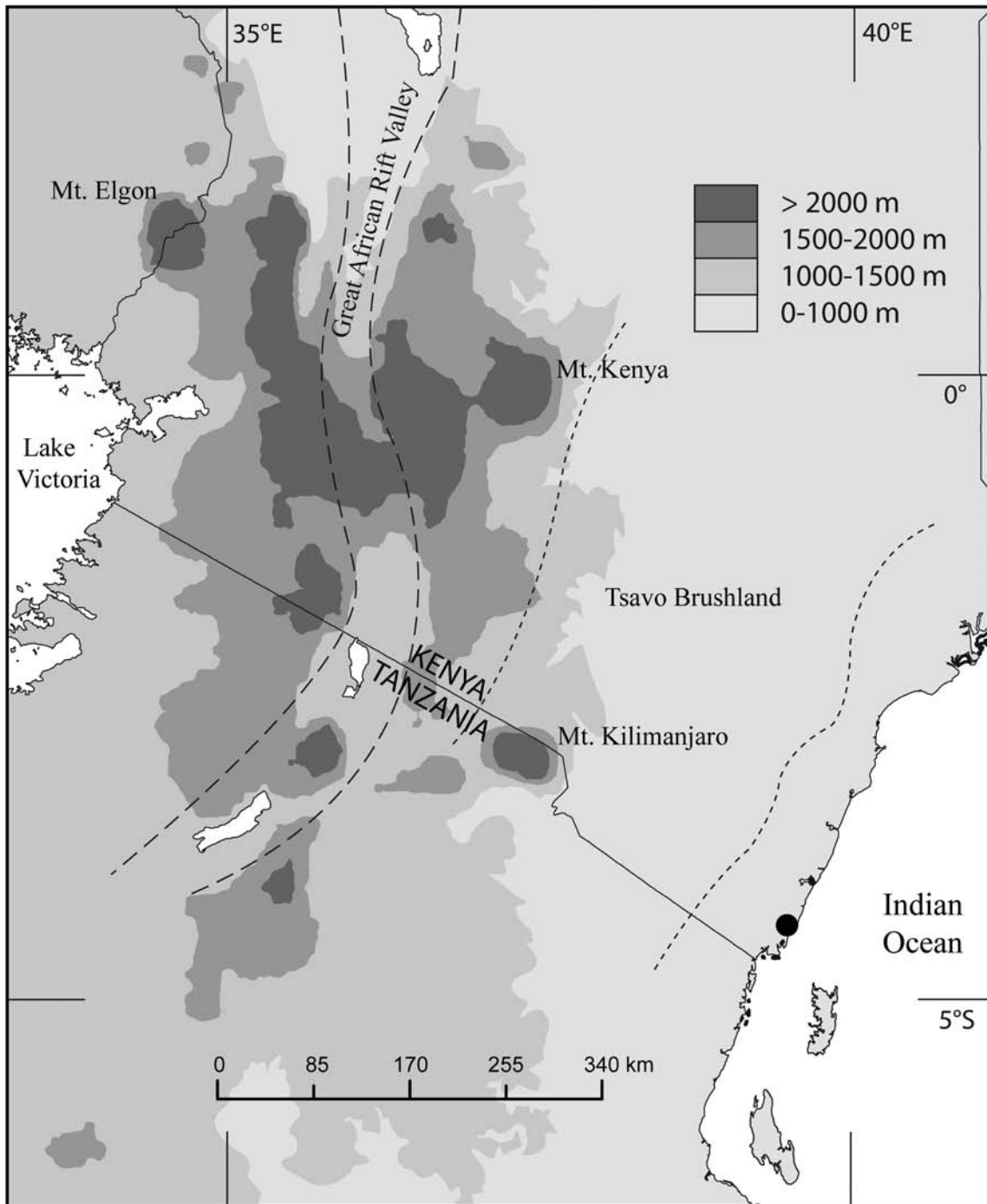
**DIAGNOSIS.** *Neoblastobasis perisella* is most similar to *N. ximeniaella* but differs from the latter by having a narrower uncus, fewer tergal setae, a more elongate basal spinelike process on the lower part of the valva, and a more acutely curved apical part of the aedeagus.

#### **DESCRIPTION.**

**Head:** Vertex pale brown; frontoclypeus pale brown with brown scales on lateral margin. Labial palpus with widened segments, segment II as wide as scape, inner surface flattened, pale brown; outer surface with segment I and basal half of segment II brown, distal half of segment II and segment III pale brown; scape of antenna pale brown, flagellum brownish gray; first flagellomere of male basally dilated, forming a notchlike concavity. Proboscis pale brown.

**Thorax:** Tegula and mesonotum pale brown intermixed with some brown scales basally. Legs pale brown intermixed with brown scales tipped with white, with a white band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 62) length 5.1–5.5 mm ( $n = 2$ ), pale brown from base to near midcell, except for some brown scales along costa, brown scales and pale brown scales tipped with brown intermixed with fewer pale brown scales from midcell to outer margin; a brown midcell spot and a faint spot near distal end of cell. Fringe pale brown intermixed with brown scales tipped with pale brown. Undersurface brown. Hindwing pale grayish brown.

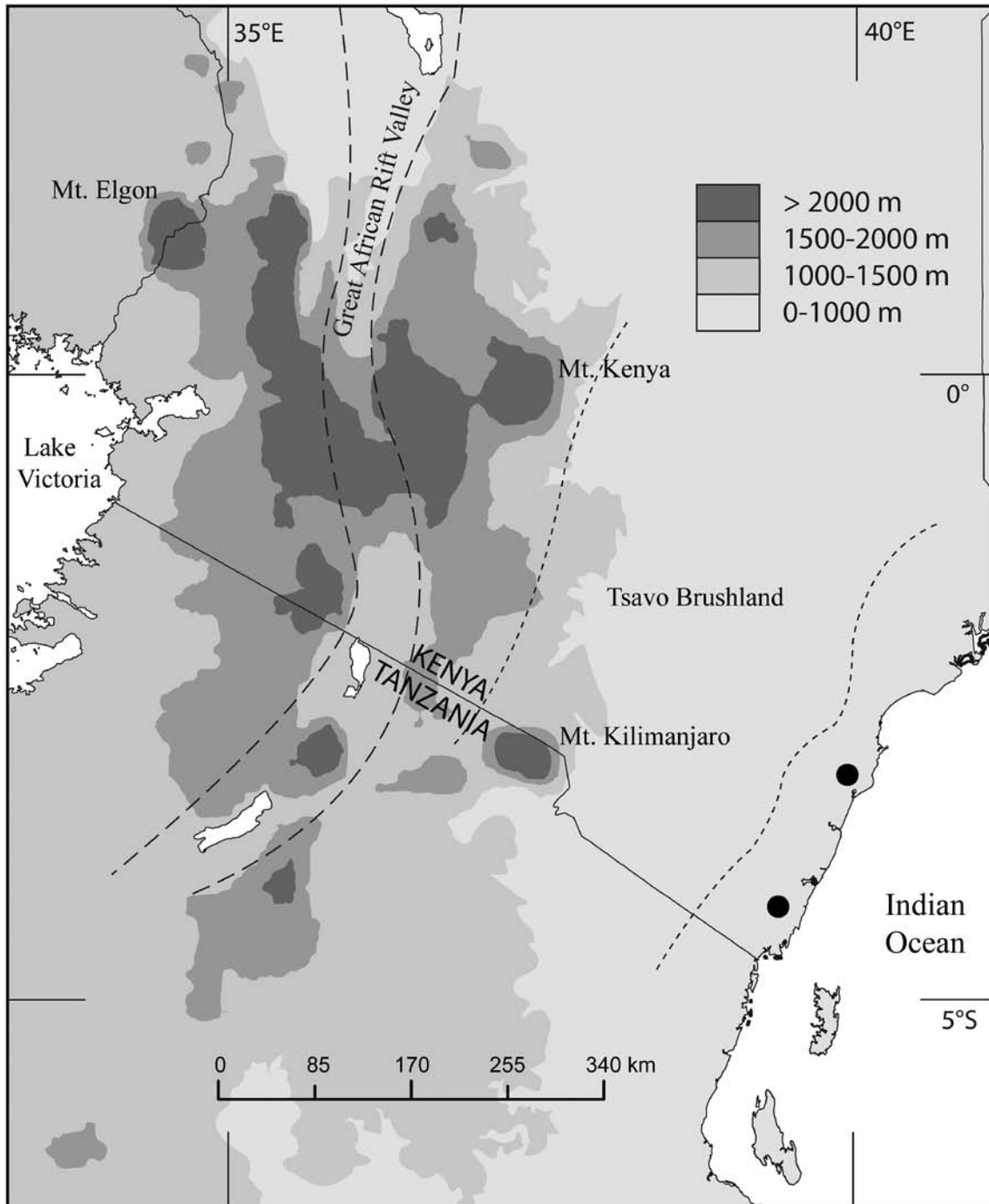
**Abdomen:** *Male genitalia* (Figure 5): Uncus narrowed medially, slightly broadened apically; gnathos narrow, dorsoposterior margin bidentate medially; membrane below gnathos microtrichiate; vinculum wide; juxta divided; valva divided; costa of upper part basally narrow, developed into a setose, digitate process apically; costa base overlaid by a triangular, densely microtrichiate, membranous covering;



MAP 2. Distribution of *Neoblastobasis wangithiae*.

lower part of valva wide, bearing a long, broadly curved spinelike process, extending beyond lower part of valva to near apex of digitate process of upper part of valva; subventral marginal part reflexed to apicoventral margin; apicoventral margin broadly rounded, produced apically into an

inwardly curved, acuminate process; aedeagus and sclerite of aedeagus curved near apical 1/3; anellus narrowly acuminate, with several conical setae. *Female genitalia* (Figure 21): Eighth tergum without narrow, darkly pigmented streak on median longitudinal axis; membrane surrounding



MAP 3. Distribution of *Neoblastobasis perisella*.

ostium lacking microtrichiae; seventh sternum with spine-like setae; ductus bursae about half as long as ovipositor, with internal imbricate platelets in anterior half; inception of ductus seminalis slightly anterior to ostium; signum capitulate, with an elongate spinelike inner process.

**HOLOTYPE.** ♂, "Eala, Belgium Congo [Democratic Republic of Congo], JC, 8- [19]35"; "*Blastobasis byrsodepta* Mey[rick], 8/8, E. Meyrick det., in Meyrick Coll[ection]"; "Meyrick Coll[ection], BM 1938-290"; "BM ♂ Genitalia Slide No. 30238" [BMNH].

PARATYPES (1 ♂, 1 ♀). ♂, “Kenya: Shimba Hills, 389 m, 4°15.42'S, 39°22.96'E, 9 Aug. 2002, A & M Coll[ection] # 2142, R.S. Copeland, ICIPE/USAID, r.f. *Hugonia castaneifolia*”; “♂ Slide 4911”; “00196947”, [NMK]; ♀, “Kenya: Arabuko-Sokoke Forest, 3°12.18'S, 39°55.63'E, 3 Jan. 2001; A & M Coll. # 960, R.S. Copeland, ICIPE/USAID, r.f. *Ximenia caffra*”; “♀ Slide 5103”; “00196946” [NMK].

ETYMOLOGY. *Neoblastobasis perisella* is named in honor of Peris Machera, an extraordinary and tireless worker in the insect-rearing laboratory in Nairobi, Kenya.

DISTRIBUTION. *Neoblastobasis perisella* is restricted to coastal lowland habitats in southeastern Kenya.

HOSTS. *Hugonia castaneifolia* Engl. (Linaceae), and *Ximenia caffra* Sond. (Olacaceae).

REMARKS. Although the holotype of *Neoblastobasis perisella* possesses Meyrick's syntype labels bearing the name *B. byrsodepta*, the specimen is not part of the original series from which the latter species was described.

### ***Neoblastobasis ximeniaella* Adamski, new species**

FIGURES 6, 22, 53, MAP 4

DIAGNOSIS. *Neoblastobasis ximeniaella* is most similar to *N. perisella* but differs from the latter by having a wider uncus, more tergal setae, a shorter spinelike process on the lower part of the valva, and a straight aedeagus.

#### DESCRIPTION.

**Head:** Vertex and frontoclypeus pale brown; labial palpus missing; scape of antenna pale brown; first flagellomere basally dilated, forming a notchlike area between dilation and flagellomeres 2–4, distal flagellum missing; proboscis pale brown.

**Thorax:** Tegula and mesonotum dark gray basally, pale brown distally. Legs missing. Forewing (Figure 53) length 6.1–6.7 mm ( $n = 2$ ), pale brown intermixed with a few dark gray scales; base of costa with a few dark gray scales; median fascia absent; cell with three dark gray spots, one near midcell and two parallel with crossvein near distal end. Undersurface brown. Hindwing pale gray.

**Abdomen:** *Male genitalia* (Figure 6): Uncus abruptly curved subapically, apex broadly rounded; gnathos narrow, dorsoposterior margin bidentate medially; membrane below gnathos microtrichiate; vinculum wide; juxta bandlike; valva divided; basal 1/3 of costa of upper part overlaid by an elongate covering of dense microtrichiate membrane; distal 2/3 developed into a setose, digitate process; lower part of valva wide, bearing a straight spine-like process, extending to near base of acuminate process

of lower part of valva; subventral area reflexed to apicoventral margin; apicoventral margin rounded, produced into an inwardly curved, acuminate process; aedeagus straight, sclerite of aedeagus abruptly curved near apical 1/3; anellus bearing several conical setae. *Female Genitalia* (Figure 22): Eighth tergum without a narrow, darkly pigmented streak on median longitudinal axis; membrane surrounding ostium not microtrichiate; a pair of short, membranous, lobelike, invaginations posterolateral to ostium; posterior margin of seventh sternum straight; ductus bursae about as long as ovipositor, with imbricate platelets on anterior end; inception of ductus seminalis anterior to a short membranous antrum; corpus bursae with a hornlike signum arising from a small base.

HOLOTYPE. ♂, “Kenya: Arabuko-Sokoke Forest, 3°12.18'S, 39°55.63'E, 3 Jan. 2001, A & M Coll[ection] # 960, R.S. Copeland, ICIPE/USAID, r.f. *Ximenia caffra*”; “Restrictions Apply, NMK-ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by D. Adamski, No. 5052” [yellow label]; “USNM ENT 00196943” [barcode label]; “DNA” [blue label] [NMK].

PARATYPES (1 ♂, 2 ♀). 1 ♂, 1 ♀, Same label data as holotype except, “101 m”; “♂ Slide 5057”; “00196944”; “Genitalia Slide by DA, USNM 83367” [USNM]; “♀ Slide 5104”; “00196945”, ♀ Genitalia Slide by DA, USNM 83369” [USNM]; 1 ♀, same as above except, “Kaya Kinondo, 4°23.93'S, 39°31.96'E, 7 July 2001, A & M Coll. # 1370, R.S. Copeland; ICIPE/USAID, r.f. *Calophyllum inophyllum*”; “♀ Slide 5851” “00196415”; “♀ Genitalia Slide by DA, USNM 83368.” All paratypes deposited in USNM.

ETYMOLOGY. The species epithet, *ximeniaella*, is derived from the generic name of the plant from which the moth was first reared.

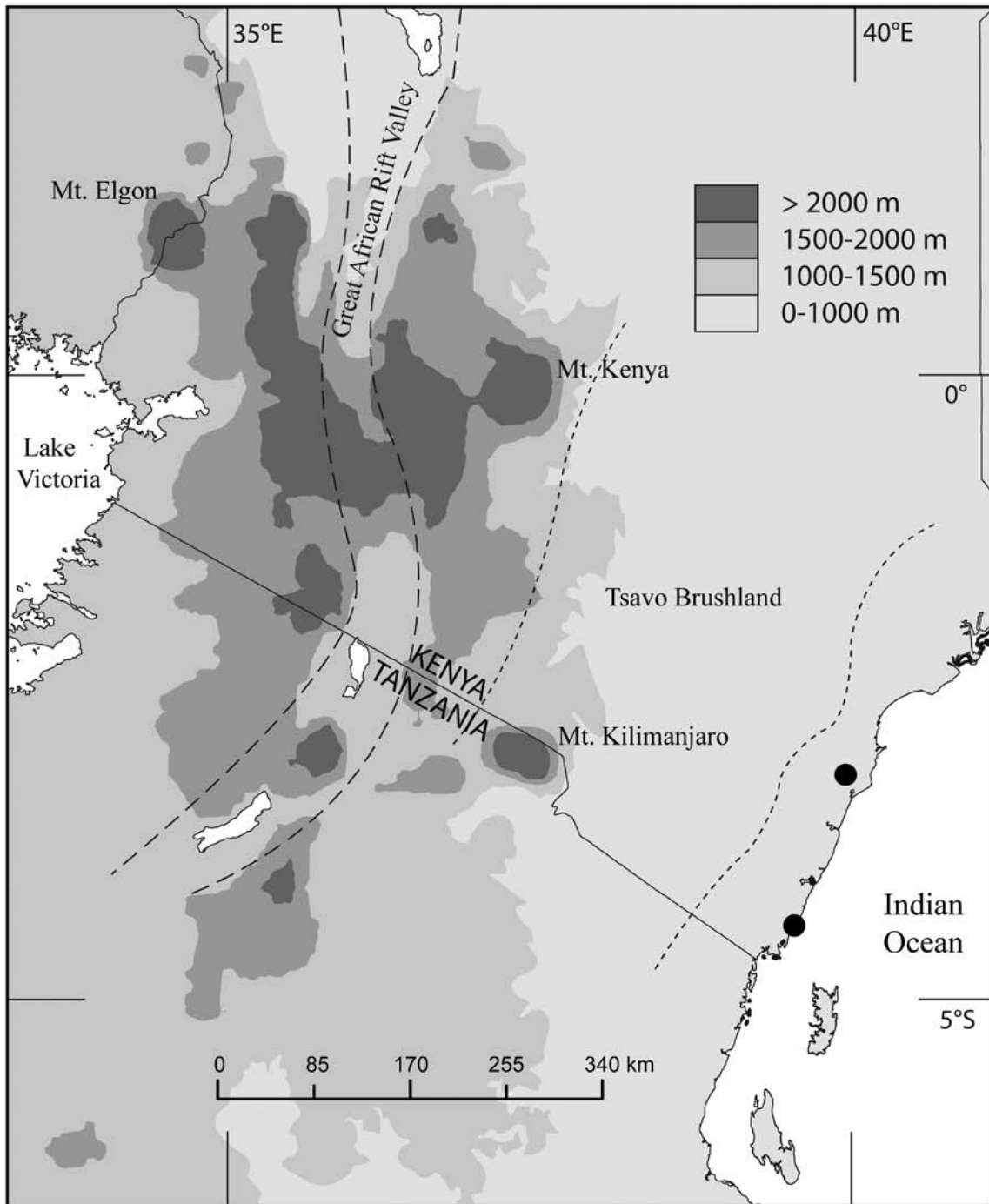
DISTRIBUTION. *Neoblastobasis ximeniaella* is restricted to coastal lowland habitats in southeastern Kenya.

HOST. *Ximenia caffra* Sond. (Olacaceae), *Calophyllum inophyllum* L. (Clusiaceae).

### ***Blastobasis* Zeller, 1855**

TYPE SPECIES. *Oecophora (Scythris) physcidella* Zeller, 1839, by subsequent designation (Walsingham, 1907).

*Blastobasis* is closely related to *Neoblastobasis*, but in the absence of a phylogenetic analysis their relationship is uncertain. Species of *Blastobasis* can be recognized by having a dilated first flagellomere of the antenna with an inner surface bearing palmate scales and corpus bursae with a posterior lobe near inception of ductus bursae.



MAP 4. Distribution of *Neoblastobasis ximeniaella*.

***Blastobasis millicentae* Adamski, new species**

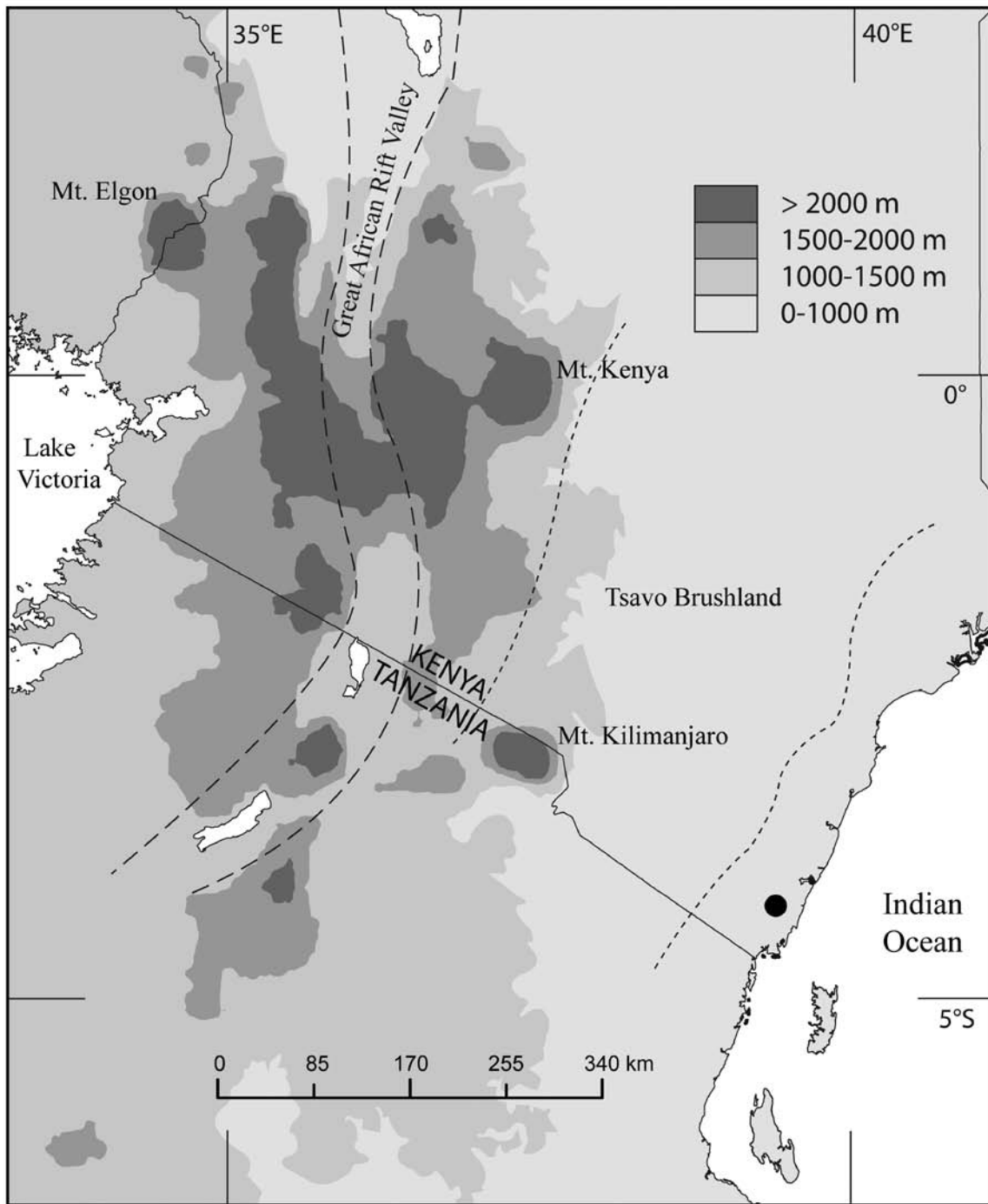
FIGURES 9, 38, MAP 5

**DIAGNOSIS.** *Blastobasis millicentae* is easily distinguished from its congeners by having the following

autapomorphies: an angular basal part of the costa of the upper part of the valva and a large spinelike seta on the ventral ridge of the base of the valva.

**DESCRIPTION.**

**Head:** Vertex and frontoclypeus with scales pale brownish gray tipped with white. Outer surface of labial



MAP 5. Distribution of *Blastobasis millicentae*.

palpus white intermixed with brown, inner surface white. Scape of antennae brownish gray intermixed with white, flagellum pale gray; first flagellomere of male basally dilated laterally, forming a notchlike concavity. Proboscis white.

*Thorax:* Tegula and mesonotum with brown scales tipped with white. Legs with brown scales tipped with white and a white band on apices of all segments and tarsomeres. Forewing (Figure 38) length 4.1–4.5 mm ( $n = 2$ ), pale brown on basal 2/3 intermixed with a few brown

scales, brown intermixed brown scales tipped with white and pale brown scales on distal 1/3; a brown spot in cell near distal end. Fringe brown tipped with white. Undersurface brown. Hindwing pale brown.

**Abdomen:** *Male genitalia* (Figure 9): Uncus wide, narrowed distally into a slightly rounded apex; gnathos wide, dorsoposterior margin protuberant, bidentate medially; vinculum wide; juxta divided; valva divided; upper part of valva setose, apically digitate; base of digitate process bifurcate, costal arm angled beyond dorsal articulation, ventral arm reflexed ventrally forming an upturned ridge fusing with lower part of valva; ridge bearing a moderately large, spinelike seta; lower part of valva wide, subventral area reflexed to apicoventral margin; apicoventral margin moderately angular, produced into an inwardly curved, acuminate process; aedeagus and sclerite of aedeagus slightly curved broadly; anellus slightly elongate conical, bearing several conical setae. *Female genitalia*: Unknown.

**HOLOTYPE.** ♂, “Verulam, [South Africa] 28.1[January][19]16, A.J.T. Janse”; “26/75”; “*Blastobasis egens* M[eyrick], Cotype No. 798”; “♂ Genitalia Slide by D. Adamski, No. 4739” [TMP].

**PARATYPE.** ♂, “Kenya, Shimba Hills, 389 m, 4°15.42'S, 39°22.96'E, 9 Aug. 2002, A & M Coll[ection] # 2139, R.S. Copeland, ICIPE/USAID, r.f. *Hirtella zanzibarica* fruit”; “♂ Slide 4910”; “00196942” [NMK].

**ETYMOLOGY.** *Blastobasis millicentae* is named in honor of Millicent Okumu, who, with great skill, managed the laboratory insect-rearing program in Nairobi, Kenya.

**DISTRIBUTION.** *Blastobasis millicentae* is restricted to coastal lowland habitats in southeastern Kenya.

**HOST.** *Hirtella zanzibarica* Oliv. (Chrysobalanaceae).

**REMARKS.** The holotype of *Blastobasis millicentae* is from the type series of *B. egens*.

### ***Blastobasis kenya* Adamski, new species**

FIGURES 10, 27, 60, MAP 6

**DIAGNOSIS.** *Blastobasis kenya* is similar to *B. acirfa* and *B. aynekiella* but differs from the latter two species by having a gnathos that is narrower, an acuminate distal process of the lower part of the valva that is nearly cylindrical, and female with a base of signum that is angular.

#### **DESCRIPTION.**

**Head:** Vertex and frontoclypeus with scales grayish brown tipped with pale brown; outer and inner surfaces of

labial palpus with segment I dark gray; segment II dark gray, pale brown subapically; segment III pale brown intermixed with few dark gray scales; scape of antenna and first flagellomere pale brown intermixed with few dark gray scales in both sexes, flagellum dark gray; first flagellomere of antenna dilated, forming a notchlike concavity between dilation and flagellomeres 2–4 in male; proboscis grayish brown.

**Thorax:** Tegula and mesonotum dark gray basally, grayish-brown scales tipped with pale brown distally. Legs dark gray with a pale brown band near midlength of segments and apices of all segments and tarsomeres. Forewing (Figure 60) length 6.0–9.2 mm ( $n = 45$ ), grayish brown intermixed with pale brown and dark brown, or pale brown basally, grayish brown distally; costa grayish brown intermixed with a few dark gray scales; basal area with irregular patches of dark gray; median fascia complete or incomplete; cell with three small dark gray spots, one near midcell and two parallel to crossvein near end of cell; marginal spots dark gray or faint. Undersurface brown. Hindwing gray.

**Abdomen:** *Male genitalia* (Figure 10): Uncus abruptly narrowed from base near 1/2 length, gradually narrowed to an acuminate apex; gnathos narrow, dorsoposterior margin bidentate medially; vinculum wide; juxta bandlike; valva divided; costa of upper part developed into a setose, digitate process; proximal flange elongate, overlaid by dense microtrichiate membrane, narrowed distally, contiguous with digital process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin angular, produced into an inwardly curved, cylindrically acuminate process; diaphragm aedeagus microtrichiate; aedeagus and sclerite of aedeagus abruptly curved near apical 1/3; anellus bearing several conical microsetae near base; vesica near anellus with several hairlike apical cornuti. *Female genitalia* (Figure 27): Eighth tergum with a narrow, darkly pigmented streak on median longitudinal axis; membrane surrounding ostium densely microtrichiate to lateral margin; ductus bursae about a long as ovipositor, with internal imbricate platelets on anterior half; inception of ductus seminalis slightly anterior to ostium; corpus bursae with a short spinelike process on an angular base.

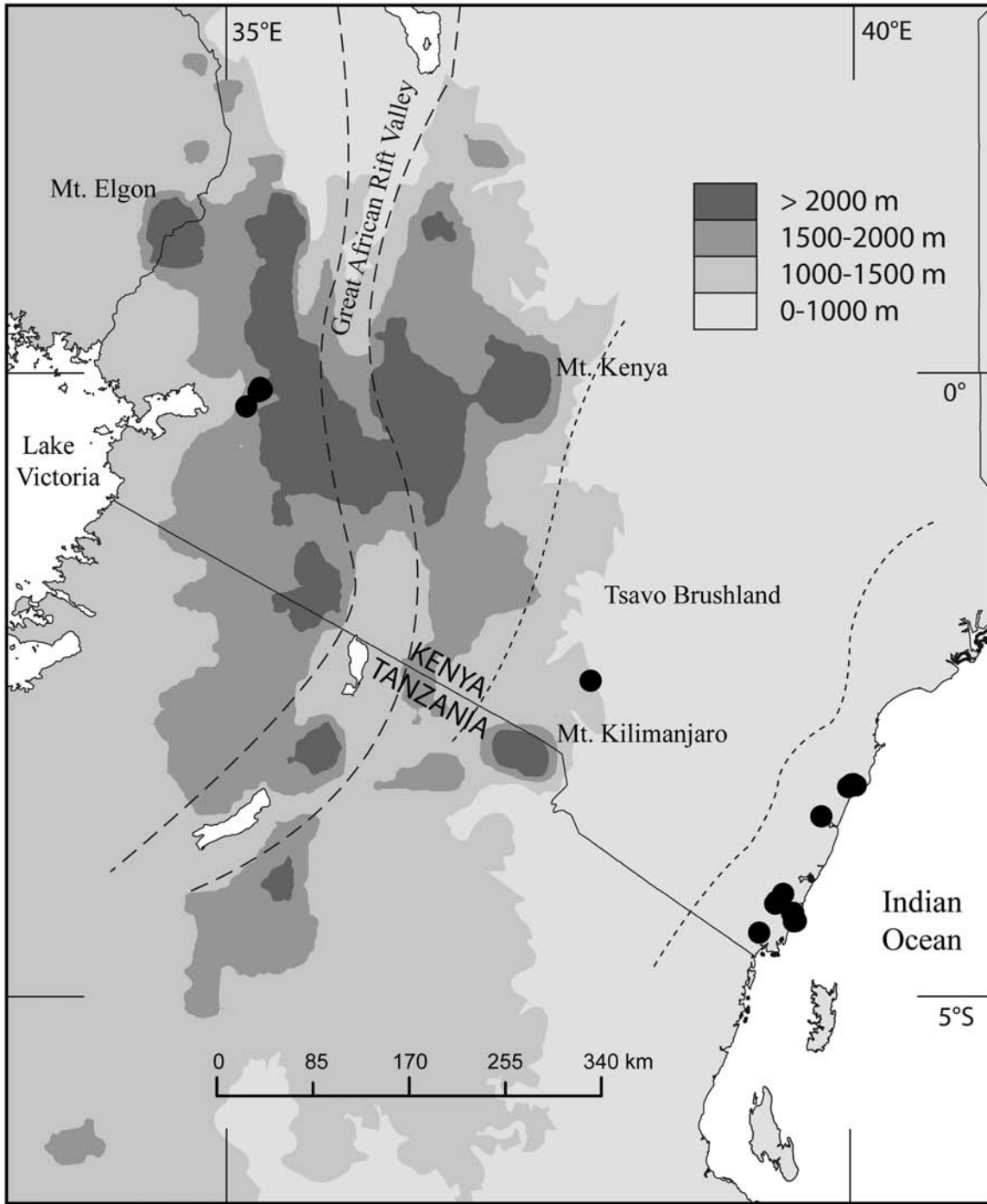
**HOLOTYPE.** ♂, “Kenya: Karu/Brooks, ca. 0°8.87'S, 35°15.77'E, Coll[ected] 17 Aug. 2000, R. Copeland, Lot 808, r.f. *Flacourtia indica* fruit”; “Restrictions Apply, NMK/ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by DA, No. 4218” [yellow label]; “USNM ENT 00196941” [barcode label], [holotype is missing labial palpi] [NMK].

**PARATYPES** (20 ♂, 39 ♀). 1 ♀, Same label data as above except, “1614 m, 0°08.87'S 36°15.77'E”;

“♀ Slide 5079”; “00196346”; “♀ Genitalia Slide by DA, USNM 83370” [USNM]; 1 ♀, same label data as above except, “0°07.353'S, 35°16.254'E, 28 April 2001, A & M Coll. # 1202”; “r.f. *Vepris nobilis*”; “♀ Slide 5107”; “00196368”; “♀ Genitalia Slide by DA, USNM 83371” [USNM]; 1 ♂, 3 ♀, “Kenya: Shimba Hills, 389 m, 4°15.42'S, 39°22.96'E, 9 Aug. 2002, A & M Coll. # 2114, r.f. *Trilepisium madagascariense*”; “♂ Slide 4902”; “00196289”; “♂ Genitalia Slide by DA, USNM 83372” [USNM]; “♀ Slide 4919”; “00196325”; “♀ Genitalia Slide by DA, USNM 83373” [USNM]; “♀ Slide 5098”; “00196362” [NMK]; “♀ Slide 4918”; “00196324” [NMK]; 2 ♀, data as above except, “A & M Coll. # 2118, r.f. *Landolphia* sp.”; “♀ Slide 5113”; “00196374”, “♀ Genitalia Slide by DA, USNM 83374” [USNM]; “00196417” [USNM]; 1 ♂, “A & M Coll. # 2128, r.f. *Xylopiya parviflora*”; “♂ Slide 4908”; “00196292” [BMNH]; 1 ♀, “A & M Coll. # 2139, r.f. *Hirtella zanzibarica*”; “♀ Slide 5118”; “00196378” [NMK]; 2 ♂, “10 Aug. 2002, A & M Coll. # 2140, r.f. *Diospyros kabuyeyana*”; “♂ Slide 4903”; “00196290” [NMK]; “♂ Slide 4913”; “00196294” [NMK]; 1 ♂, “A & M Coll. # 2111, r.f. *Adenia* sp.”; “♂ Slide 4904”; “00196291”; “♂ Genitalia Slide by DA, USNM 83375” [USNM]; 1 ♀, “A & M Coll. # 2131, r.f. *Chrysophyllum viridifolium*”; “♀ Slide 4921”; “00196326”; “♀ Genitalia Slide by DA, USNM 83376” [USNM]; 1 ♂, “4°14.27'S, 39°23.74'E, 436 m, 8 Aug. 2002, A & M Coll. # 2097, r.f. *Dracaena mannii*”; “♂ Slide 4912”; “00196293”; “♂ Genitalia Slide by DA, USNM 83377” [USNM]; 1 ♀, “4°14.68'S, 39°25.30'E, 398 m, 9 Aug. 2002, A & M Coll. # 2075, r.f. *Rourea minor*”; “♀ Slide 4916”; “00196322” [BMNH]; 4 ♀, “Coast Prov., Shimba Hills, 4°14.27'S, 39°23.74'E, 22.IV.2002, R.S. Copeland”; “ex Fruits *Mimusops aedificatoria*, ICIPE/USAID, Coll. # 1909”; “♀ Slide 5076”; “00196940” [BMNH]; “00196411” [USNM]; “00196409” [USNM]; “00196408” [USNM]; 1 ♂, “4°15.696'S, 39°22.747'E, 23.IV.2002, R. S. Copeland”; “ex *Hirtella zanzibarica*, ICIPE/USAID Coll. A & M 1919”; “♂ Slide 5065”; “00196319” [NMK]; 1 ♂, “4°15.696'S, 39°22.747'E, 23.IV.2002, R.S. Copeland”; “ex fruits, *Hirtella zanzibarica*, ICIPE/USAID, Coll. # 1919”; “♂ Slide 5064”; “00196316”, “♂ Genitalia Slide by DA, USNM 83378” [USNM]; 1 ♂, “4°15.696'S, 39°22.747'E, 23.IV.2002, R.S. Copeland”; “ex fruits, *Hirtella zanzibarica*, ICIPE/USAID, Coll. # 1919”; “♂ Slide by 5063”; “00196315” [NMK]; 1 ♀, data as above except, “4°14.27'S, 39°23.74'E, 22.IV.2002”; “ex fruits, *Cola minor*, ICIPE/USAID, Coll. # 1906”; “♀ Slide 5101”; “00196365” [NMK]; 1 ♀, data as above except, “407 m, 4°12.330'S, 39°26.412'E, 10 Aug. 2002, A & M

Coll. # 2070, r.f. *Toddalia asiatica*”; “♀ Slide 5091”; “00196355”; “♀ Slide 5101”; “00196355”; “♀ Genitalia Slide by DA, USNM 83395” [USNM]; 1 ♂, “Kenya: Kaya Kinondo, 4°23.71'S, 39°32.84'E, 5 m, 9 June 2000, A & M Coll. # 737, R.S. Copeland, ICIPE/USAID, r.f. *Diphasia* sp.”; “♂ Slide 5053”; “00196312” [NMK]; 1 ♀, data as above except, “4°23.93'S, 39°31.96'E, 10 m, 7 July 2001, A & M Coll. 1359, r.f. *Oxyanthus goetzei* ssp. *keniensis*”; “♀ Slide 5038”; “00196304”; “♀ Genitalia Slide by DA, USNM 83379” [USNM]; 1 ♀, data as above except, “4°23.71'S, 39°32.84'E, 5 m, 21 July 2000, lot 779, *Terminalia catappa* fruit”; “00196427” [USNM]; 1 ♀, data as above except, “4°23.93'S, 39°31.96'E, A & M Coll. # 1369, r.f. *Terminalia catappa*”; “00196419” [USNM]; 2 ♂, data as above except, “4°23.71'S, 39°32.84'E, 5 m, Coll. 20 July 2000, Kip - 654, r.f. *Terminalia catappa* fruit”; “♂ Slide 5074”; “00196342”; “♂ Genitalia Slide by DA, USNM 83380” [USNM]; “♂ Slide 4351”; “00196331” [NMK]; 1 ♂, data as above except, “Coll. 21 July 2000, Coll. A & M - 779, r.f. *Terminalia catappa* fruit”; “♂ Slide 4229”; “00196300” [NMK]; 1 ♂, data as above except, “5 m, 9 Feb. 2003, A & M Coll. # 2503, r.f. *Inhambanella henriquezii*”; “♂ Slide 5018”; “00196302”; “♂ Genitalia Slide by DA, USNM 83381” [USNM]; 1 ♀, data as above except, “Coll. 20 July 2000, Coll. A & M 763, r.f. *Olea woodiana disjuncta* fruit”; “♀ Slide 4363”; “00196340” [NMK]; 1 ♂, data as above except, “4°23.93'S, 39°31.96'E, 7 July 2001, A & M Coll. # 1346, r.f. *Ludia mauritiana*”; “♂ Slide 5043”; “00196305”; “♂ Genitalia Slide by DA, USNM 83382” [USNM]; 1 ♀, data as above except, “A & M Coll. # 1370, r.f. *Calophyllum inophyllum*”; “♀ Slide 5114”; “00196375”; “♀ Genitalia Slide by DA, USNM 83383” [USNM]; 1 ♀, “A & M Coll. # 1369, r.f. *Terminalia catappa*”; “♀ Slide 5073”; “00196341”; “♀ Genitalia Slide by DA, USNM 83384” [USNM]; 1 ♀, “4°23.93'S, 39°31.96'E, 7.VII.2001, R.S. Copeland”; “ex fruits, *Terminalia catappa*, ICIPE/USAID, Coll. # 1369”; “♀ Slide 5075”; “00196343”; “♀ Genitalia Slide by DA, USNM 83385” [USNM]; 1 ♀, “Arabuko Sokoke Forest, ca. 3°18.01'S, 39°59.14'E, Coll. 15 May 2000, R. Copeland, Kip - 548, r.f. *Deinbollia borbonica* fruit”; “♀ Slide 4360”; “00196338”; “♀ Genitalia Slide by DA, USNM 83386” [USNM]; 1 ♀, data as above except, “Coll. 16 May 2000, Kip - 559, r.f. *Manilkara sansibarensis* fruit”; “♀ Slide 4358”; “00196336”; “♀ Genitalia Slide by DA, USNM 83387” [USNM]; 1 ♂, data as above except, “ca. 3°19.32'S, 39°57.48'E, Coll. 9 Jan. 2000, Kip - 339, r.f. *Ximenia caffra*”; “♂ Slide 4219”; “00196295”; “♂ Genitalia Slide by DA, USNM 83388” [USNM]; 1 ♀,





MAP 6. Distribution of *Blastobasis kenya*.

data as above except, "3°18'S, 39°59'E, A & M Coll. # 423, r.f. *Strychnos madagascariensis*, form e"; "♀ Slide 5089"; "00196353" [NMK]; 1 ♂, 3 ♀, data as above except, "3°17.921'S, 39°59.994'E, 25 Aug. 1999, Kip - 128, r.f. *Salacia elegans*"; "♀ Slide 5080"; "00196347" [NMK]; 2 ♂, 3 ♀, data as above except, "Gede Forest, ca. 3°18.563'S, 40°1.076'E, Coll. 2 April 1999, R. Copeland, Coll. A & M 51, r.f. *Lepisanthes senegalensis* fruit"; "♂ Slide 4150"; "00196317"; "♂ Genitalia Slide by DA, USNM 83389" [USNM]; "♂ Slide 5115"; "00196865"; "♀ Slide 4148"; "00196384"; "00196385"; "00196416" [MRAC]; 1 ♂, "3°18.47'S, 40°01.05'E, 23-V-2000, R. Copeland, Kip - 571, *Lecaniodiscus fraxinifolius* fruit"; "♂ Slide 5054"; "00196313" [NMK]; "♀ Slide 5101"; "00196365" [NMK]; 1 ♂, data as above except, "Arabuko Sokoke Forest, ca. 3°18.01'S, 39°59.14'E, Coll. 15 May 2000, R. Copeland, Kip - 548, r.f. *Deinbollia borbonica* fruit"; "♀ Slide 4360"; "00196338" [NMK]; 1 ♂, data as above except, "Kenya: Muhaka Forest, 4°19.76'S, 39°31.55'E, 2 May 2001, A & M Coll. # 1224, R.S. Copeland, r.f. *Diospyros* sp."; "♂ Slide 5051"; "00196311"; "♂ Genitalia Slide by DA, USNM 83390" [USNM]; 1 ♀, data as above except, "4°19.88'S, 39°31.02'E, 12 April 2000, Kip - 483, R.S. Copeland, ICIPE/USAID, Reared from Unknown fruit"; "♀ Slide 5119"; "00196379"; "♀ Genitalia Slide by DA, USNM 83391" [USNM]; 1 ♂, 1 ♀, data as above except, "Mrima Hill, 4°29.25'S, 39°15.37'E, 3 May 2001, A & M Coll. # 1221, R.S. Copeland, ICIPE/USAID, r.f. *Dovyalis macrocalyx*"; "♂ Slide 5047"; "00196307"; "♂ Genitalia Slide by DA, USNM 83392" [USNM]; "♀ Slide 5086"; "00196350"; "♀ Genitalia Slide by DA, USNM 83396" [USNM]; 1 ♀, data as above except, "A & M Coll. # 1223, R.S. Copeland, ICIPE/USAID, r.f. *Saba comorensis*"; "♀ Slide 5085"; "00196349" [NMK]; 1 ♀, data as above except, "Western Koru, Coffee Research Station, 0°08.202'S, 35°17.086'E, 5.VIII.1999, A & M 232, unknown plant"; "♀ Slide 5122"; "00196382"; "♀ Genitalia Slide by DA, USNM 83393" [USNM]; 1 ♀, data as above except, "Kericho/Kisumu Road, ca. 0°16.189'S, 35°09.682'E, Coll. 21 Nov. 1999, R. Copeland, Coll. A & M 361, r.f. *Vepris nobilis* fruit"; "♀ Slide 4362"; "00196339"; "♀ Genitalia Slide by DA, USNM 83394" [USNM]; 1 ♀, data as above except, "1615 m, 21 Nov. 1999, A & M Coll. # 361, r.f. *Vepris nobilis*"; "00196407" [USNM]; 1 ♂, data as above except, "Kibwezi Forest, 2°27.95'S, 37°54.91'E, 988 m, 11 Jan. 2000, A & M Coll. # 424, R.S. Copeland, ICIPE/USAID, r.f. *Trichilia emetica*"; "♂ Slide 5049"; "00196309" [MRAC]. Paratypes deposited in BMNH, MRAC, NMK, and USNM.

**REMARKS.** Two female specimens missing abdomens (00196429 and 00196430) cluster together in the phenogram, apart from the main cluster of *Blastobasis kenya* (Figure 1); we treat as unassociated females, and they represent an unknown species.

**ETYMOLOGY.** The species epithet, *kenya*, is a noun in apposition recognizing the country of Kenya.

**DISTRIBUTION.** *Blastobasis kenya* is found in habitats in the coastal lowlands, eastern midaltitudes (Kibwezi Forest, 988 m), and the western highlands.

**HOSTS.** *Adenia* sp. (Passifloraceae); *Calophyllum inophyllum* L. (Clusiaceae); *Chrysophyllum viridifolium* J. M. Wood & Franks (Sapotaceae); *Cola minor* Brenan (Sterculiaceae); *Deinbollia borbonica* Scheff. (Sapindaceae); *Diospyros kabuyana* F. White (Ebenaceae); *Diphasia* sp. (Rutaceae); *Dovyalis macrocalyx* (Oliv.) Warb. (Salicaceae); *Dracaena mannii* Baker (Dracaceae); *Flacourtia indica* (Burm. F.) Merr. (Salicaceae); *Hirtella zanzibarica* Oliv. ssp. *zanzibarica* (Chrysobalanaceae); *Inhambanella henriquezii* (Engl. & Warb.) Dubard (Sapotaceae); *Landolphia* sp. (Apocynaceae); *Lecaniodiscus fraxinifolius* Baker ssp. *scassellatii* (Chiov.) Friis (Sapindaceae); *Lepisanthes senegalensis* (Poir.) Leenh. (Sapindaceae); *Ludia mauritiana* J. F. Gmel. (Salicaceae); *Manilkara sansibarensis* (Engl.) Dubard (Sapotaceae); *Mimusops aedificatoria* Mildbr. (Sapotaceae); *Olea woodiana* Knobl. ssp. *disjuncta* P. S. Green (Oleaceae); *Oxyanthus goetzei* K. Schum spp. *keniensis* Bridson (Rubiaceae); *Rourea minor* (Gaertn.) Alston (Connaraceae); *Saba comorensis* (Bojer) Pichon (Apocynaceae); *Salacia elegans* Oliv. (Celastraceae); *Strychnos madagascariensis* Poir., form e of Leeuwenburg (Loganiaceae); *Terminalia catappa* L. (Combretaceae); *Toddalia asiatica* (L.) Lam. (Rutaceae); *Trichilia emetica* Vahl (Meliaceae); *Trilepisium madagascariense* DC. (Moraceae); *Vepris nobilis* (Delile) Mziray (Rutaceae); *Ximenia caffra* Sond. (Olacaceae); and *Xylopi* sp. (Annonaceae).

### ***Blastobasis acirfa* Adamski, new species**

FIGURES 11, 28, 57, MAP 7

**DIAGNOSIS.** *Blastobasis acirfa* is similar to *B. kenya* and *B. aynekiella* but differs from the latter two species by having a wider gnathos, dorsoposterior margin of gnathos widely bidentate medially, and female with a funnel-shaped signum within the corpus bursae.

#### **DESCRIPTION.**

**Head:** Vertex and frontoclypeus with grayish brown scales tipped with pale grayish brown; outer and

inner surfaces of labial palpus with basal segments brown and dark brown intermixed with pale grayish brown scales to near apical margin, terminal segment grayish brown intermixed with a few brown scales; scape of antenna yellowish brown, flagellum gray; first flagellomere dilated, forming a notchlike concavity between dilated part and flagellomeres 2–4 in male; proboscis grayish brown.

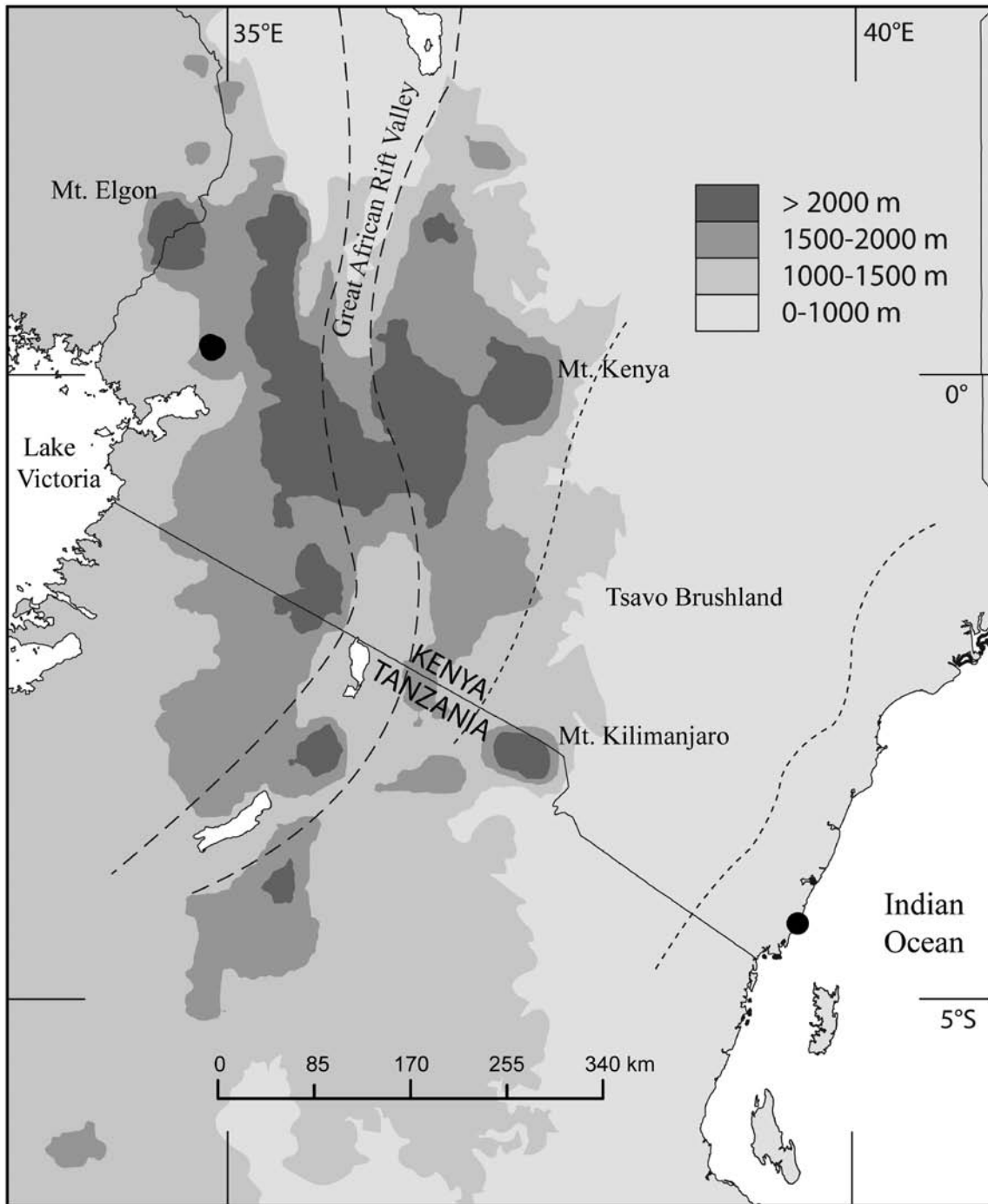
**Thorax:** Tegula and mesonotum brown on basal half, grayish brown scales tipped with pale grayish brown on distal half. Legs dark grayish brown, with a pale brown band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 57) length 5.9–9.3 mm ( $n = 16$ ), brownish gray intermixed with pale brownish gray scales, brownish gray scales tipped with pale brownish gray and brown scales; cell with three small, dark brown spots, one near midcell, two near distal end; marginal spots present or absent. Undersurface brown. Hindwing gray.

**Abdomen:** *Male genitalia* (Figure 11): Uncus narrowed apically from a slightly elevated base, acuminate apex, slightly recurved; gnathos narrow, dorsoposterior margin widely bidentate medially, shallowly grooved between dents; vinculum wide; juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process, extending from apicoventral margin of proximal flange; proximal flange elongate, overlaid by dense microtrichiate membrane, narrowed distally, contiguous with digitate process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin angular, produced into an acute, inwardly curved, acuminate process; process flattened on inner surface; diaphragma microtrichiate; aedeagus and sclerite of aedeagus abruptly curved near apical 1/3; anellus with several conical setae; vesica near anellus with several hair-like cornuti. *Female genitalia* (Figure 28): Eighth tergum without a narrow, darkly pigmented streak on median longitudinal axis; membrane surrounding ostium moderately microtrichiate to lateral margin; seventh sternum darkly pigmented along posterolateral margins; ductus bursae shorter than ovipositor, with internally imbricate platelets on anterior half; inception of ductus seminalis slightly anterior to ostium; corpus bursae with a with a funnel-shaped signum.

**HOLOTYPE.** ♂, “Kenya: Kakamega Forest, 0°13.66'N, 34°53.12'E, 15 Aug. 2000, A & M Coll. # 817, R.S. Copeland, ICIPE/USAID, r.f. *Olea welwitschii*”; “Restrictions Apply, NMK/ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by DA, No. 5048” [yellow label]; “USNM ENT 00196308” [barcode label] [NMK].

**PARATYPES** (3 ♂, 10 ♀). 1 ♀, same label data as holotype except, “coll. 11 Oct. 2000, R. Copeland, Lot 912, r.f. *Mimusops bagshawei* fruit”; “♀ Slide 4355”; “00196334”; “♀ Genitalia Slide by DA, USNM 83397” [USNM]; 1 ♂, data as above except, “0°13.14'N, 34°53.76'E, 14 Oct. 1999, Coll. # 311, R.S. Copeland, ICIPE/USAID, r.f. *Manilkara butugi*”; “♂ Slide 5050”; “001966310”; “♂ Genitalia Slide by DA, USNM 83404” [USNM]; 3 ♀, data as above except, “coll. 14 July 2000, R. Copeland, Coll. A & M 752, r.f. *Manilkara butugi* fruit”; “♀ Slide 4345”; “00196327”; “♀ Genitalia Slide by DA, USNM 83398” [USNM]; “♀ Slide 4346”; “00196328” [BMNH]; “♀ Slide 4347”; “00196329”; “♀ Genitalia Slide by DA, USNM 83400” [USNM]; 2 ♀, data as above except, “0°13.14'N, 34°53.76'E, coll. 15 Aug. 2000, R. Copeland, Coll. A & M 820, r.f. *Mimusops bagshawei* fruit”; “♀ Slide 4353”; “00196332” [NMK] “♀ Slide 4359”; “00196337” [MRAC]; 1 ♂, data as above except, “ca. 0°14.13'N, 34°51.87'E, coll. 14 Aug. 2000, R. Copeland, Coll. A & M 821, r.f. *Olea welwitschii* fruit”; “♂ Slide 4225”; “00196297”; “♂ Genitalia Slide by DA, USNM 83403” [USNM]; 1 ♂, data as above except, “ca. 0°12.34'N, 34°53.57'E, coll. 2 June 2000, R. Copeland, Coll. A & M 713, r.f. *Tiliacora funifera* fruit”; “♂ Slide 4228”; “00196299” [BMNH]; 1 ♀, data as above except, “ca. 0°11.90'N, 34°52.68'E, coll. 25 Feb. 2000, R. Copeland, Coll. A & M 534, r.f. *Synsepalum cerasiferum* fruit”; “♀ Slide 4356”; “00196335”; “♀ Genitalia Slide by DA, USNM 83399” [USNM]; 1 ♀, data as above except, “0°14.16'N, 34°51.82'E” “26 April 2001, A & M Coll. # 1215, R.S. Copeland, ICIPE/USAID, r.f. *Prunus africana*”; “♀ Slide 5077”; “00196344”; “♀ Genitalia Slide by DA, USNM 83401” [USNM]; 1 ♀, data as above except, “Western Prov., Kakamega Forest, 0°14.13'N, 34°51.87'E, on *Olea welwitschii*, Oleaceae, 14.VIII.2000, R. Copeland, A & M 821”; “♀ Slide 5110”; “00196371”; “♀ Genitalia Slide by DA, USNM 83402” [USNM]; 1 ♀, data as above except, “Coast Prov., Kaya Kinondo, 4°23.71'S, 39°32.84'E, on *Olea woodiana* subsp. *disjuncta*, Oleaceae, 20.VII.2000, R. Copeland, A & M 763”; “♀ Slide 5095”; “00196359” [NMK]. Paratypes deposited in BMNH, MRAC, NMK, and USNM.

**REMARKS.** Four specimens (2 ♂, 2 ♀) from Shimba Hills diverge from the main cluster of *Blastobasis acirfa* in the phenogram (Figure 1). Three of these specimens are not treated in the taxonomic section because their identities are uncertain due to their poor condition. Their label data are as follows: 1 ♂, “KENYA: Coast Province, Shimba Hills, 4°10.659'S, 39°26.677'E,



MAP 7. Distribution of *Blastobasis acirfa*.

24.IV.2002, R.S. Copeland”; “ex fruits, *Saba comorensis*, ICIPE/USAID, Coll. # 1901”; “♂ Slide 5062”; “00196314” [NMK]; 1 ♀, “Shimba Hills, 4°14.27’S, 39°23.74’E, 22 Apr. 2002, R.S. Copeland”; “ex fruits *Mimusops aedificatoria*, ICIPE/USAID, Coll. # 1909”;

“00196410” [NMK]; 1 ♀, “Shimba Hills, 389 m, 4°15.42’S, 39°22.96’E, 9 Aug. 2002, A & M Coll. # 2139, R.S. Copeland, ICIPE/USAID, r.f. *Hirtella zanzibarica* fruit”; “♀ Slide 5121”; “00196381” [NMK]. The fourth specimen in the divergent cluster (♂ USNM

00196356, DA 5092) has been identified as *Blastobasis chuka* and is treated below.

**ETYMOLOGY.** The species epithet, *acirfa*, is taken from the name of the continent in which this species is known to occur, but spelled backward.

**DISTRIBUTION.** *Blastobasis acirfa* has a disjunct distribution; it is recorded from habitats in the coastal lowlands and western highlands.

**HOSTS.** *Manilkara butugi* Chiov. (Sapotaceae); *Mimusops bagshawei* S. Moore (Sapotaceae); *Olea welwitschii* (Knobl.) Gilg & Schellenb. (Oleaceae); *Olea woodyana* Knobl. ssp. *disjuncta* P. S. Green (Oleaceae); *Prunus africana* (Hook.f.) Kalkman (Rosaceae); *Synsepalum cerasiferum* (Welw.) T. D. Penn. (Sapotaceae); *Tiliacora funifera* (Miers.) Oliv. (Menispermaceae).

### ***Blastobasis aynekiella* Adamski, new species**

FIGURES 12, 29, 56, MAP 8

**DIAGNOSIS.** *Blastobasis aynekiella* is similar to *B. kenya* and *B. acirfa* but differs from the latter two species by having the dorsoposterior margin of the gnathos more anterior to the base of the uncus, an aedeagus that is serpentine shaped, and female with two to three irregular rows of spinelike setae on the seventh tergum.

#### **DESCRIPTION.**

**Head:** Vertex and frontoclypeus with grayish brown scales tipped with pale grayish brown; outer and inner surfaces of labial palpus with basal segments brown and dark brown scales intermixed with pale grayish brown scales to near apical margin, terminal segment grayish brown intermixed with few brown scales; scape yellowish brown, flagellum gray; first flagellomere of antenna dilated, forming a notch between dilation and flagellomeres 2–4 in male; proboscis grayish brown.

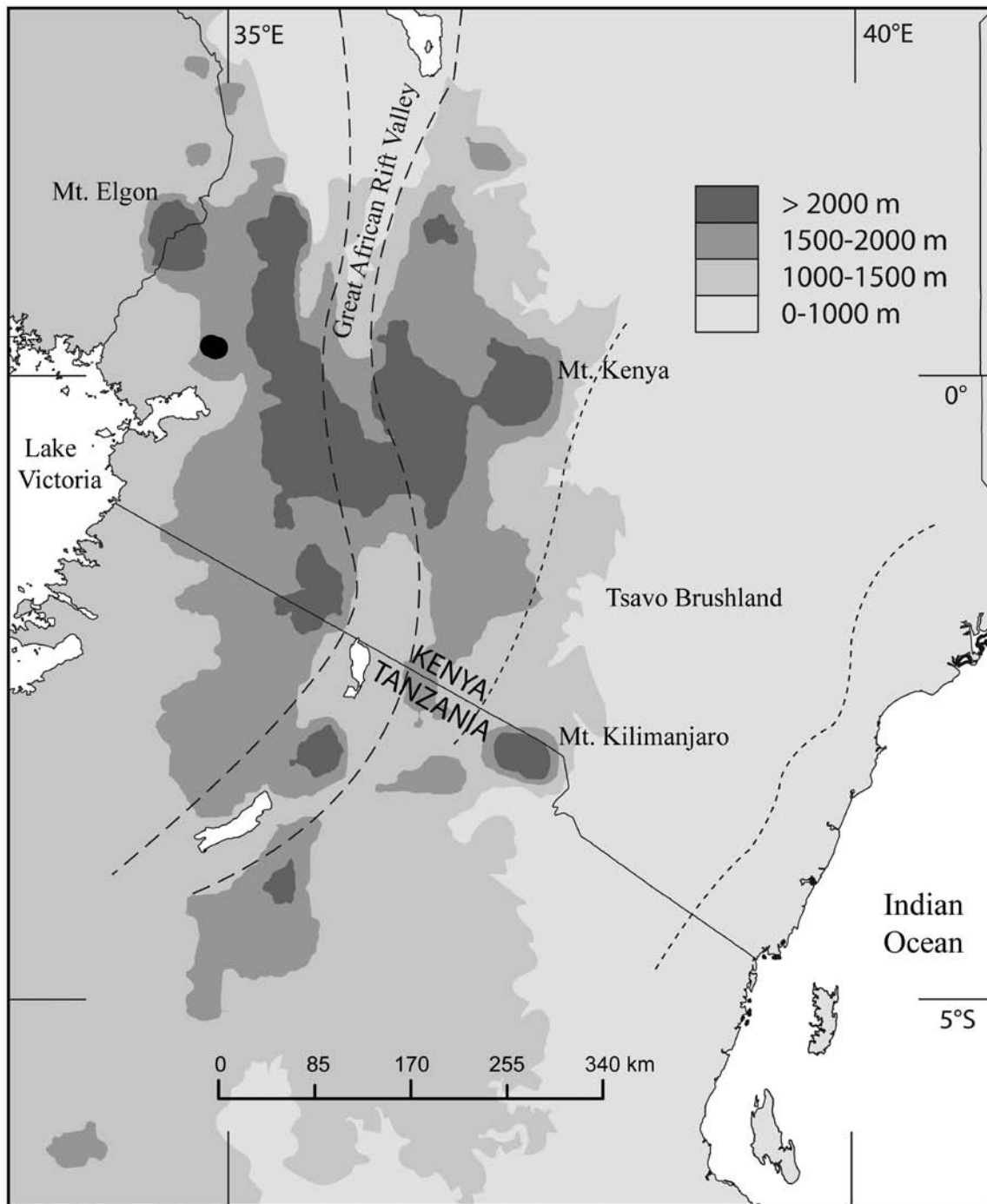
**Thorax:** Tegula and mesonotum with brown scales tipped with pale brown. Legs dark brown with a pale brown band near middle of segments and apices of all segments and tarsomeres. Forewing (Figure 56) length 6.9–8.3 mm ( $n = 8$ ), yellowish brown intermixed with yellowish brown scales tipped with pale yellowish brown and brown scales; submedian fascia faint; cell with three small, dark brown spots, one near midcell, two near distal end; marginal spots present. Undersurface brown. Hindwing gray.

**Abdomen:** *Male genitalia* (Figure 12): Uncus abruptly narrowed from broadened base, subapically curved ventrally, gradually narrowed to an acuminate apex; gnathos narrow, dorsoposterior margin bidentate medially; vinculum wide; juxta bandlike; valva divided;

costa of upper part of valva produced into a setose, digitate process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin angular, produced into an inwardly curved, acuminate process; process with a flattened inner surface; proximal flange elongate, apicoventral margin rounded distoventrally, overlaid with dense microtrichiate membrane, narrowed distally, contiguous with digitate process; diaphragma microtrichiate; aedeagus and sclerite of aedeagus serpentine shaped; anellus bearing several conical setae throughout length. *Female genitalia* (Figure 29): Eighth tergum without a narrow, darkly pigmented streak on median longitudinal axis; membrane surrounding ostium moderately microtrichiate to lateral margin; seventh tergum with two to three irregular rows of spinelike setae on posterior end; ductus bursae shorter than ovipositor, with internal rows of imbricate platelets on anterior half; inception of ductus seminalis slightly anterior to ostium; corpus bursae with a moderately large capitulate signum with a hornlike process.

**HOLOTYPE.** ♂, “Kenya: Kakamega Forest, 0°14.16'N, 34°51.82'E, 26 April 2001, A & M Coll. # 1215, R.S. Copeland, ICIPE/USAID, r.f. *Prunus africana*”; “Restrictions Apply, NMK/ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by DA, No. 5045” [yellow label]; “USNM ENT 00196306” [barcode label] [NMK].

**PARATYPES** (2 ♂, 7 ♀). 1 ♂, 1 ♀, “Kenya: Kakamega Forest, ca. 0°14.13'N, 34°51.87'E, Coll. 14 Aug. 2000, R. Copeland, Lot 821, r.f. *Olea welwitschii* fruit”; “♂ Slide 4222”; “00196296”; “♂ Genitalia Slide by DA, USNM 83405” [USNM]; “♀ Slide 4350”; “00196330” [NMK]; 1 ♀, data as above except, “31 Oct. 2001, A & M Coll. # 1506, R.S. Copeland; ICIPE/USAID, r.f. *Mimusops bagshawei*”; “♀ Slide 4915”; “00196321”; “♀ Genitalia Slide by DA, USNM 83448” [USNM]; 1 ♀, data as above except, “0°13.10'N, 34°54.06'E, 31 Oct. 2001, A & M Coll. 1499, R.S. Copeland, ICIPE/USAID, r.f. *Prunus africana*”; “00196420” [USNM]; 1 ♀, “0°13.44'N, 34°53.44'E, coll. 2 May 2000, R. Copeland, Coll. A & M 651, r.f. *Tiliacora funifera* fruit”; “♀ Slide 4354”; “00196333”; “♀ Genitalia Slide by DA, USNM 83406” [USNM]; 1 ♀, data as above except, “0°13.14'N, 34°53.76'E, coll. 16 Dec. 1999, R. Copeland, Coll. A & M 390, r.f. *Chrysophyllum albidum* fruit”; “♂ Slide 4227”; “00196298” [BMNH]; 1 ♂, “Kenya: Western Kakamega Forest on *Prunus africana*, 0°14.13'N, 34°51.87'E, 29.III.2000, R. Copeland, A & M 574”; “♂ Slide 5036”; “00196303” [MRAC]; 1 ♀, data as above except, “0°13.14'N, 34°54.14'E; Coll. 13 Apr. 1999, R. Copeland, Lot 67, r.f. *Prunus africana* fruit”; “♀ Slide 4145”; “00196428”; “♀ Genitalia Slide by DA,



MAP 8. Distribution of *Blastobasis aynekiella*.

USNM 83407" [USNM]; 1 ♀, "0°13.44'N, 34°53.44'E, 2.V.2000, R. Copeland, A & M 658"; "♀ Slide 5078"; "00196345" [NMK]. Paratypes deposited in BMNH, MRAC, NMK, and USNM.

**ETYMOLOGY.** The species epithet, *aynekiella*, is taken from the name of the country in which this species

is known to occur, but spelled backward, with the Latin suffix *-iella* (meaning small) added.

**DISTRIBUTION.** *Blastobasis aynekiella* is known only from the western highlands of the Kakamega Forest.

**HOSTS.** *Chrysophyllum albidum* G. Don (Sapotaceae); *Mimusops bagshawei* S. Moore (Sapotaceae);

*Olea welwitschii* (Knobl.) Gilg & Schellenb. (Oleaceae); *Prunus africana* (Hook.f.) Kalkman (Rosaceae); *Tiliacora funifera* (Miers.) Oliv. (Menispermaceae).

***Blastobasis catappaella* Adamski, new species**

FIGURES 13, 35, 59, MAP 9

**DIAGNOSIS.** *Blastobasis catappaella* is similar to *Blastobasis kenya*, *B. acirfa*, and *B. aynekiella* in wing pattern but differs in having a narrower base of the uncus, an abruptly narrowed basiventral margin of the proximal flange, a narrower base of the digitate process of the upper part of the valva, dorsal strut on the dorsoanterior part of the tegumen, and female signum with a spine asymmetrically located on base.

**DESCRIPTION.**

**Head:** Vertex and frontoclypeus pale brown; labial palpus missing; scape of antenna pale brown, flagellum pale gray; male first flagellomere dilated, forming a notch adjacent to flagellomeres 2–4; proboscis pale brown.

**Thorax:** Tegula and mesonotum brown basally, pale brown distally. Legs brown with a pale brown band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 59) length 4.0 mm ( $n = 1$ ), pale brown intermixed with brown and a few reddish brown and dark brown scales; middle pale brown intermixed with a few reddish brown scales; median fascia present or absent; costal area and area beyond cell brown intermixed with a few pale brown scales; cell with three dark brown spots, one near middle, two on distal end near crossvein; dark brown marginal spots present. Undersurface brown. Hindwing pale brown, gradually darkening to apex.

**Abdomen:** *Male genitalia* (Figure 13): Uncus narrowed near midlength, slightly widened distally; gnathos wide, dorsoposterior margin bidentate medially; dorsal strut present; vinculum wide; juxta bandlike; valva divided; costa of dorsal part produced into a setose, digitate process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin angular, produced into an inwardly curved, acuminate process; process flattened on inner surface; proximal flange abruptly emarginate basiventrally, overlaid by a dense microtrichiate membrane; contiguous with digitate process; diaphragm sparsely microtrichiate; aedeagus and aedeagal sclerite broadly curved; anellus elongate, bearing several conical setae. *Female genitalia* (Figure 35): Eighth tergum with a narrow, elongate, and darkly pigmented streak on median longitudinal axis; membrane surrounding ostium sparsely microtrichiate to lateral margin; ductus bursae shorter than ovipositor, with internal, imbricate platelets on anterior 2/3;

inception of ductus seminalis slightly anterior to ostium; corpus bursae with a signum with a short spinelike process asymmetrically placed on an elongate base.

**HOLOTYPE.** ♂, “Kenya: Laikipia Plateau, Mpala Research Centre, 0.293°N, 36.899°E, 1650 m, 16–19 June 2003, S.E. Miller”; “Restrictions Apply, NMK/ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by DA, no. 5071” [green label]; “USNM ENT 00196867” [barcode label] [NMK].

**PARATYPES** (9 ♂, 4 ♀). 4 ♂, “Kenya: Laikipia Plateau, Mpala Research Centre, 0.293°N, 36.899°E, 1650 m, 23–26 Dec. 1999, S.E. Miller & T.M. Kuklenski”; “♂ Slide 4140”; “00194978”; “♂ Genitalia Slide by DA, USNM 83408” [USNM]; “♂ Slide 4141”; “00194942”; “♂ Genitalia Slide by DA, USNM 83410” [USNM]; “♂ Slide 4147”; “00194932” [MRAC]; “♂ Slide 4139”; “♂ Genitalia Slide by DA, USNM 83411” [USNM]; 2 ♂, 2 ♀, “16–19 June 2003”; “S.E. Miller”; “♀ Slide 5072”; “00196868”; “♀ Genitalia Slide by DA, USNM 83412” [USNM]; “00196873” [USNM]; “00196874” [USNM]; “00196875” [USNM]; 1 ♂, 1 ♀, “6–9 Dec. 2002”; “♂ Slide 5073”; “00196869”; “♂ Genitalia Slide by DA, USNM 83413” [USNM]; “♀ Slide 5074”; “00196870”; “♀ Genitalia Slide by DA, USNM 83414” [USNM]; 1 ♂, 1 ♀, “19–21 May 1999”; “♂ Slide 4146”; “00196871” [BMNH]; “♀ Slide 4143”; “00192236”; “♀ Genitalia Slide by DA, USNM 83415” [USNM]; 1 ♂, “Kenya: Kaya Kinondo, ca. 4°23.71'S, 39°32.84'E, Coll[ected] 20 July 2000, R. Copeland, Kip - 654, r.f. *Terminalia catappa* fruit”; “Slide 4339”; “00196866” [NMK]. Paratypes deposited in BMNH, MRAC, NMK, and USNM.

**ETYMOLOGY.** The specific epithet, *catappaella*, is derived from the species name of the host.

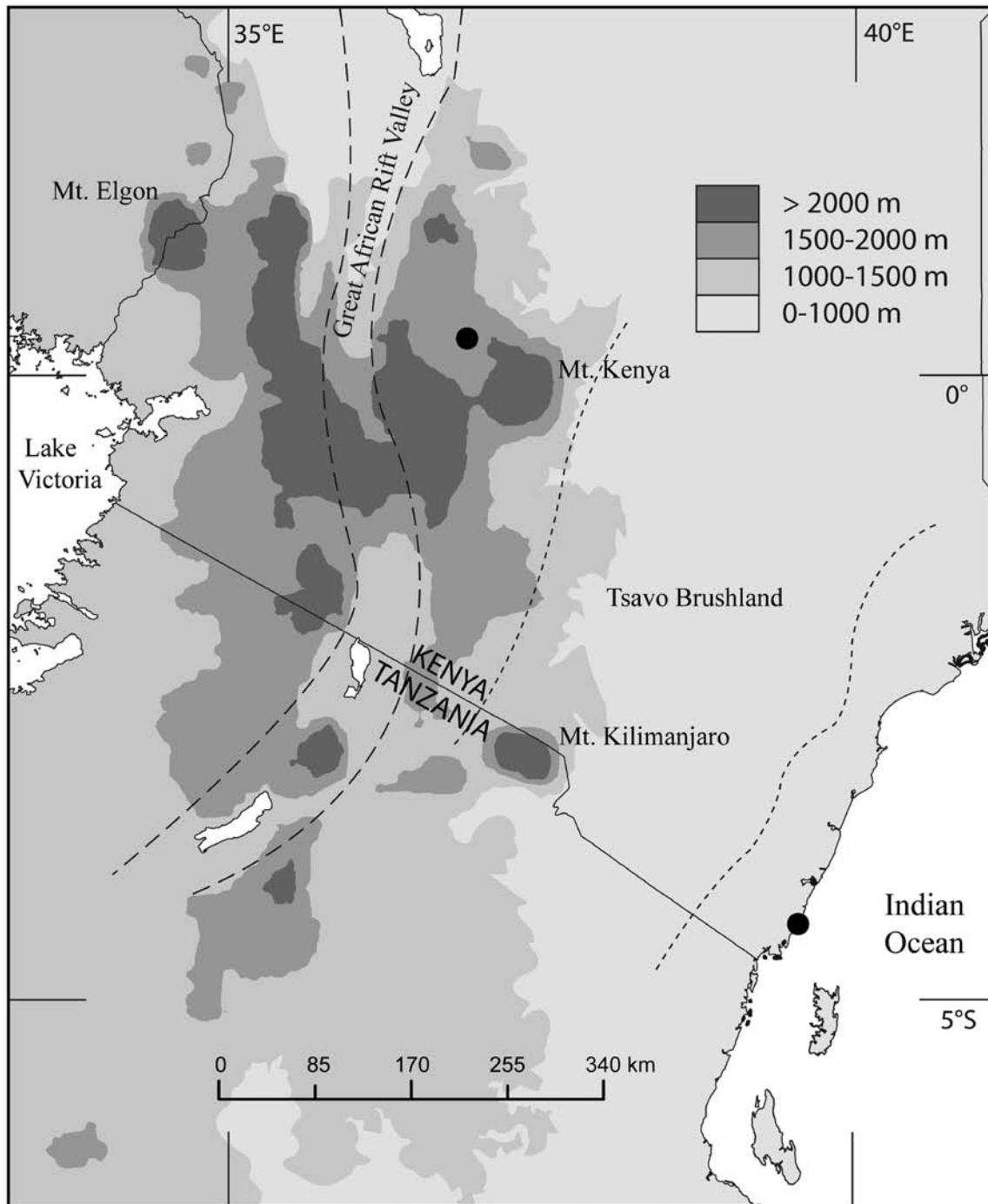
**DISTRIBUTION.** *Blastobasis catappaella* is known from habitats along the southeastern coast and in the xeric central highlands.

**HOST.** Fruits of *Terminalia catappa* Linnaeus (Combretaceae).

***Blastobasis glauconotata* Adamski, new species**

FIGURES 14, 31, 46, MAP 10

**DIAGNOSIS.** *Blastobasis glauconotata* is most similar to *B. chuka*, but it differs from the latter by having a slightly narrower uncus, a wider inner surface of the acuminate process of the lower part of the valva, a narrower microtrichiate area of the valva, a shorter aedeagus, a broader anellus of the aedeagus, and female with a ductus bursae that is 2/3 the length of the ovipositor.



MAP 9. Distribution of *Blastobasis catappaella*.

**DESCRIPTION.**

*Head:* Vertex and frontoclypeus with scales grayish brown tipped with pale grayish brown; labial palpus with outer surface of segments I and II grayish brown intermixed with few pale grayish brown scales to apical margin,

segment III grayish brown; inner surface as above except, segment III darker; scape and flagellum of antenna pale grayish brown; male first flagellomere dilated, forming a notch between itself and flagellomeres 2–4; proboscis pale grayish brown.



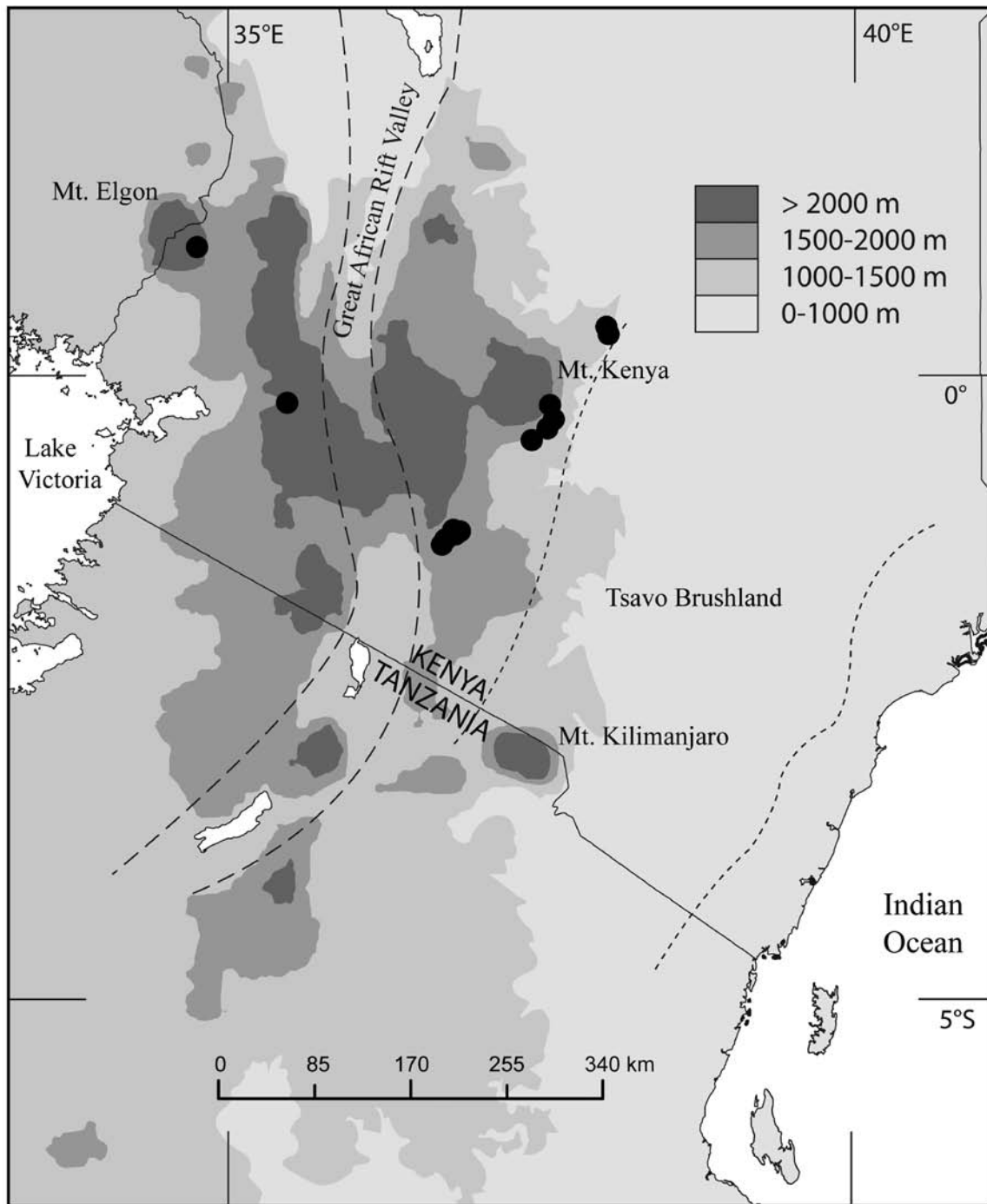
**Thorax:** Tegula and mesonotum brown basally, grayish brown distally. Legs brown with a pale grayish brown band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 46) length 6.8–9.1 mm ( $n = 23$ ), grayish brown intermixed with a few pale grayish brown and brown scales or basal 1/3 pale grayish brown, distal 2/3 slightly darker; four small brown spots present; three spots within cell, one near middle and two on distal end near crossvein; one spot posterior to midcell spot on CuP; marginal spots dark gray or faint. Undersurface grayish brown. Hindwing pale grayish brown basally, gradually darkening to apex.

**Abdomen:** *Male genitalia* (Figure 14): Uncus broadly curved ventrally from a slightly widened base, apex rounded narrowly; gnathos narrow, dorsoposterior margin bidentate medially; dorsal strut present; vinculum wide; juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin slightly angular, produced into an inwardly curved process; process broad, inner surface flattened; proximal flange elongate, overlaid by dense microtrichiate membrane, narrowed distally, contiguous with digitate process; aedeagus and sclerite of aedeagus slightly curved slightly above midlength; anellus broadly rounded apically, bearing several conical setae. *Female genitalia* (Figure 31): Eighth tergum with a narrow, darkly pigmented streak along median longitudinal axis; ostium slightly posterior to seventh segment; membrane surrounding ostium microtrichiate; medioposterior margin of seventh sternum slightly emarginate medially; inception of ductus seminalis slightly anterior to ostium; ductus bursae about 2/3 length of ovipositor, with internal imbricate platelets on anterior half; corpus bursae slightly elongate; signum with a spine-like process arising from middle of a slightly elevated base.

**HOLOTYPE.** ♂, “Kenya: Chuka Forest, 0°21.06'S, 37°35.80'E, 1600 m, 20 Jan. 2003, A & M Coll[ection] # 2372, R.S. Copeland; ICIPE/USAID, r.f. *Prunus africana*”; “Restrictions Apply, NMK/ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by D. Adamski, No. 5023” [yellow label]; “USNM ENT 00196876” [barcode label] [NMK].

**PARATYPES** (13 ♂, 25 ♀). 3 ♂, 3 ♀, Same label data as above except, “♂ Slide 5024”; “00196882”; “♂ Genitalia Slide by DA, USNM 83421” [USNM]; “♂ Slide 5026”; “00196883”; “♂ Genitalia Slide by DA, USNM 83430” [USNM]; “♂ Slide 5027”; “00196884”; “♂ Genitalia Slide by DA, USNM 83416” [USNM]; “♀ Slide 5022”; “00196877”; “♀ Genitalia Slide by DA, USNM 83417” [USNM]; “♀ Slide 5028”; “00196878”;

“♀ Genitalia Slide by DA, USNM 83418” [USNM]; “♀ Slide 5030”; “00196880”; “♀ Genitalia Slide by DA, USNM 83419” [USNM]; 1 ♂, label data as above except, “1576 [m], 0°21.237'S, 37°36.184'E, Coll. # 2365, r.f. *Toddalia asiatica*”; “♂ Slide 5017”; “00196386”; “♂ Genitalia Slide by DA, USNM 83420” [USNM]; 1 ♂, “Mount Elgon, 2452 m, 1°01.730'N, 34°45.280'E, 29 Jan. 2003, Coll. # 2408, r.f. *Ekebergia capensis*”; “♂ Slide 5019”; “00196387” [BMNH]; 1 ♂, “Ololua Forest, ca. 1°21.52'S, 36°42.33'E, Coll. 16 July 1999, Coll. A & M 181, r.f. *Drypetes gerrardii* fruit”; “♂ Slide 4223”; “♂ Genitalia Slide by DA, USNM 83408”; “♂ Wing Slide by DA, USNM 83422”; “00196318” [USNM]; 1 ♀, data as above except, “8 Apr. 2000, Lot 603, r.f. *Solanum anguivi*”; “♀ Slide 5094”; “00196358”; “♀ Genitalia Slide by DA, USNM 83431” [USNM]; 2 ♂, “Nairobi, 1°16.44'S, 36°48.83'E, 3 June 2001, A & M Coll. # 1290 [# 1271, for second specimen], r.f. *Afrocarpus falcatus*”; “♂ Slide 5037”; “00196394” [BMNH]; “♂ Slide 5040”; “00196395” [NMK]; 1 ♀, data as above except, “21 April 2001, A & M Coll. # 1190, r.f. *Afrocarpus falcatus*”; “00196425” [USNM]; 1 ♀, data as above except, “19 Oct. 2001, A & M Coll. # 1450”; “00196426” [USNM]; 1 ♀, data as above except, “30 Mar. 2001, A & M Coll. 1129”; “Slide 5106”; “00196367”; 1 ♀, data as above except, “29 Jan. 2001, A & M Coll. # 972”; “00196422”; “♀ Genitalia Slide by DA, USNM 83423” [USNM]; 1 ♀, data as above except, “29 Jan. 2001, A & M Coll. # 972”; “00196422” [USNM]; 1 ♂, 3 ♀, “Central Prov. Njukini Forest, 0°31.15'S, 37°25.19'E, 24 July 2001, A & M Coll. # 1397, r.f. *Chaetacme aristata*”; “♂ Slide 5041”; “00196396” [NMK]; “♀ Slide 5116”; “00196376” [MRAC]; “♀ Slide 5117”; “00196377” [NMK]; “00196423” [USNM]; 1 ♂, “Ngong R[oa]d Forest, 1°18.82'S, 36°43.88'E, 6 April 2001, A & M Coll. # 1151, r.f. *Warburgia ugandensis*”; “♂ Slide 5046”; “00196397” [MRAC]; 2 ♀, data as above except, “6 April 2001, A & M Coll. # 1156, r.f. *Schrebera alata*”; “♀ Slide 5109”; “00196370”; “♀ Genitalia Slide by DA, USNM 83432” [USNM]; “00196412” [USNM]; 1 ♂, “A & M 1157, r.f., fruit *Vepris simplicifolia*”; “♂ Slide 5059”; “00196401”; “♂ Genitalia Slide by DA, USNM 83424” [USNM]; 1 ♀, data as above except, “A & M Coll. # 1153, r.f. *Mimusops kummel*”; “♀ Slide 5099”; “00196363” [MRAC]; 1 ♀, data as above except, “6 April 2001, Coll. A & M 1151, r.f. *Warburgia ugandensis*”; “♀ Slide 5096”; “00196360”; “♀ Genitalia Slide by DA, USNM 83425” [USNM]; 2 ♀, data as above except, “1829 m, A & M Coll. # 1149, r.f. *Elaeodendron buchananii*”; “♀ Slide 5111”; “00196372” [BMNH]; “00196421” [USNM]; 2



MAP 10. Distribution of *Blastobasis glauconotata*.

♂, “Karura Forest, 1759 m, ca. 1°14.28'S, 36°47.66'E, 9 Apr. 2001, A & M Coll. # 1162, r.f. fruit, *Schrebera alata*”; “♂ Slide 5056”; “00196399”; “♂ Genitalia Slide by DA, USNM 83446” [USNM]; “♂ Slide 5060”; “00196402” [BMNH]; 2 ♀, data as above except, “1655 m, 1°14.95'S,

36°50.83'E, 26 April 2004, A & M Coll. # 2778”; “r.f. *Vepris trichocarpa*”; “00196432” [USNM]; “00196434” [USNM]; 1 ♀, “Ngala Forest, lower portion, 1230 m, 0°19.87'N, 38°01.96'E, 27 May 2004, A & M Coll. # 2918, R.S. Copeland, ICIPE/USAID”; “r.f. *Strychnos*

*mitis*”; “00196433” [USNM]; 1 ♀, data as above except, “upper portion, 1420 m, 0°23.36'N, 38°00.88'E, 10 Sept. 2003, A & M Coll. # 2571”; “r.f. *Rawsonia lucida*”; “00196431” [USNM]; 1 ♀, “Kirimiri Forest, 1745 m, 0°25.45'S, 37°32.71'E, 8 Nov. 2001, A & M Coll. # 1510, RS Copeland, ICIPE/USAID, r.f. *Cussonia spicata*”; “♀ Slide 5084”; “00196348”; “♀ Genitalia Slide by DA, USNM 83428” [USNM]; 1 ♀, “City Park Forest, 1697 m, 1°15.61'S, 36°49.76'E, 19 April 2001, A & M Coll. # 1183, RS Copeland, ICIPE/USAID, r.f. *Strychnos mitis*”; “♀ Slide 5088”; “00196352”; “♀ Genitalia Slide by DA, USNM 83429” [USNM]; 1 ♀, “Mau Forest, 2175 m, 0°14.13'S, 35°32.94'E, 3 Feb. 2003, A & M Coll. 2459, R.S. Copeland, ICIPE/USAID, r.f. *Vepris nobilis*”; “♀ Slide 5021”; “00196892”; “♀ Genitalia Slide by DA, USNM 83427” [USNM]. Paratypes deposited in BMNH, MRAC, NMK, and USNM.

**ETYMOLOGY.** The species epithet, *glauconotata*, is a compound word derived from the Latin, *glauco*, meaning gray, and *nota*, meaning spot, referring to the dark gray marginal spots on the distal third of the forewing.

**DISTRIBUTION.** *Blastobasis glauconotata* is known from habitats in the central and western highlands and in the central midaltitudes of Ngaia Forest at 1230 m.

**HOSTS.** Fruits of *Afrocarpus falcatus* (Thunb.) C. N. Page (Podocarpaceae); *Chaetacme aristata* Planch. (Ulmaceae); *Cussonia spicata* Thunb. (Araliaceae); *Drypetes gerrardii* Hutch. (Euphorbiaceae); *Elaeodendron buchananii* (Loes.) Loes. (Celastraceae); *Ekebergia capensis* Sparrm. (Meliaceae); *Mimusops kummel* A. DC. (Sapotaceae); *Prunus africana* (Hook.f.) Kalkman (Rosaceae); *Rawsonia lucida* Harv. & Sond. (Achariaceae); *Schrebera alata* (Hochst.) Welw. (Oleaceae); *Solanum anguivi* Lam. (Solanaceae); *Strychnos mitis* S. Moore (Loganiaceae); *Toddalia asiatica* (L.) Lam. (Rutaceae); *Vepris nobilis* (Delile) Mziray (Rutaceae); *Vepris simplicifolia* (Engl.) Mziray (Rutaceae); *Vepris trichocarpa* (Engl.) Mziray (Rutaceae); *Warburgia ugandensis* Sprague (Canellaceae).

### ***Blastobasis chuka* Adamski, new species**

FIGURES 16, 36, 44, MAP 11

**DIAGNOSIS.** *Blastobasis chuka* is most similar to *B. glauconotata* but differs from the latter by having a more angular digitate process of the upper part of the valva, a wider microtrichiate part of the lower part of the valva, a slightly longer aedeagus, a more acutely curved aedeagus, and female with an antrum that is cuplike.

### **DESCRIPTION.**

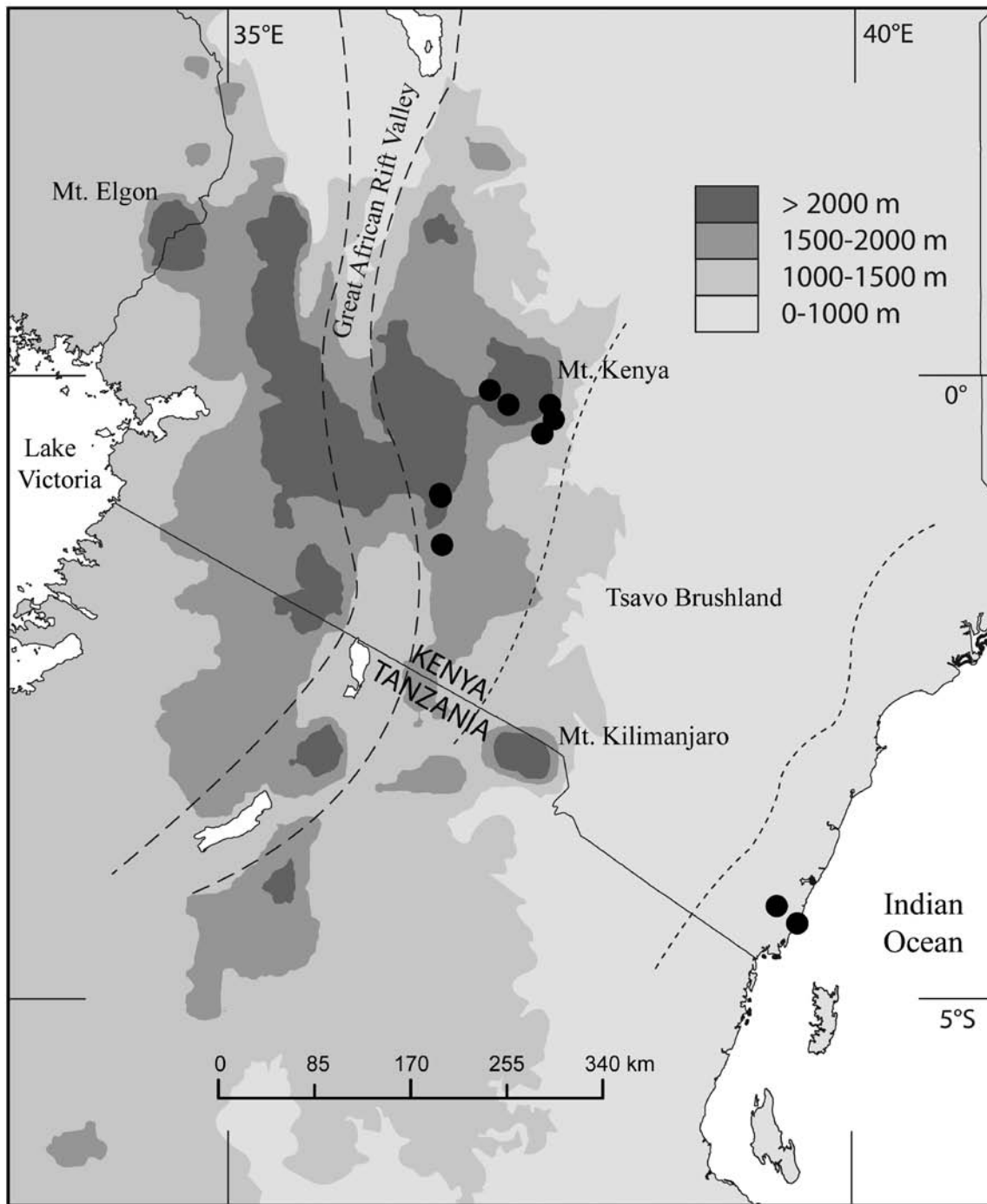
**Head:** Vertex and frontoclypeus with scales brownish gray tipped with pale brown; labial palpus with outer surface of segments I and II brown intermixed with pale brownish gray scales to apical margin, segment III pale brown; inner surface pale brown; scape of antenna pale brownish gray, flagellum pale gray; male first flagellomere dilated, forming a notch between itself and flagellomeres 2–4. Proboscis pale brownish gray.

**Thorax:** Tegula and mesonotum brown intermixed with pale brown scales. Legs brown with a pale brown band on apices of all segments and tarsomeres. Forewing (Figure 44) length 6.3–8.2 mm ( $n = 6$ ), submedian fascia faint, complete, chevron shaped; basal 1/3 from base to submedian fascia pale brown intermixed with a few brown scales, distal 2/3 from submedian fascia to margin brown intermixed with a few pale brown scales; cell with two faint, small spots on distal end near crossvein; submarginal spots faint. Undersurface brown. Hindwing pale gray.

**Abdomen:** *Male genitalia* (Figure 16): Uncus wide basally, narrowing apically, acutely curved subapically, apex rounded narrowly; gnathos narrow, dorsoventral margin shallowly bidentate medially; dorsal strut present; vinculum wide; juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin, apicoventral margin angular, produced into an inwardly curved, acuminate process; process flattened on inner margin; proximal flange elongate, apicoventral margin angular, overlaid by dense microtrichiate, contiguous with digitate process; aedeagus and sclerite of aedeagus subapically acutely curved near apical 1/3; anellus elongate, bearing several conical setae. *Female genitalia* (Figure 36): Eighth tergum with a narrow, darkly pigmented streak on median longitudinal axis; ostium slightly posterior to seventh segment; antrum cuplike; membrane surrounding ostium densely microtrichiate to lateral margin; ductus bursae longer than ovipositor, with imbricate platelets on anterior half; inception of ductus seminalis slightly anterior to ostium; anterior part of corpus bursae with a signum bearing a spinelike process arising from an elongate base.

**HOLOTYPE.** ♂, “Chuka Forest, 0°21.06'S, 37°35.80'E; 1600 m, 20 Jan. 2003; A & M Coll[ection] # 2372, R.S. Copeland; ICIPE/USAID, r.f. *Prunus africana*”; “Restrictions Apply, NMK/ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by D. Adamski, No. 5025” [yellow label]; “USNM ENT 00196885” [barcode label] [NMK].

**PARATYPES** (12 ♂, 15 ♀). 2 ♂, “Kenya, Bur-guret Forest, 0°07.208'S, 37°05.147'E, 23 May 2002,



MAP 11. Distribution of *Blastobasis chuka*.

A & M Coll[ection] # 2020, r.f. *Vepris simplicifolia*"; "♂ Slide 4905"; "00196886"; "♂ Genitalia Slide by DA, USNM 83449"; "♂ Slide 4906"; "00196887"; "♂ Genitalia Slide by DA, USNM 83433" [USNM]; 1 ♂, 1 ♀, "Mt. Kenya Forest, 0°14.256'S, 37°33.924'E, 2040 m, 7 Nov. 2001, A & M Coll[ection] # 1521, r.f. *Chrysophyllum*

*gorungosanum*"; "♂ Slide 4914"; "00196888" [BMNH]; "00196413" [USNM]; 2 ♀, data as above except, "6 Dec. 2001, A & M Coll. # 1625"; "♀ Slide 5105"; "00196366" [BMNH]; "00196414" [USNM]; 1 ♂, data as above except, "7 Nov. 2001, R.S. Copeland"; "ex. fruits, *Chrysophyllum gorungosanum*, Coll. # 1521" "♂ Slide

5066"; "00196404"; "♂ Genitalia Slide by DA, USNM 83444" [USNM]; 1 ♀, data as above except, "0°14.19'S, 37°37.14'E, 1893 m, 9 April 2002, A & M Coll. # 1870, r.f. unknown fruit"; "♀ Slide 5120"; "00196380"; "♀ Genitalia Slide by DA, USNM 83434" [USNM]; 1 ♀, "Mt. Kenya Forest, 0°14.19'S, 37°34.14'E, 1893 m, 9 April 2002, A & M Coll. 1870, r.f. unknown fruit"; "♀ Slide 4907"; "00196320"; "♀ Genitalia Slide by DA, USNM 83435" [USNM]; 3 ♂, "Gatamayu Forest, 0°58.45'S, 36°41.83'E, 17 April 2001, A & M Coll. # 1170, r.f. *Podocarpus latifolius*"; "♂ Slide 5042"; "00196889" [NMK]; "♂ Slide 5055"; "00196398" [BMNH]; "♂ Slide 5061"; "00196403"; "♂ Genitalia Slide by DA, USNM 83436" [USNM]; 1 ♂, data as above except, "A & M Coll. 1169, r.f. *Landolphia buchananii*"; "♂ Slide 5058"; "00196400"; "♂ Genitalia Slide by DA, USNM 83437" [USNM]; 1 ♀, data as above except, "A & M Coll. 1179, r.f. *Allophylus abyssinicus*"; "♀ Slide 5090"; "00196354" [NMK]; 2 ♀, data as above except, "2284 m, 17 April 2001, A & M Coll. # 1170, r.f. *Podocarpus latifolius*"; "♀ Slide 5108"; "00196369"; "♀ Genitalia Slide by DA, USNM 83438" [USNM]; "00196418" [USNM]; 2 ♀, data as above except, "A & M Coll. # 1169, r.f. *Landolphia buchananii*"; "♀ Slide 5112"; "00196373" [MRAC]; "00196406" [USNM]; 1 ♀, data as above except, "A & M Coll. # 1177, r.f. *Passiflora mollissima*"; "♀ Slide 5100"; "00196364"; "♀ Genitalia Slide by DA, USNM 83439" [USNM]; 1 ♀, data as above except, "0°57.12'S, 36°41.43'E, Coll. 23 March 1999, Lot 38, r.f. *Garcinia volkensii*"; "♀ Slide 5097"; "00196361"; "♀ Genitalia Slide by DA, USNM 83440" [USNM]; 1 ♂, data as above except, "Ololua Forest, ca. 1°21.534'S, 36°42.417'E, 16 Aug. 1999, Coll. A & M 244, r.f. *Drypetes gerrardii* fruit"; "♂ Slide 4226"; "00196890" [NMK]; 1 ♂, data as above except, "Shimba Hills, 4°15.42'S, 39°22.96E, 23 April 2002, A & M Coll. # 1896, R.S. Copeland, ICIPE/USAID, r.f. *Dictyophleba lucida*"; "♂ Slide 5092"; "00196356" [MRAC]; 1 ♂, data as above except, "Kaya Kinondo, ca. 4°23.71S, 39°32.84'E, coll. 20 July 2000, R. Copeland, Coll. A & M 767, r.f. *Diphasia* sp. Fruit"; "♂ Slide 5093"; "00196357" [BMNH]; 1 ♂, data as above except, "Koru/Brooks, ca. 0°8.87'S, 35°15.77'E, 17 Aug. 2000, Lot 808, r.f. *Flacourtia indica*"; "♂ Slide 4344"; "00196301"; "♀ Genitalia Slide by DA, USNM 83445" [USNM]; 2 ♀, data as above except, "Chuka Forest, 0°21.06'S, 37°35.80'E, 1600 m, 20 Jan. 2003, A & M Coll. # 2372, r.f. *Prunus africana*"; "♀ Slide 5031"; "00196881"; "♀ Genitalia Slide by DA, USNM 83441" [USNM]; "♀ Slide 5029"; "00196879"; "♀ Genitalia Slide by DA, USNM 83442" [USNM]; 1 ♀, "Kirimiri Forest, 0°25.62'S, 37°32.83'E, 1710 m, 28 Aug. 2002, A & M Coll. # 2197, R.S. Copeland, ICIPE/USAID,

r.f. *Rawsonia lucida*"; "♀ Slide 4917"; "00196323"; "♀ Genitalia Slide by DA, USNM 83443" [USNM]. Paratypes deposited in BMNH, MRAC, NMK, and USNM.

**ETYMOLOGY.** The species epithet, *chuka*, is derived from Chuka Forest, the type locality.

**DISTRIBUTION.** *Blastobasis chuka* is known from habitats along the southeastern coast and in the central highlands.

**HOSTS.** Fruits of *Allophylus abyssinicus* (Hochst.) Radlk. (Sapindaceae); *Chrysophyllum gorungosanum* Engl. (Sapotaceae); *Dictyophleba lucida* (K. Schum.) Pierre (Apocynaceae); *Diphasia* sp. (Rutaceae); *Drypetes gerrardii* Hutch. (Euphorbiaceae); *Flacourtia indica* (Burm. F.) Merr. (Salicaceae); *Garcinia volkensii* Engl. (Clusiaceae); *Landolphia buchananii* (Hallier f.) Stapf. (Apocynaceae); *Passiflora mollissima* (Kunth) L. H. Bailey (Passifloraceae); *Podocarpus latifolius* (Thunb.) Mirb. (Podocarpaceae); *Prunus africana* (Hook.f.) Kalkman (Rosaceae); *Rawsonia lucida* Harv. & Sond. (Achariaceae); *Vepris simplicifolia* (Engl.) Mziray (Rutaceae).

### ***Blastobasis elgonae* Adamski, new species**

FIGURES 15, 49, MAP 12

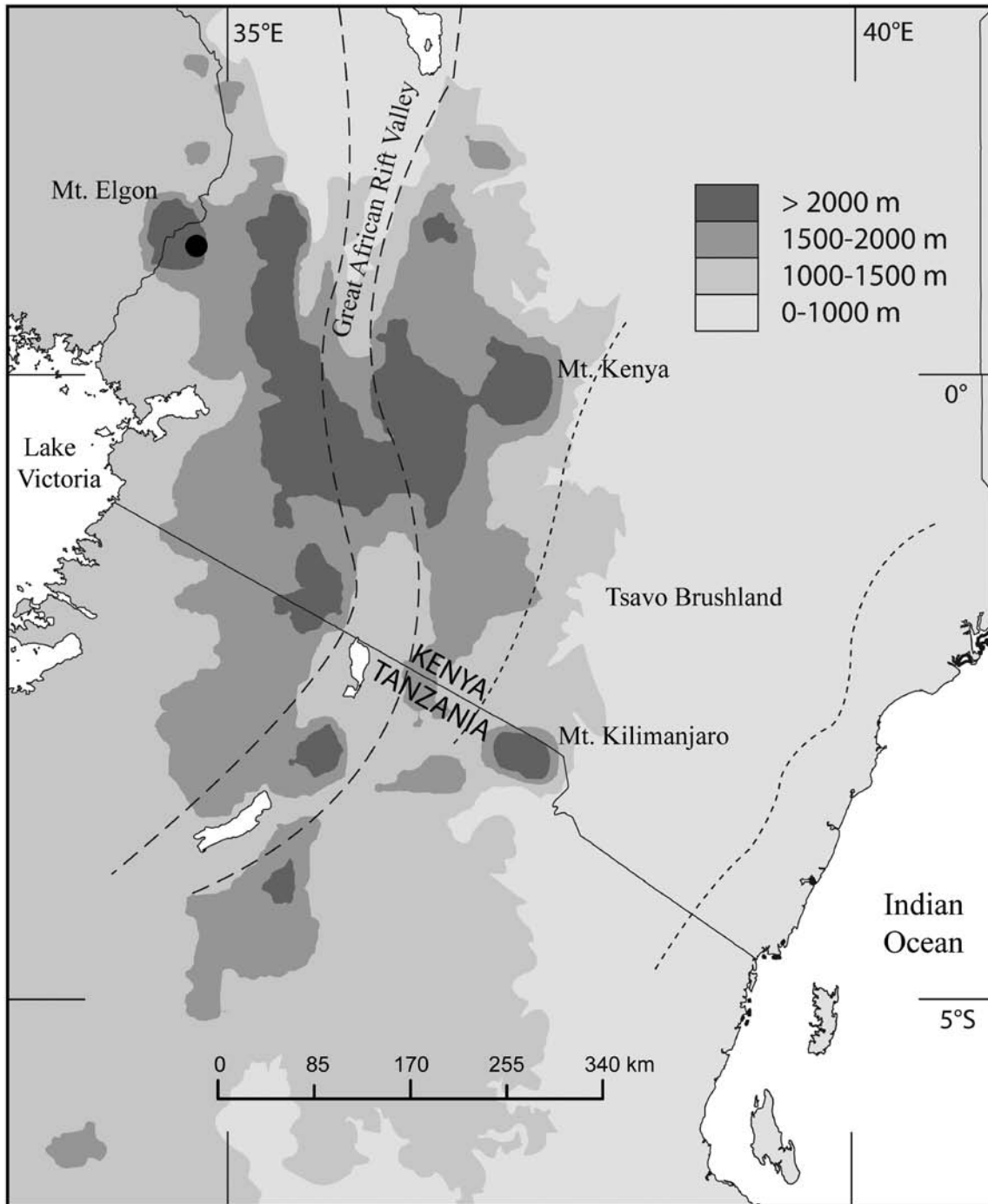
**DIAGNOSIS.** *Blastobasis elgonae* is most similar to *B. indigesta* but differs from the latter by having a narrower uncus, a narrower gnathos, more tergal setae on dorsolateral part of tegumen, a broader apicoventral margin of the lower part of the valva, and a longer aedeagus.

#### **DESCRIPTION.**

**Head:** Vertex and frontoclypeus with scales grayish brown tipped with white; labial palpus with outer margin of segments I and II grayish brown intermixed with pale brown scales to near apical margin, segment III brown intermixed with few pale gray scales; scape of antenna pale gray, flagellum gray; male first flagellomere dilated, forming a notch between itself and flagellomeres 2–4. Proboscis pale grayish brown.

**Thorax:** Tegula and mesonotum with scales grayish brown tipped with pale gray. Legs grayish brown with a pale gray band on apices of all segments and tarsomeres. Forewing (Figure 49) length 6.8 mm ( $n = 1$ ), grayish brown intermixed with grayish brown scales tipped with pale gray, pale gray scales, and a few dark brown scales; median fascia complete, margin demarcated with pale gray scales; cell with three small dark brown spots, one spot near middle and two spots on distal end near crossvein. Undersurface grayish brown. Hindwing pale gray.

**Abdomen:** *Male genitalia* (Figure 15): Uncus narrow, parallel sided from a slightly widened base, subapically



MAP 12. Distribution of *Blastobasis elgonae*.

curved, apex rounded narrowly; gnathos narrow, dorsoposterior margin shallowly bidentate medially; vinculum wide; juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process; proximal flange elongate, gradually widened distally, apicoventral margin broadly rounded, overlaid by dense microtrichiate membrane,

contiguous with digitate process; lower part of valva moderately wide basally, slightly widened distally, subventral area reflexed to apicoventral margin; apicoventral margin broadly angular, produced into an inwardly curved, acuminate process; process dilated, inner surface flattened; aedeagus and sclerite of aedeagus abruptly curved near

apical 1/3; anellus broadly rounded apically, bearing several conical setae. *Female genitalia*: Unknown.

**HOLOTYPE.** ♂, “Kenya: Mount Elgon, 2450 m, 1°01.73'N, 34°45.28'E, 1 Feb. 2003, A & M Coll[ection] # 2446, R.S. Copeland; ICIPE/USAID, r.f. *Vepris nobilis*”; “Restrictions Apply, NMK/ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by D. Adamski, No. 5020” [yellow label]; “USNM ENT 00196891” [barcode label] [NMK].

**ETYMOLOGY.** The species epithet, *elgonae*, is derived from Mount Elgon, the only known collecting site for *Blastobasis elgonae*.

**DISTRIBUTION.** *Blastobasis elgonae* is known from one habitat on Mount Elgon in the western highlands.

**HOST.** Fruits of *Vepris nobilis* (Delile) Mziray (Rutaceae).

### ***Blastobasis indigesta* Meyrick, 1931, revised status**

FIGURES 8, 43

*Blastobasis indigesta* Meyrick, 1931:177.

*Neoblastobasis indigesta*: Sinev, 2004:116.

**DIAGNOSIS.** *Blastobasis indigesta* is most similar to *B. elgonae* but differs from the latter by having a wider uncus, a wider gnathos, a linear apicoventral margin of the lower part of the valva, and a shorter aedeagus.

#### **REDESCRIPTION.**

**Head:** Vertex and frontoclypeus with scales brownish gray tipped white. Outer surface of labial palpus brownish gray intermixed with a few brownish gray scales tipped with white and a few white scales on segment II apically, inner surface paler. Scape of antenna with brownish gray scales tipped with white, flagellum pale gray; male first flagellomere dilated, forming a notch between itself and flagellomeres 2–4. Proboscis with scales brownish gray tipped with white.

**Thorax:** Tegula and mesonotum with scales brownish gray tipped with white. Leg scales brownish gray tipped with white, with a pale gray band on apices of all segments and tarsomeres. Forewing (Figure 43) length 7.0–7.9 mm ( $n = 3$ ), brownish gray tipped with white intermixed with white scales. Three discal spots dark brown, one near midcell, two on distal end near crossvein. Fringe pale brown tipped with white. Undersurface brown. Hindwing pale brown.

**Abdomen:** *Male genitalia* (Figure 8): Uncus wide, slightly narrowed near midlength; gnathos wide, dorso-posterior margin narrowly bidentate medially; vinculum

wide; juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process; lower part of valva moderately wide, submarginal area reflexed to apicoventral margin; apicoventral margin slightly angular, produced into an inwardly curved, acuminate process; proximal flange subquadrate, apicoventral margin angular, overlaid by dense microtrichiate membrane, contiguous with digitate process; aedeagus and sclerite of aedeagus broadly curved; anellus bearing several conical setae. *Female genitalia* (poor dissection, not figured): Eighth tergum with a narrow, darkly pigmented median longitudinal streak; seventh sternum broad; ostium slightly posterior to seventh segment; ductus bursae thin, elongate, coiled and spinulate on anterior 1/16 length; corpus bursae slightly elongate, with hornlike signum on anterior end.

**LECTOTYPE.** Designated herein, ♂, “Bulawayo, [Zimbabwe] 15-23 Dec. 1919, A.J.T. Janse”; “328”; “*Blastobasis indigesta* M[eyrick], Type No. 808”; “♂ Genitalia Slide by D. Adamski, No. 4735” [TMP]. A lectotype is being designated in order to maintain stability of usage of the name.

**PARALECTOTYPES** (2 ♀). ♀, “Bulawayo, [Zimbabwe] 15-23, Dec. 1919, A.J.T. Janse”; “330”; “*Blastobasis indigesta* M[eyrick], Cotype No. 809”; ♀ Genitalia Slide by D. Adamski, No. 4736” [TMP]; ♀, “Syntype” [round, blue-bordered label]; “Bulawayo, Rhodesia, AJT J[anse], 12[Dec] 19[19]”; “*Blastobasis indigesta* Mey[rick], 1/1, E. Meyrick Det., in Meyrick Coll[ection]”; “Meyrick Coll[ection], B.M. 1938-290”; “*indigesta* Meyr[ick]”; “BM ♀ Genitalia Slide No. 19982” [BMNH]. The two female paralectotypes are in poor condition.

**REMARKS.** Sinev (2004) erroneously transferred *Blastobasis indigesta* to *Neoblastobasis* and did not examine all available type specimens for this species.

### ***Blastobasis eridryas* Meyrick, 1932**

FIGURES 18, 40

*Blastobasis eridryas* Meyrick, 1932:114.

**DIAGNOSIS.** *Blastobasis eridryas* is most similar to *B. elgonae* and *B. indigesta* but differs from the latter two species by having a wider uncus, a wider digitate process of the upper part of the valve, a larger microtrichiate area of the valva, and a more conical anellus.

#### **REDESCRIPTION.**

**Head:** Vertex pale grayish yellow, some scales tipped with white. Outer surface of labial palpus with segments I and II brown, except apical margin of segment II pale grayish yellow; segment III pale grayish yellow intermixed

with brown scales; inner surface pale grayish yellow intermixed with a few brown scales. Scape of antenna pale grayish yellow, flagellum gray; cilia long; male first flagellomere dilated, forming a notch between itself and flagellomeres 2–4. Proboscis pale gray.

*Thorax:* Tegula and mesonotum grayish brown. Legs grayish brown, with a pale grayish yellow band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 40) length 8.0 mm ( $n = 1$ ), pale brownish yellow intermixed with few brownish red scales tipped with pale grayish yellow on basal 2/3, distal 1/3 with brownish red scales tipped with pale grayish yellow intermixed with brown scales tipped with pale grayish yellow and a few pale grayish yellow scales; a small rectangular gray spot near midcell. Undersurface brown. Hindwing pale gray.

*Abdomen:* *Male genitalia* (Figure 18): Uncus wide throughout length, slightly constricted near midlength, apex broadly rounded; gnathos wide, dorsoposterior margin broadly protuberant, shallowly bidentate medially; vinculum wide; juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process; proximal flange elongate, apicoventral margin broadly rounded, overlaid by dense microtrichiate membrane, contiguous with digitate process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin angular, produced into an inwardly curved, apical process; process broad basally, inner surface flattened; aedeagus and sclerite of aedeagus abruptly curved near apical 1/3; anellus gradually narrowed from base, bearing several conical setae. *Female genitalia:* Unknown.

**LECTOTYPE.** ♂, Designated herein, “Type” [round, red-bordered label]; “[Ethiopia] Abyssinia, M[oun]t Chillálo, [Jem-Jem] Forest, ca 8500 f[ee]t, 24.IX.1926, H. Scott [Collector]”; “Brit[ish] Mus[eum], 1927-127”; “*Blastobasis eridryas* Meyr[ick], Type ♂”; “*Blastobasis eridryas* n. sp.”; “♂ BM Genitalia Slide No. 30245” [BMNH]. A lectotype is being designated in order to maintain stability of usage of the name.

**REMARKS.** A paralectotype ♂ with the same label data as lectotype, except “♂ BM Genitalia Slide No. 28894” [BMNH].

### ***Blastobasis mpala* Adamski, new species**

FIGURES 17, 37, 55, MAP 13

**DIAGNOSIS.** *Blastobasis mpala* is similar to *B. egens* in forewing pattern but differs genitally from the latter by having a smaller gnathos, a wider aedeagus, and female with a longer ductus bursae and corpus bursae with a signum present.

### **DESCRIPTION.**

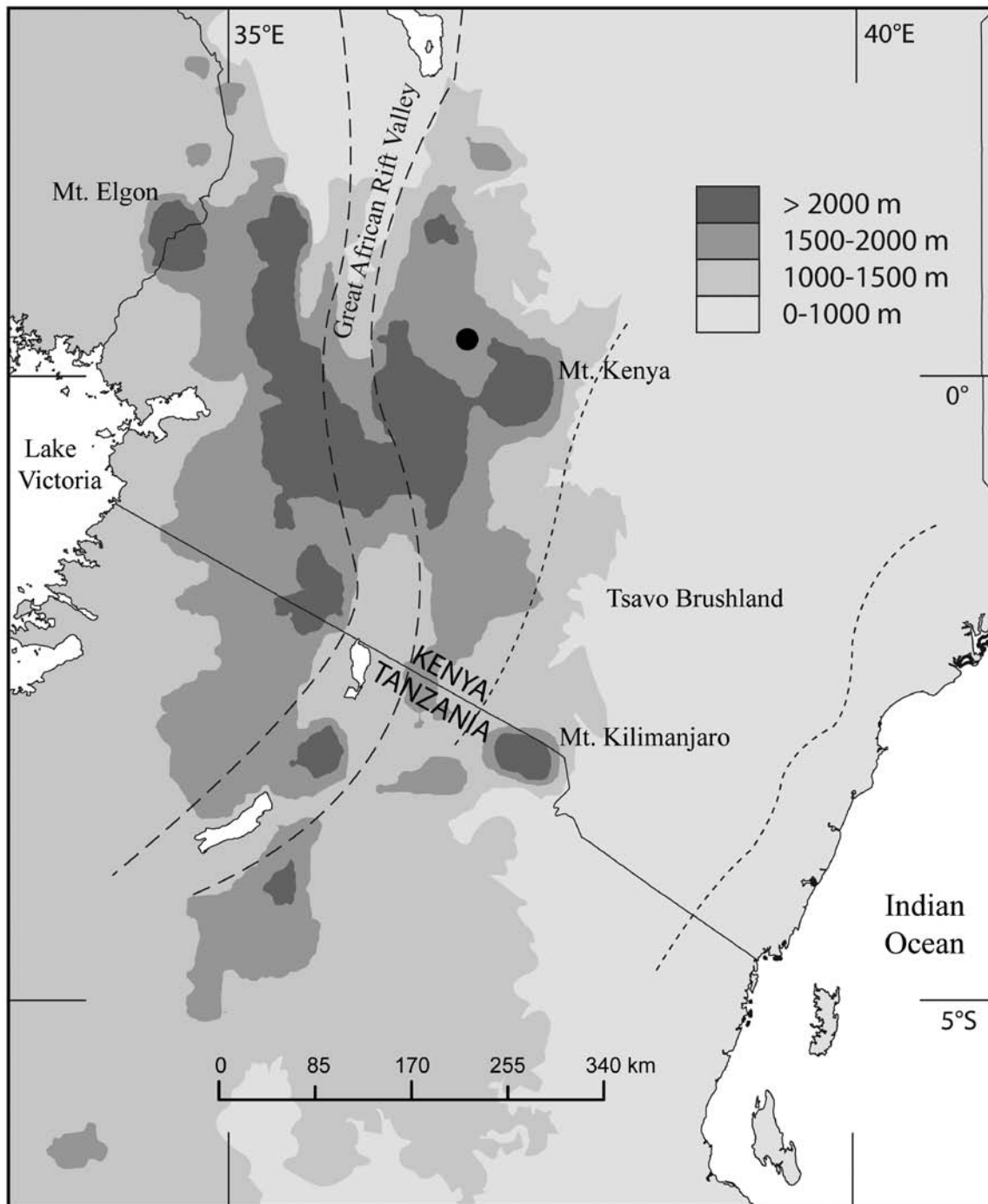
*Head:* Vertex and frontoclypeus pale yellowish brown; outer surface of labial palpus with segments I and II brown intermixed with pale yellowish brown scales to apical margin, segment III pale yellowish brown; inner surface pale yellowish brown; scape of antenna pale yellowish brown, flagellum pale brown; male first flagellomere dilated basally, forming a notchlike opening between the inner surface of the dilated part and flagellomeres 2–4. Proboscis pale yellowish brown.

*Thorax:* Tegula and mesonotum pale brown basally, pale yellowish brown apically. Legs pale brown with a pale yellowish brown band on apices of all segments and tarsomeres. Forewing (Figure 55) length 7.1–8.2 mm ( $n = 2$ ), pale yellowish brown intermixed with pale brown scales and a few brown scales; cell with one small brown spot near middle and with one or two spots on distal end near crossvein. Undersurface brown. Hindwing pale brown.

*Abdomen:* *Male genitalia* (Figure 17): Uncus gradually narrowed from a wide base, slightly curved ventrally, apex slightly rounded; gnathos wide, dorsoposterior margin bidentate medially; vinculum wide, juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process; proximal flange subquadrate, apicoventral margin slightly rounded, overlaid by dense microtrichiate membrane, contiguous with digitate process; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin angular, produced into an inwardly curved acuminate process; process flattened on inner surface; aedeagus straight, slightly widened basally; sclerite of aedeagus abruptly curved near apical 1/3 and near base; anellus truncated apically, bearing several conical setae. *Female genitalia* (Figure 37): Eighth tergum rectangular with an elongate darkly pigmented streak along the median longitudinal axis; ostium within membrane near posterior margin of seventh sternum; posterior margin of seventh sternum straight with narrowly rounded posterolateral margins; inception of ductus seminalis on ductus bursae slightly anterior to ostium; ductus bursae slightly shorter than ovipositor, with anterior 1/4 spinulate; corpus bursae with a hornlike signum.

**HOLOTYPE.** ♂, “Kenya: Laikipia Plateau, Mpala Research Centre, 0.293°N, 36.899°E, 23-25 May 1998, 1650 m, S.E. Miller & T.M. Kuklenski”; “USNM ENT 00193006” [barcode label]; “Restrictions Apply, NMK-ICIPE, Agreement # 5” [purple label]; “♂ Genitalia Slide by D. Adamski, No. 4137” [yellow label]. Deposited in NMK.





MAP 13. Distribution of *Blastobasis mpala*.

**PARATYPE.** ♀, Same label data as above, except “19-21 May 1999”; “S. E. Miller”; “USNM ENT 00192030” [barcode label]; “♀ Slide 4138”; “♀ Genitalia Slide by DA, USNM 83408” [USNM].

**ETYMOLOGY.** *Blastobasis mpala* is named in honor of the Mpala Research Centre.

**DISTRIBUTION.** *Blastobasis mpala* is known from savanna habitat in the central highlands.

***Blastobasis egens* Meyrick, 1918**

FIGURES 19, 24, 45

*Blastobasis egens* Meyrick, 1918:37.—Ghesquière, 1940:68.—Sinev, 2004:116.

**DIAGNOSIS.** *Blastobasis egens* is similar to *B. mpala* in forewing pattern, but it differs from the latter by having a more elongate gnathos, a smaller aedeagus, and female with a shorter ductus bursae and corpus bursae with a signum absent.

**REDESCRIPTION.**

**Head:** Vertex and frontoclypeus with scales pale brown tipped with white. Outer surface of labial palpus white intermixed with brown scales, with white along apical margin of segment II; inner surface white. Scape of antenna with scales pale brown tipped with white, flagellum gray, first flagellomere of male basally dilated, forming a notch between itself and flagellomeres 2–4. Proboscis pale brown.

**Thorax:** Tegula and mesonotum with scales brown tipped with white. Legs with scales brown tipped with white, with a white band on apices of all segments and tarsomeres. Forewing (Figure 45) length 4.5–4.9 mm ( $n = 3$ ), white intermixed with brown scales along costa and distal 1/2; three brown spots in cell, one near middle, two on distal end near crossvein. Undersurface brown. Fringe brown tipped with white. Hindwing pale brown.

**Abdomen:** *Male genitalia* (Figure 19): Uncus gradually narrowed from a wide base, subapically curved ventrally, apex rounded narrowly; gnathos wide and elongate, dorsoposterior margin protuberant, bidentate medially; vinculum wide; juxta bandlike; valva divided; costa of upper part produced into a setose, digitate process; proximal flange elongate, apicoventral margin broadly rounded, overlaid by dense microtrichiate membrane, contiguous with digitate process; lower part of valve moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin rounded, produced into an inwardly curved, acuminate process; aedeagus and sclerite of aedeagus slightly curved apically; anellus bearing several conical setae. *Female genitalia* (Figure 24): Eighth tergum with a narrow, darkly pigmented streak along median longitudinal axis; ostium slightly posterior to seventh segment; ductus bursae short, not extending beyond seventh segment; ductus seminalis slightly posterior to ostium; corpus bursae small, signum absent.

**LECTOTYPE.** Designated herein, ♂, “Umkomaas, [South Africa] 25.1[January][19]14, A.J.T. Janse”; “25/30”; “*Blastobasis egens* M[eyrick], Cotype No. 800”; “♂ Genitalia Slide by D. Adamski, No. 4740” [TMP]. A

lectotype is being designated in order to maintain stability of usage of the name.

**PARALECTOTYPES** (3 ♂, 3 ♀). ♀, “Umkomaas, 1[January]14, A.J.T. Janse”; “26/58”; “*B. egens* M[eyrick]”; “*Blastobasis egens* M[eyrick], Type No. 796”; “♀ Slide 4743” [TMP]; ♂, “Nkwaleni, 10.1[January][19]16, A.J.T. Janse”; “25/37”; “*Blastobasis egens* M[eyrick], Cotype No. 801”; “♂ Slide 4742” [TMP]; ♂, “Eshowe, Zululand, A.J.T. Janse, 4.1[January][19]16, *Blastobasis egens* Meyr[ick], 7/3, E. Meyrick det., in Meyrick Coll[ection]”; “Meyrick Coll[ection], B.M. 1938-290”; “BM ♂ Slide No. 30240” [BMNH]; ♀, “Nkwaleni, 10.1[January][19]16, A.J.T. Janse”; “25/56”; “*Blastobasis egens* M[eyrick], Cotype No. 799”; “♀ Slide 4744” [TMP]; ♀, “Natal, New Hanover, A.J.T. Janse, 1[January]13[1916?]”; “*Blastobasis egens* Meyr[ick], 7/6, E. Meyrick det., in Meyrick Coll[ection]”; “Meyrick Coll[ection], B.M. 1938-290”; “BM ♀ Slide No. 30241” [BMNH]; ♂, “New Hanover, Hardenb, 1[January]13[1916?], Coll[ector] Janse”; “25/04”; “*Blastobasis egens* M[eyrick], Cotype No. 811”; “♂ Slide 4741” [TMP].

**REMARKS.** *Blastobasis egens* was described from a mixed series of 10 specimens, 3 of which are missing. Three female paralectotypes from New Hanover, Nkwaleni, and Umkomaas represent different species. The female from Umkomaas is believed to be conspecific with the male holotype, but the slide-mounted genitalia are in poor condition and are not illustrated. The paralectotype ♂ from Verulam is not conspecific with the holotype. In addition, a female specimen in the Transvaal Museum bearing the following label data is not believed to be part of the original type series and is not dissected: “Maritzburg, 1.2.[19]16, A.J.T. Janse”; “39/93”; “*Blastobasis egens* M[eyrick], Cotype No. 797”.

Sinev (2004) and Ghesquière (1940) made erroneous host associations between reared moth samples and several plant species, including *Borassus aethiopum* Mart. (Arecaceae), by not comparing dissected type material of *Blastobasis egens* with the reared specimens.

***Blastobasis fatigata* Meyrick, 1914**

FIGURES 7, 61

*Blastobasis fatigata* Meyrick, 1914a:195.—Janse, 1917:192, check list.—Sinev, 2004:116.

**DIAGNOSIS.** *Blastobasis fatigata* can be distinguished easily from other African *Blastobasis* by having a cluster of large setae on the base of the digitate process of the upper part of the valva.

## REDESCRIPTION.

*Head:* Vertex and frontoclypeus with scales grayish brown tipped with white. Outer surface of labial palpus with scales grayish brown tipped with white intermixed with few brown scales tipped with white, inner surface paler. Scape of antenna with scales grayish brown tipped with white, flagellum pale gray; first flagellomere unmodified in male. Proboscis pale grayish brown.

*Thorax:* Tegula and mesonotum dark brown basally, pale grayish brown apically. Legs pale brown intermixed with grayish brown scales tipped with white and dark brown scales tipped with white, and a pale brown band near middle of all segments apices of all segments and tarsomeres. Forewing (Figure 61) length 6.0 mm ( $n = 1$ ), scales pale grayish brown tipped with white intermixed with few brown scales and brown scales tipped with white; base of costa brown; cell with two faint brown spots, one near middle and one near distal end; one faint brown spot outside cell posterior to spot near distal end; marginal spots faint. Fringe pale brownish gray, darkening to apex. Undersurface brown. Hindwing pale brown, gradually darkening to apex.

*Abdomen:* *Male genitalia* (Figure 7): Uncus wide basally, subapically curved ventrally, gradually narrowed, apex narrowly rounded; gnathos elongate, dorsoposterior margin slightly protuberant, bidentate medially; dorsal strut present; vinculum narrow; juxta divided; valva divided; ventrodorsal margin of proximal flange subquadrate, overlaid by dense microtrichiate membrane, contiguous distally with a setose, digitate process; middle area of upper part bearing a cluster of several large spinelike setae; lower part of valva moderately wide, subventral area reflexed to apicoventral margin; apicoventral margin rounded, produced into an inwardly curved, acuminate process; aedeagus and sclerite of aedeagus acutely curved near apical 1/3; anellus bearing several conical setae. *Female genitalia:* Unknown.

**HOLOTYPE.** ♂, "Pretoria, [South Africa] 25.2. [Feb][19]13, A.J.T. Janse"; "36/40"; "*B. fatigata*"; "D. Adamski Genitalia slide no. 4378"; "*Blastobasis fatigata* M[eyrick], Type No. 804" [TMP].

***Blastobasis taricheuta* Meyrick, 1909**

FIGURES 26, 50

*Blastobasis taricheuta* Meyrick, 1909:372.—Janse, 1917: 192, check list.—Sinev, 2004:116.

**DIAGNOSIS.** *Blastobasis taricheuta* is similar in wing pattern to *B. trachilista* but can be distinguished from the latter genitally by having a wider ostium,

antrum, and posterior part of ductus bursae, and an inner surface of the corpus bursae that is not spinulate.

Relationships between *Blastobasis taricheuta* and *B. trachilista* are uncertain because the males of both species are unknown.

## REDESCRIPTION.

*Head:* Vertex and frontoclypeus brown. Outer surface of labial palpus brown intermixed with pale brown scales on apical margin of segment II and basal area of segment III; inner surface brown intermixed with pale gray scales. Scape and flagellum of antenna brown. Proboscis brown.

*Thorax:* Tegula and mesonotum brown. Legs brown, with a pale brown band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 50) length 9.6 mm ( $n = 1$ ), brown intermixed with a few pale brown scales. Fringe brown. Undersurface brown. Hindwing pale brown.

*Abdomen:* *Male genitalia:* Unknown. *Female genitalia* (Figure 26): Eighth sternum with a darkly pigmented streak along median longitudinal axis; ostium slightly posterior to seventh segment; membrane posterolateral to ostium microtrichiate; posterior margin of seventh sternum broadly emarginated medially; ductus seminalis slightly anterior of antrum; ductus bursae longer than ovipositor, with anterior 1/3 with rows of internal, imbricate platelets; corpus bursae elliptical, with a hornlike signum on posterior end.

**HOLOTYPE.** ♀, "Type" [red label]; "[South Africa], Cape T[own], Lightfoot"; "*Blastobasis taricheuta* Meyr[ick], Type"; "Meyrick Det."; "♀ Genitalia Slide by D. Adamski, No. 4539" [yellow label] [SAMC].

***Blastobasis trachilista* Meyrick, 1921**

FIGURES 25, 52

*Blastobasis trachilista* Meyrick, 1921:117.—Sinev, 2004: 116.

**DIAGNOSIS.** *Blastobasis trachilista* is similar in wing pattern to *B. taricheuta*, but it can be distinguished genitally from the latter by having a narrower ostium, antrum and posterior part of ductus bursae, and an inner surface of the corpus bursae that is densely spinulate. Relationships between *Blastobasis trachilista* and *B. taricheuta* are uncertain because the males for both species are unknown.

## REDESCRIPTION.

*Head:* Vertex and frontoclypeus pale yellow. Outer surface of labial palpus with segment I and basal 1/3 of

segment II brownish yellow, distal 2/3 of segment II and segment III pale brown; inner surface pale yellow. Scape of antenna pale reddish brown intermixed with pale yellowish brown, flagellum brown. Proboscis pale yellow.

*Thorax:* Tegula and mesonotum brown or brown with pale yellow scales basally. Legs brown, with a pale brown transverse band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 52) length 6.0–6.2 mm ( $n = 2$ ), pale reddish brown intermixed with reddish brown scales tipped with pale brown and pale brown scales. Three brown spots present in cell, one near midcell and two near distal end near crossvein. Undersurface brown. Hindwing pale brownish gray.

*Abdomen:* *Male genitalia:* Unknown. *Female genitalia* (Figure 25): Eighth tergum with a narrow, darkly pigmented streak along median longitudinal axis; ostium within membrane slightly posterior to seventh sternum; membrane r lateral and posterolateral to ostium microtrichiate; seventh sternum straight; antrum short; inception of ductus seminalis proximal to ostium; ductus bursae shorter than ovipositor, with rows of internal, imbricate platelets on anterior 1/3; corpus bursae densely spiculate; signum hornlike with a conical base.

**LECTOTYPE.** Designated herein, ♀, “Umtali, Rhodesia [Zimbabwe], A.J.T. J[anse], 13-1 [January]-[19]18”; “*Blastobasis trachilista* Meyr[ick], 1/1, E. Meyrick det., in Meyrick Coll[ection]”; “Meyrick Coll[ection], BM 1938-290”; “*trachilista* Meyr[ick]”; “BM ♀ Genitalia slide No. 30236” [BMNH]. A lectotype is being designated in order to maintain stability of usage of the name.

**PARALECTOTYPE.** ♀, “Umtali, Rhodesia, 4-1 [January]- [19]18, A.J.T. Janse”; “23/27”; “♀ Genitalia Slide by D. Adamski, No. 4490” [yellow label]; “*Blastobasis trachilista* M[eyrick], Type No. 807” [TMP]. Specimen has a badly damaged abdomen, which has been dissected and slide mounted.

### ***Blastobasis determinata* Meyrick, 1921**

FIGURES 30, 41

*Blastobasis determinata* Meyrick, 1921:116.—Sinev, 2004:116.

**DIAGNOSIS.** *Blastobasis determinata* is similar to *B. byrsodepta* in wing pattern, but it can be distinguished from the latter by having a narrower ostium and the absence of a cuplike antrum. Relationships of *Blastobasis determinata* and *B. byrsodepta* are uncertain because the males for both species are unknown.

### **REDESCRIPTION.**

*Head:* Vertex and frontoclypeus with scales grayish brown, apically tipped with white. Outer surface of labial palpus grayish brown intermixed with a few grayish brown scales tipped with white, and white scales apically on segment I and basally on segment III; inner surface similar in pattern but paler. Scape of antenna with grayish brown scales tipped with white, flagellum gray. Proboscis with grayish brown scales tipped with white.

*Thorax:* Tegula and mesonotum with scales grayish brown tipped with white. Legs with scales grayish brown tipped with white, with a white band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 41) length 5.9 mm ( $n = 1$ ), grayish brown intermixed with a few grayish brown scales tipped with white and white scales; basal 1/3 paler than distal 2/3; median fascia grayish brown, complete, demarcated on inner margin with a narrow band of white scales; two grayish brown spots near end of cell. Fringe grayish brown tipped with white. Undersurface grayish brown. Hindwing pale grayish brown.

*Abdomen:* *Male genitalia:* Unknown. *Female genitalia* (Figure 30): Eighth tergum without a pigmented streak along medial longitudinal axis; ostium within membrane slightly posterior to seventh sternum; membrane slightly microtrichiate on posterolateral margins of ostium; posterior margin of seventh tergum slightly emarginated medially, with two or three transverse rows of spinelike setae on posterior end; inception of ductus seminalis on ductus bursae near posterior end of seventh segment; ductus bursae shorter than ovipositor, with several rows of internal, imbricate platelets on posterior 2/3; corpus bursae slightly elongate, signum hornlike with a dilated base.

**HOLOTYPE.** ♀, “Moorddrift, [South Africa] Oct[ober] 1909, C.J. Swierstra”; “916”; “♀ Genitalia Slide by D. Adamski, No. 4488” [yellow label]; “*Blastobasis determinata* Meyr. Type No. 2552” [TMP].

### ***Blastobasis byrsodepta* Meyrick, 1913**

FIGURES 34, 47

*Blastobasis byrsodepta* Meyrick, 1913:314.—Janse, 1917: 192, check list.—Hargraves, 1930:98.—Ghesquière, 1940:68, pl. II, figs. 11–12.—Sinev, 2004:116.

**DIAGNOSIS.** *Blastobasis byrsodepta* is similar to *B. determinata* in wing pattern, but it can be distinguished genitally from the latter by having a wider ostium and a cuplike antrum of the ductus bursae.

Relationships of both species are uncertain because the males for both species are unknown.

#### REDESCRIPTION.

**Head:** Vertex and frontoclypeus with scales grayish brown tipped with white. Outer surface of labial palpus brown, inner surface paler. Scape of antenna with scales grayish brown tipped with white, flagellum gray. Proboscis with scales grayish brown tipped with white.

**Thorax:** Tegula and mesonotum with scales grayish brown tipped with white, basally dark, gradually paler to apex. Legs with grayish brown scales tipped with white, with a white band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 47) length 6.0–7.0 mm ( $n = 2$ ), grayish brown scales tipped with white intermixed with pale grayish brown scales tipped with white and brown scales; median fascia complete, incomplete, or faint. Fringe grayish brown tipped with white. Undersurface brown. Hindwing pale grayish brown, gradually darkening to apex.

**Abdomen:** *Male genitalia:* Unknown. *Female genitalia* (Figure 34): Eighth sternum subquadrate; eighth tergum with a narrow and short, darkly pigmented area along median longitudinal axis; ostium slightly posterior to seventh segment; posterior margin of seventh sternum nearly straight; seventh tergum with several irregular rows of spinelike setae; inception of ductus seminalis near posterior margin of seventh segment; ductus bursae shorter than ovipositor, with rows of internal, imbricate platelets on anterior half; corpus bursae elliptical, with hornlike signum on posterior end.

**LECTOTYPE.** Designated herein, ♀, “Barberton, [South Africa] 31 Dec. 1910, A.J.T. Janse”; “31/07”; “*Blastobasis byrsodepta*”; “♀ Genitalia Slide by D. Adamski No. 4630”; “*Blastobasis byrsodepta*”; “M[eyrick], Type No. 795” [TMP]. A lectotype is being designated in order to maintain stability of usage of the name.

**PARALECTOTYPES** (2 ♀). 1 ♀, “Waterval Onder, 2 Nov. 1910”; “30/72”; “♀ Genitalia Slide by D. Adamski, No. 4631”; “*Blastobasis byrsodepta* M[eyrick], Cotype No. 810” [TMP]; 1 ♀, “Pinetown, Natal, L[eigh], [?][Jan][19]09”; “*Blastobasis byrsodepta* Meyrick 8/3, E. Meyrick det., in Meyrick Coll[ection]”; “Meyrick Coll[ection], B.M. 1938-290”; “BM ♀ Genitalia Slide No. 30239” [BMNH].

**REMARKS.** Meyrick described *Blastobasis byrsodepta* from five specimens, four from Barberton and Waterval and one from Pinetown (Natal). Although the number of specimens from each of the Barberton and Waterval localities is not known, two specimens from this series are apparently missing. The female paralectotype

from Pinetown is not conspecific with *B. byrsodepta* and represents another species of Blastobasini. A male from Eala (Democratic Republic of Congo), with Meyrick's syntypic labels [BM ♂ Genitalia Slide No. 30238], is not part of the original series from which *B. byrsodepta* was described and represents *Neoblastobasis perisella* n. sp.

Larvae of *Blastobasis byrsodepta* are reported to feed on stored ginger, *Arachis hypogaea* L. (Fabaceae) (Hargreaves, 1930), but this information was based on a misidentification of the moth species. Sinev (2004) and Ghesquière (1940) have erroneously made host associations between reared moth samples and two plant species, *Borassus aethiopum* Mart. (Arecaceae) and *Zingiber officinale* Roscoe (Zingiberaceae), by not comparing dissected type material of *Blastobasis byrsodepta* with the reared specimens.

### ***Blastobasis industria* Meyrick, 1913**

FIGURES 32, 39

*Blastobasis industria* Meyrick, 1913:314.—Janse, 1917: 192, check list.—Le Pelley, 1930:396.—Nonveiller, 1984:77.—Zhang, 1994:103.—Sinev, 2004:116.

**DIAGNOSIS.** *Blastobasis industria* is similar in wing pattern to many other African *Blastobasis*, but it can be distinguished from its congeners by having a very wide ostium and large, cuplike antrum of the ductus bursae. The relationship of *Blastobasis industria* with other *Blastobasis* is uncertain because the male is not known and female characters tend to be conservative in nature.

#### REDESCRIPTION.

**Head:** Vertex pale brown or scales pale grayish brown tipped with white. Outer surface of labial palpus brown with pale brown scales along apical margin of segment II; inner surface pale brown with a few brown scales. Scape of antenna pale brown, flagellum pale gray; first flagellomere of antenna in male dilated basally, forming a notch between itself and flagellomeres 2–4. Proboscis pale brown.

**Thorax:** Tegula and mesonotum pale brown or with scales grayish brown tipped with white. Legs brown intermixed with brown scales tipped with white with a white band near middle of all segments and apices of all segments and tarsomeres. Forewing (Figure 39) length 7.9–9.9 mm ( $n = 2$ ), pale brown intermixed with brown scales tipped with white and brown scales (darker scales on distal 1/3); median fascia pale brown, incomplete; two brown spots within cell near crossvein, present or absent. Fringe pale brown. Undersurface brown. Hindwing pale brown.

*Abdomen: Male genitalia:* Unknown. *Female genitalia* (Figure 32): Eighth tergum with an elongate, darkly pigmented streak along median longitudinal axis; ostium wide, slightly posterior seventh segment; antrum cuplike; membrane posterolateral to ostium slightly microtrichiate; posterior margin of seventh sternum straight; ductus bursae shorter than ovipositor, with imbricate platelets on anterior 1/3; corpus bursae slightly elongate, with horn-like signum on anterior end.

**LECTOTYPE.** Designated herein, ♀, “Barberton, [South Africa] 28 Jan[uary] 1911, A.J.T. Janse”; “47/82”; “*Blastobasis industria* M[eyrick], Type No. 802”; “♀ Genitalia Slide by D. Adamski, No. 4737” [TMP]. A lectotype is being designated in order to maintain stability of usage of the name.

**PARALECTOTYPE.** ♀, “Barberton, 1 Jan[uary] 1911, A.J. T. Janse”; “47/73”; “*B. Industria*, 4782”; “*Blastobasis industria* M[eyrick], Cotype No. 803”; “♀ Genitalia Slide by D. Adamski, No. 4738” [TMP].

**REMARKS.** *Blastobasis industria* was described from four specimens, two of which are missing. Larvae of *B. industria* are reported to feed on the beans of coffee, *Coffea arabica* L. (Rubiaceae) (LePelley, 1930; Rungs, 1979; Zhang, 1994), but the specimens likely were misidentified because the genitalia of the type specimens had not been examined.

## DISCUSSION

### HOST PLANT DISTRIBUTION OF REARED BLASTOBASINAE

The species of 11 blastobasines that were reared from fruits exhibited a wide range of hosts (Table 1). Among plant families, Sapotaceae was utilized most often, with Blastobasinae reared from 10 (50%) of the 20 species sampled. Other important host families were Rutaceae (5 hosts, 31% of the species sampled), Salicaceae (3 hosts, 23%), and Sapindaceae (4 hosts, 19%). Interestingly, fruits of Rubiaceae were of negligible importance, i.e., only one species, *Oxyanthus goetzei* ssp. *keniensis*, of the 106 species of Rubiaceae sampled produced blastobasines. In contrast, nonblastobasine microlepidoptera were reared from 38 (36%) Rubiaceae species, and Tephritidae (true fruit flies) were reared from 41 (39%).

Four (36%) of the 11 reared blastobasine species, *Blastobasis catappaella*, *B. elgonae*, *B. millicentae*, and *Neoblastobasis wangithiae*, came from a single host plant

species, each of these representing a different plant family. Considering that we made 3847 collections of fruits from 927 plant taxa (most of these at the rank of species, with a few being subspecies or varieties) representing 117 families, these data provide strong evidence that monophagy is not uncommon in African blastobasines. Of the four monophagous species, only *Neoblastobasis wangithiae* did not share its host fruit (*Pleiocarpa pycnantha*) with other blastobasines. Of the two genera of Blastobasinae we reared from fruit, *Neoblastobasis* had a particularly limited host range, with *N. wangithiae* monophagous and both *N. perisella* and *N. ximenaella* with only two hosts each, one of which was shared between them (Table 1).

The remaining five species, *Blastobasis acirfa*, *B. aynekiella*, *B. chuka*, *B. glauconotata*, and *B. kenya* were, to a greater or lesser extent, polyphagous, with *B. kenya* having the most hosts. This species was reared from fruits of 32 plant species, representing 22 families. Among frugivorous insects in Kenya, only the medfly, *Ceratitis capitata* (Wiedemann) (Tephritidae), and the false codling moth, *Thaumatotibia leucotreta* (Meyrick) (Tortricidae), exploited more fruit hosts than *B. kenya*. Through the course of the fruit survey we reared the medfly from 65 plant species representing 27 plant families, and we reared *T. leucotreta* from 85 species in 32 families (Copeland et al., 2009).

Among the polyphages, although there was considerable overlap among fruit hosts (Table 1), each *Blastobasis* species was reared from at least two fruit species that yielded no other Blastobasinae. Host exclusivity was most pronounced in *Blastobasis glauconotata*. It was the only blastobasine reared from 11 of its 17 (69%) host fruit species. During fruit sampling, an effort was made to avoid the collection of obviously rotting fruit. However, because the condition of fruit samples and the location of fruits collected (on the ground or on the tree) were not consistently documented, no definitive statement can be made about whether the blastobasine moths reared in this study were feeding on live plant tissue or slightly decaying plant tissue.

### GEOGRAPHICAL DISTRIBUTION OF REARED BLASTOBASINAE

In Kenya, there are two major barriers to east-west migration of plants and animals. The xeric floor of the Gregory Rift Valley separates western Kenya from the central highlands. The valley was formed by intermittent volcanic and rifting activity that began ~15–12 MYA and has continued to near present. In the eastern part of the

TABLE 1. Distribution of Blastobasinae on host plants. (An "X" indicates the Blastobasinae species was reared from the host plant.)

| Plant family     | Host plant species  | <i>Blastobasis acirfa</i> | <i>B. aynkeiella</i> | <i>B. catappaella</i> | <i>B. chuka</i> | <i>B. elgonae</i> | <i>B. glauconotata</i> | <i>B. kenya</i> | <i>B. millicentae</i> | <i>Neoblastobasis persella</i> | <i>N. wangthiae</i> | <i>N. ximenaella</i> | Unassociated females |
|------------------|---|---------------------------|----------------------|-----------------------|-----------------|-------------------|------------------------|-----------------|-----------------------|--------------------------------|---------------------|----------------------|----------------------|
| Achariaceae      | <i>Rawsonia lucida</i> Harv. & Sond.                                  | -                         | -                    | -                     | X               | -                 | X                      | -               | -                     | -                              | -                   | -                    | X                    |
| Annonaceae       | <i>Xylopia</i> sp.  | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
| Apocynaceae      | <i>Dictyophleba lucida</i> (K. Schum.) Pierre                         | -                         | -                    | -                     | X               | -                 | -                      | -               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Landolphia buchananii</i> (Hallier f.) Stapf                       | -                         | -                    | -                     | X               | -                 | -                      | -               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Landolphia</i> sp.   | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Pleiocarpa pycnantha</i> (K. Schum.) Stapf                         | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | X                   | -                    | -                    |
| Araliaceae       | <i>Saba comorensis</i> (Bojer) Pichon                                 | -                         | -                    | -                     | -               | -                 | -                      | -               | -                     | -                              | -                   | -                    | -                    |
|                  | <i>Cussonia spicata</i> Thunb.  | -                         | -                    | -                     | -               | -                 | X                      | -               | -                     | -                              | -                   | -                    | X                    |
| Balanitaceae     | <i>Balanites maughanii</i> Sprague subsp. <i>acuta</i> Sands          | -                         | -                    | -                     | -               | -                 | -                      | -               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Warburgia ugandensis</i> Sprague                                   | -                         | -                    | -                     | -               | -                 | X                      | -               | -                     | -                              | -                   | -                    | X                    |
| Canellaceae      | <i>Elaeodendron buchananii</i> (Loes.) Loes.                          | -                         | -                    | -                     | -               | -                 | X                      | -               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Salacia elegans</i> Oliv.  | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
| Chrysobalanaceae | <i>Hirtella zanzibarica</i> Oliv. subsp. <i>zanzibarica</i>           | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
| Clusiaceae       | <i>Calophyllum inophyllum</i> L.                                      | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | X                    | -                    |
|                  | <i>Garcinia volkensii</i> Engl.                                       | -                         | -                    | -                     | X               | -                 | -                      | -               | -                     | -                              | -                   | -                    | -                    |
| Combretaceae     | <i>Terminalia catappa</i> L.  | -                         | -                    | X                     | -               | -                 | -                      | -               | -                     | -                              | -                   | -                    | X                    |
| Connaraceae      | <i>Rourea minor</i> (Gaertn.) Alston                                  | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
| Dracaenaceae     | <i>Dracaena mannii</i> Baker  | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
|                  | <i>Diospyros kabuyana</i> F. White                                    | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
| Ebenaceae        | <i>Diospyros</i> sp.  | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
|                  | <i>Drypetes gerrardii</i> Hutch.                                      | -                         | -                    | -                     | X               | -                 | X                      | -               | -                     | -                              | -                   | -                    | X                    |
| Euphorbiaceae    | <i>Drypetes natalensis</i> (Harv.) Hutch. var. <i>leiogyne</i> Brenan | -                         | -                    | -                     | -               | -                 | -                      | -               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Shirakiopsis elliptica</i> (Hochst.) Esser                         | -                         | -                    | -                     | -               | -                 | -                      | -               | -                     | -                              | -                   | -                    | X                    |
| Linaceae         | <i>Hugonia castaneifolia</i> Engl.                                    | -                         | -                    | -                     | -               | -                 | -                      | -               | -                     | X                              | -                   | -                    | -                    |
|                  | <i>Strychnos mitis</i> S. Moore                                       | -                         | -                    | -                     | -               | -                 | X                      | -               | -                     | -                              | -                   | -                    | X                    |
| Loganiaceae      | <i>Strychnos madagascariensis</i> Poir. form "e" of Leeuwenburg       | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | -                    |
|                  | <i>Ekebergia capensis</i> Sparrm.                                     | -                         | -                    | -                     | -               | -                 | X                      | -               | -                     | -                              | -                   | -                    | -                    |
| Meliaceae        | <i>Trichilia emetica</i> Vahl   | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Tiliacora funifera</i> (Miers.) Oliv.                              | X                         | X                    | -                     | -               | -                 | -                      | -               | -                     | -                              | -                   | -                    | -                    |
| Moraceae         | <i>Trilepidium madagascariense</i> DC.                                | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | X                    |
| Olacaceae        | <i>Ximenia caffra</i> Sond.   | -                         | -                    | -                     | -               | -                 | -                      | X               | -                     | X                              | -                   | -                    | -                    |
|                  | <i>Olea welwitschii</i> (Knobl.) Gilg & Schellenb.                    | X                         | X                    | -                     | -               | -                 | -                      | -               | -                     | -                              | -                   | -                    | -                    |
| Oleaceae         | <i>Olea woodiana</i> Knobl. subsp. <i>disjuncta</i> P. S. Green       | X                         | -                    | -                     | -               | -                 | -                      | X               | -                     | -                              | -                   | -                    | X                    |
|                  | <i>Schrebera alata</i> (Hochst.) Welw.                                | -                         | -                    | -                     | -               | -                 | X                      | -               | -                     | -                              | -                   | -                    | X                    |

(continued)

TABLE 1. (continued)

| Plant family   | Host plant species   | <i>Blastobasis acrifla</i> | <i>B. agnethella</i> | <i>B. catappaella</i> | <i>B. chuka</i> | <i>B. elgonae</i> | <i>B. glauconotata</i> | <i>B. kenya</i> | <i>B. millicentae</i> | <i>Neoblastobasis perisella</i> | <i>N. wangiethae</i> | <i>N. ximeniella</i> | Unassociated females |
|----------------|--|----------------------------|----------------------|-----------------------|-----------------|-------------------|------------------------|-----------------|-----------------------|---------------------------------|----------------------|----------------------|----------------------|
| Passifloraceae | <i>Adenia</i> sp.  | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | -                    |
| Podocarpaceae  | <i>Passiflora mollissima</i> (Kunth) L. H. Bailey                                  | -                          | -                    | -                     | X               | -                 | -                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Afrocarpus falcatus</i> (Thunb.) C. N. Page                                     | -                          | -                    | -                     | -               | -                 | X                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Podocarpus latifolius</i> (Thunb.) Mirb.  | -                          | -                    | -                     | X               | -                 | -                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Prunus africana</i> (Hook.f.) Kalkman   | X                          | X                    | -                     | X               | -                 | X                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Oxyanthus goetzei</i> K. Schum. subsp. <i>keniensis</i> Bridson                 | -                          | -                    | -                     | -               | -                 | -                      | -               | X                     | -                               | -                    | -                    | -                    |
| Rubiaceae      | <i>Diphasia</i> sp. A of FTEA  | -                          | -                    | -                     | X               | -                 | -                      | X               | -                     | -                               | -                    | -                    | -                    |
| Rutaceae       | <i>Toddalia asiatica</i> (L.) Lam.   | -                          | -                    | -                     | -               | -                 | X                      | X               | -                     | -                               | -                    | -                    | X                    |
| Salicaceae     | <i>Vepris nobilis</i> (Delile) Mziray  | -                          | -                    | -                     | -               | X                 | X                      | X               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Vepris simplicifolia</i> (Engl.) Mziray   | -                          | -                    | -                     | X               | -                 | X                      | X               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Vepris trichocarpa</i> (Engl.) Mziray   | -                          | -                    | -                     | -               | -                 | X                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Dovyalis macrocalyx</i> (Oliv.) Warb.   | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Flacourtia indica</i> (Burm. f.) Merr.  | -                          | -                    | -                     | X               | -                 | -                      | X               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Ludia mauritiana</i> J. F. Gmel.  | -                          | -                    | -                     | -               | -                 | -                      | -               | X                     | -                               | -                    | -                    | -                    |
|                | <i>Allophylus abyssinicus</i> (Hochst.) Radlk.                                     | -                          | -                    | -                     | X               | -                 | -                      | -               | -                     | -                               | -                    | -                    | X                    |
| Sapotaceae     | <i>Deinbollia borbonica</i> Scheff.  | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Lecaniodiscus fraxinifolius</i> Baker subsp. <i>scassellatii</i> (Chiov.) Friis | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | -                    |
|                | <i>Lepisanthes senegalensis</i> (Poir.) Leenh.                                     | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Chrysophyllum albidum</i> G. Don  | -                          | X                    | -                     | -               | -                 | -                      | -               | -                     | -                               | -                    | -                    | -                    |
|                | <i>Chrysophyllum gorungosanum</i> Engl.  | -                          | -                    | -                     | X               | -                 | -                      | -               | -                     | -                               | -                    | -                    | X                    |
| Ulmaceae       | <i>Chrysophyllum viridifolium</i> J. M. Wood & Franks                              | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | -                    |
|                | <i>Inhambanella henriquezii</i> (Engl. & Warb.) Dubard                             | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | -                    |
|                | <i>Manilkara butugi</i> Chiov.   | X                          | -                    | -                     | -               | -                 | -                      | -               | -                     | -                               | -                    | -                    | -                    |
|                | <i>Manilkara sansibarensis</i> (Engl.) Dubard                                      | -                          | -                    | -                     | -               | -                 | -                      | -               | X                     | -                               | -                    | -                    | -                    |
|                | <i>Mimusops aedificatoria</i> Mildbr.  | -                          | -                    | -                     | -               | -                 | -                      | -               | X                     | -                               | -                    | -                    | X                    |
| Solanaceae     | <i>Mimusops bagsbauei</i> S. Moore   | X                          | X                    | -                     | -               | -                 | -                      | -               | -                     | -                               | -                    | -                    | -                    |
|                | <i>Mimusops kummel</i> A. DC.  | -                          | -                    | -                     | -               | -                 | X                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Synsepalum cerasiferum</i> (Welw.) T. D. Penn.                                  | X                          | -                    | -                     | -               | -                 | -                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Solanum anguivi</i> Lam.  | -                          | -                    | -                     | -               | -                 | X                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Cola minor</i> Brenan   | -                          | -                    | -                     | -               | -                 | -                      | X               | -                     | -                               | -                    | -                    | X                    |
| Thymelaeaceae  | <i>Synaptolepis alternifolia</i> Oliv.   | -                          | -                    | -                     | -               | -                 | -                      | -               | -                     | -                               | -                    | -                    | X                    |
|                | <i>Chaetacme aristata</i> Planch.  | -                          | -                    | -                     | -               | -                 | X                      | -               | -                     | -                               | -                    | -                    | X                    |



TABLE 2. Geographical distribution of Blastobasinae in Kenya.

| Genus and species     | Number of fruit samples reared from | Regional distribution <sup>a</sup> (number of fruit samples) | Altitudinal distribution (m) |
|-----------------------|-------------------------------------|--|------------------------------|
| <i>Blastobasis</i>    |                                     |  |                              |
| <i>acirfa</i>         | 11                                  | CO (1), WH (10)  | 5–1650                       |
| <i>aynekiella</i>     | 8                                   | WH (8)   | 1550–1630                    |
| <i>catappaella</i>    | 1                                   | CH <sup>b</sup> , CO (1)                                     | 5–1650                       |
| <i>chuka</i>          | 15                                  | CH (12), CO (2), WH (1)                                      | 5–2284                       |
| <i>elgonae</i>        | 1                                   | WH (1)   | 2450                         |
| <i>glauconotata</i>   | 25                                  | CM (1), CH (22), WH (2)                                      | 1230–2452                    |
| <i>kenya</i>          | 37                                  | CO (33), EM (1) <sup>c</sup> , WH (3)                        | 5–2452                       |
| <i>millicentae</i>    | 1                                   | CO (1)   | 389                          |
| <i>mpala</i>          | 0                                   | CH <sup>b</sup>  | 1650                         |
| <i>Neoblastobasis</i> |                                     |  |                              |
| <i>perisella</i>      | 2                                   | CO (2)   | 101–389                      |
| <i>laikipiae</i>      | 0                                   | CH <sup>b</sup>  | 1650                         |
| <i>wangithiae</i>     | 1                                   | CO (1)   | 30                           |
| <i>ximeniaella</i>    | 2                                   | CO (2)   | 5–101                        |

<sup>a</sup> Abbreviations defined: CO = coastal lowlands (1–460 m); CM = central midaltitude (700–1400 m); CH = central highlands (>1400 m); EM = eastern midaltitude (700–1400 m); WH = western highlands (>1400 m).

<sup>b</sup> Collected at light, Laikipia Plateau.

<sup>c</sup> Kibwezi Forest.

country, a gently rising wide expanse of “dry scrub with trees” (Greenway, 1973) separates coastal habitats from the central highlands. Both barriers have very few plants with fleshy fruits, and these are represented primarily by species of Capparaceae, Cucurbitaceae, and Tiliaceae. In our survey, none of these plant families provided a single host plant for Blastobasinae. In contrast, the western and central highlands of Kenya support numerous areas of evergreen forests, as does the coast, providing an extensive resource for frugivorous insects. These forests have been connected and separated alternately, depending on climatic changes associated with glacial and interglacial periods, with the most recent period of connection occurring ~10 MYA (Lovett, 1993; Burgess et al., 1998). Since then, there has been a trend toward increasing dryness in East Africa, although coastal and western forests may have been united ~2.4 MYA (Burgess et al., 1998). Periodic forest connections and separations provide the conditions for allopatric speciation events, and the present richness of East African coastal forest endemics is thought to be due largely to them (Clarke, 2000). In all probability, they also affected the evolution and distribution of East African Blastobasinae.

In our survey, blastobasines were distributed throughout the sampling area (Table 2). Four species (*Blastobasis millicentae*, *Neoblastobasis perisella*, *N. wangithiae*, and *N. ximeniaella*) were restricted to coastal lowland habitats, and two (*B. aynekiella* and *B. elgonae*) were reared only from western Kenya, the former from several fruit species collected in Kakamega Forest, a Guineo-Congolese wet forest relict, and the latter from a single collection on Mount Elgon. Hosts of *Blastobasis chuka* and *B. glauconotata* were concentrated in the central highlands above 1600 m, though each was reared from collections made in western Kenya, and *B. chuka* was also reared from coastal fruits. *Blastobasis catappaella* was reared from fruits collected on the coast and was collected with black light in a xeric central highland (1650 m). *Blastobasis acirfa* and *B. kenya* had disjunct distributions. Both were reared from coastal and western sites but not from the intervening central highlands (*B. kenya* also was collected once in midaltitude eastern Kenya). This pattern is also often seen in the distribution of many plant species (and genera) with coastal populations represented in relict forests that were connected during wetter periods to central African equatorial forest (Clarke, 2000). *Blastobasis elgonae* and

*B. aynekiella* were the only species restricted to western Kenya. It will be interesting to determine if this species also occurs in central African equatorial forest. *Blastobasis kenya* had the widest altitudinal distribution, between 5 and 2452 m above sea level.

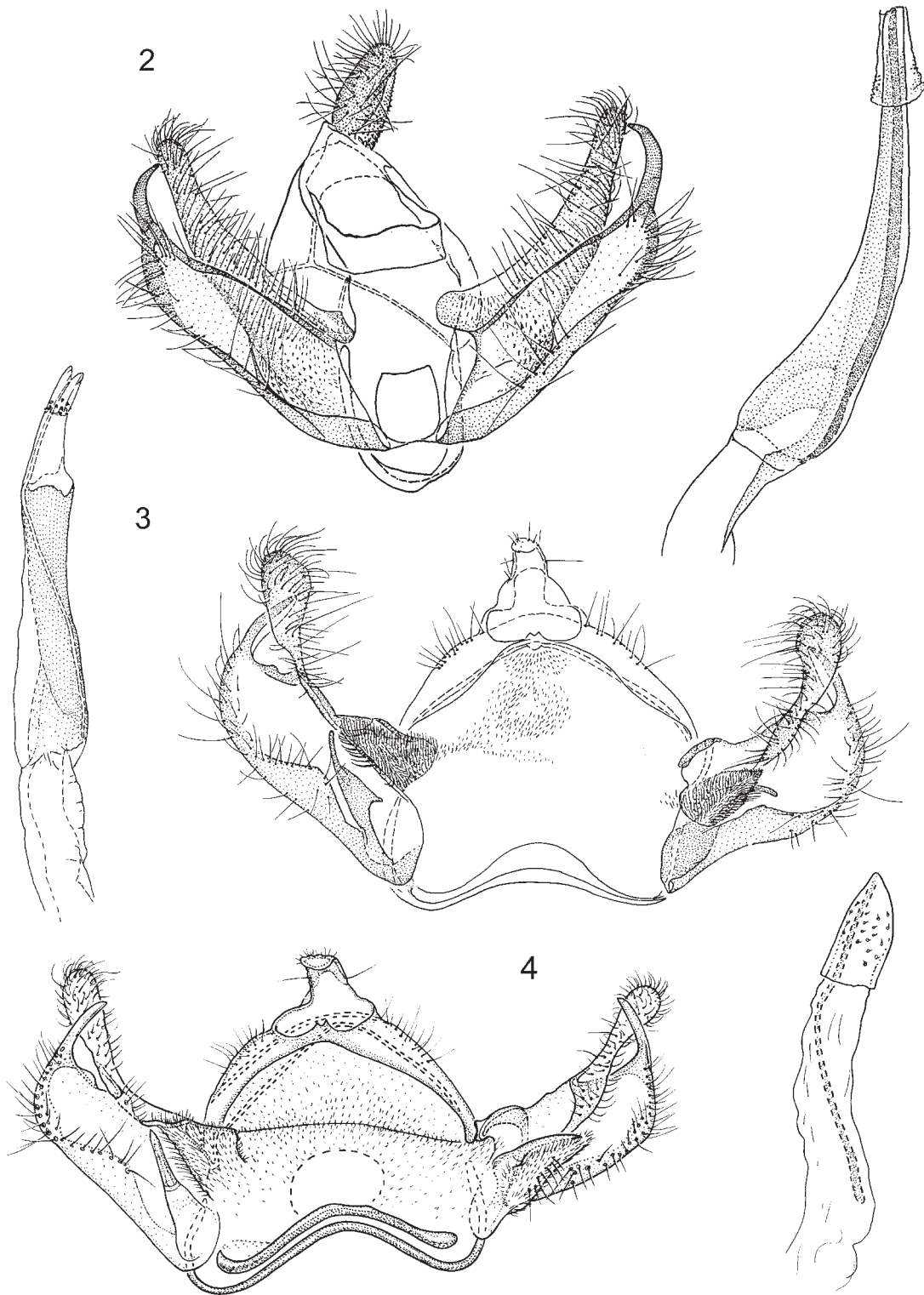
#### DNA SEQUENCE DATA

Sequence data show three “outliers” in the compressed tree phenogram (Figure 1). An outlier sequence for one specimen of *Blastobasis chuka* (♂: 00196357, DA5093) occurs in sequence data for *B. kenya*, and two specimens of *Blastobasis glauconotata* (♂: 00196387, DA5019 and ♂: 00196367, DA 5106) almost match

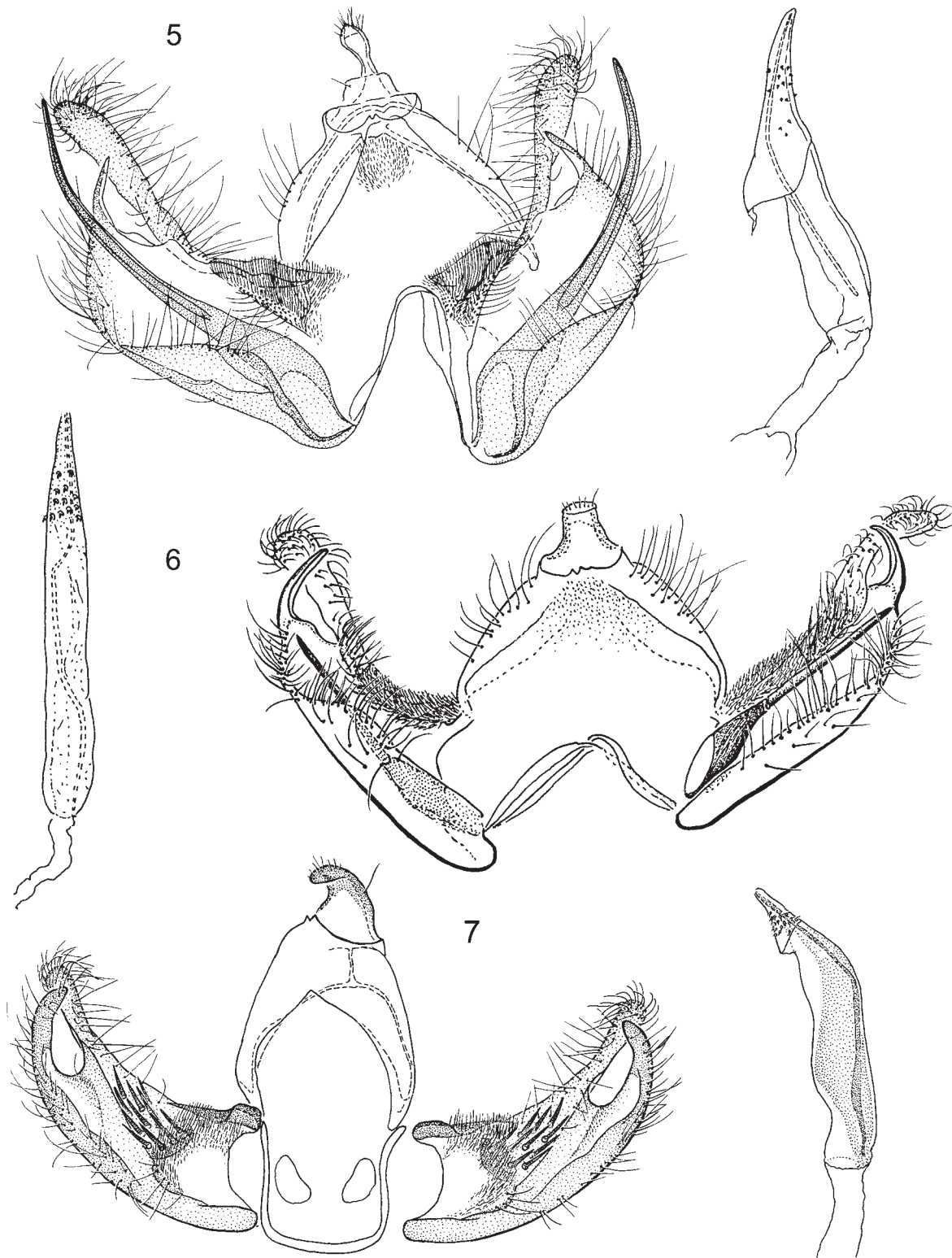
*B. elgonae*. All outlier samples were sequenced twice to verify the data. We suspect contamination. Species identification of the specimens representing the abovementioned “outlier samples” is based solely on the features of the genitalia, although mislabeling of genitalia slides is a possibility.

In addition, the phenogram shows that *Blastobasis millicentae* (♂: 00196942, DA4910) is linked with a node uniting four species of *Neoblastobasis*, suggesting that *Blastobasis* and *Neoblastobasis* may be congeneric. Interestingly, males of species in both genera possess palmate sex scales on the inner surface of the antennal dilation of the first flagellomere. Only through a broader phylogenetic analysis will this problem be resolved.

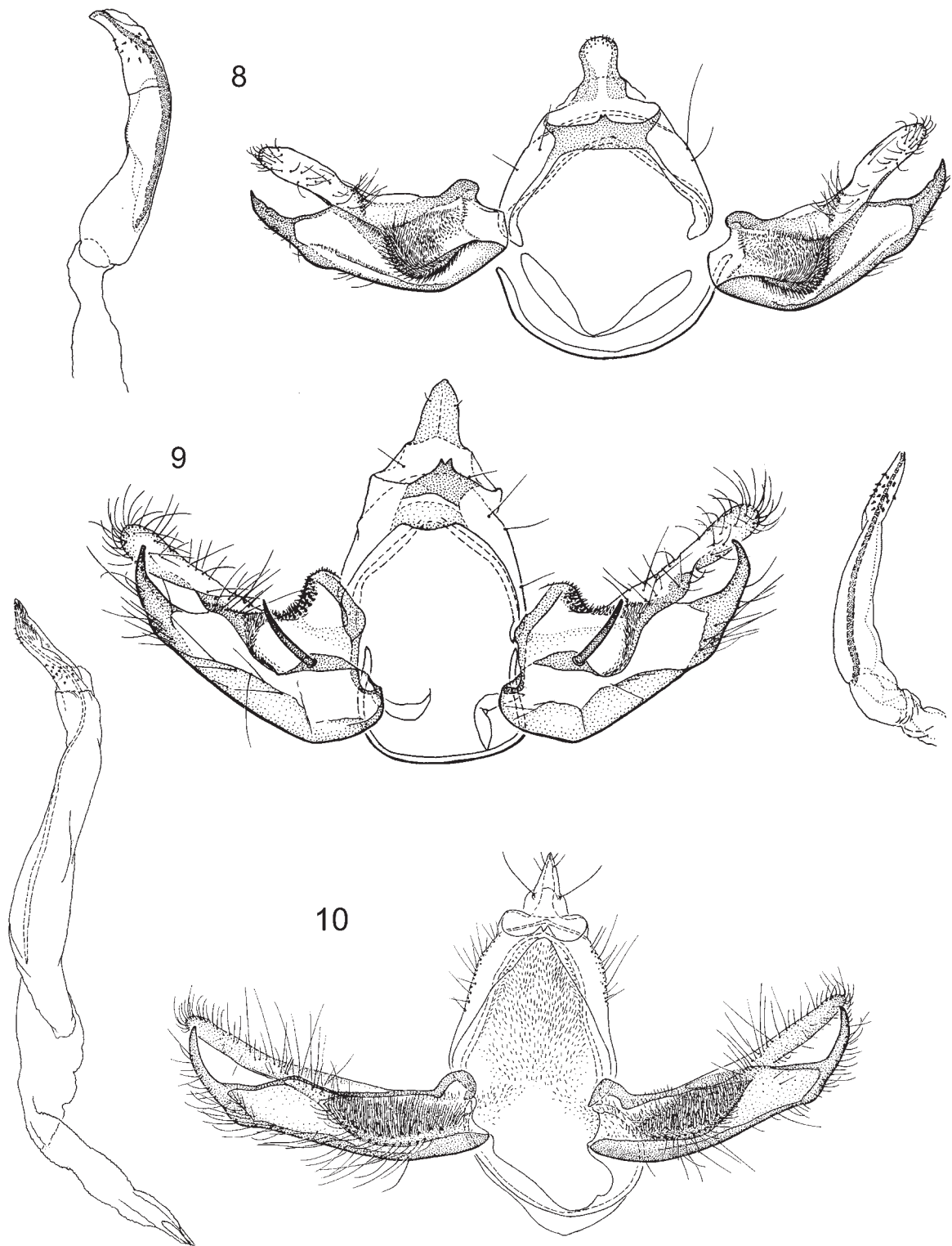
## FIGURES 2-62



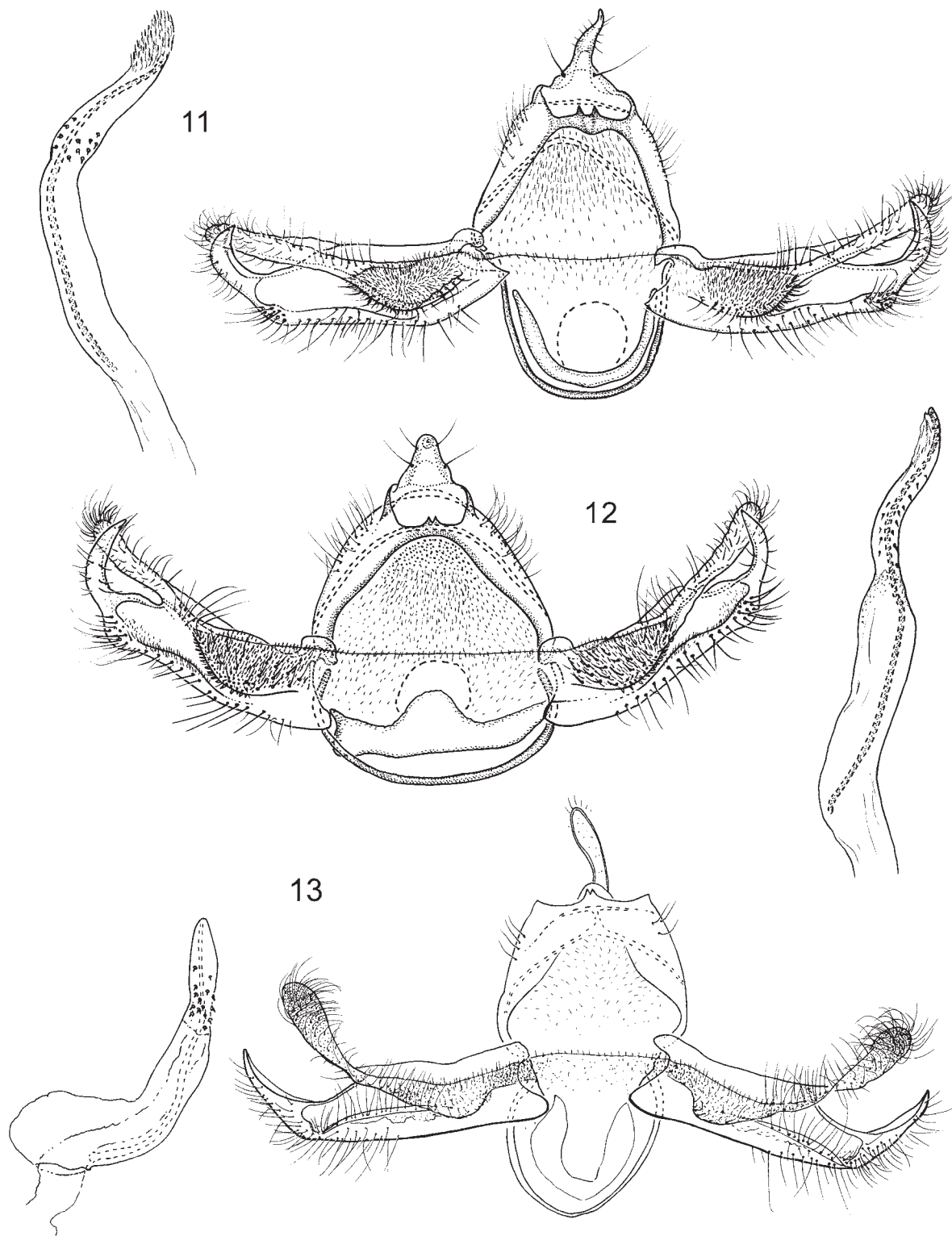
FIGURES 2-4. Male genitalia of *Calosima* and *Neoblastobasis*. 2, *C. arguta*, lectotype (DA slide 4628). 3, *N. laikipiae*, holotype (DA slide 4144). 4, *N. wangithiae*, holotype (DA slide 5044).



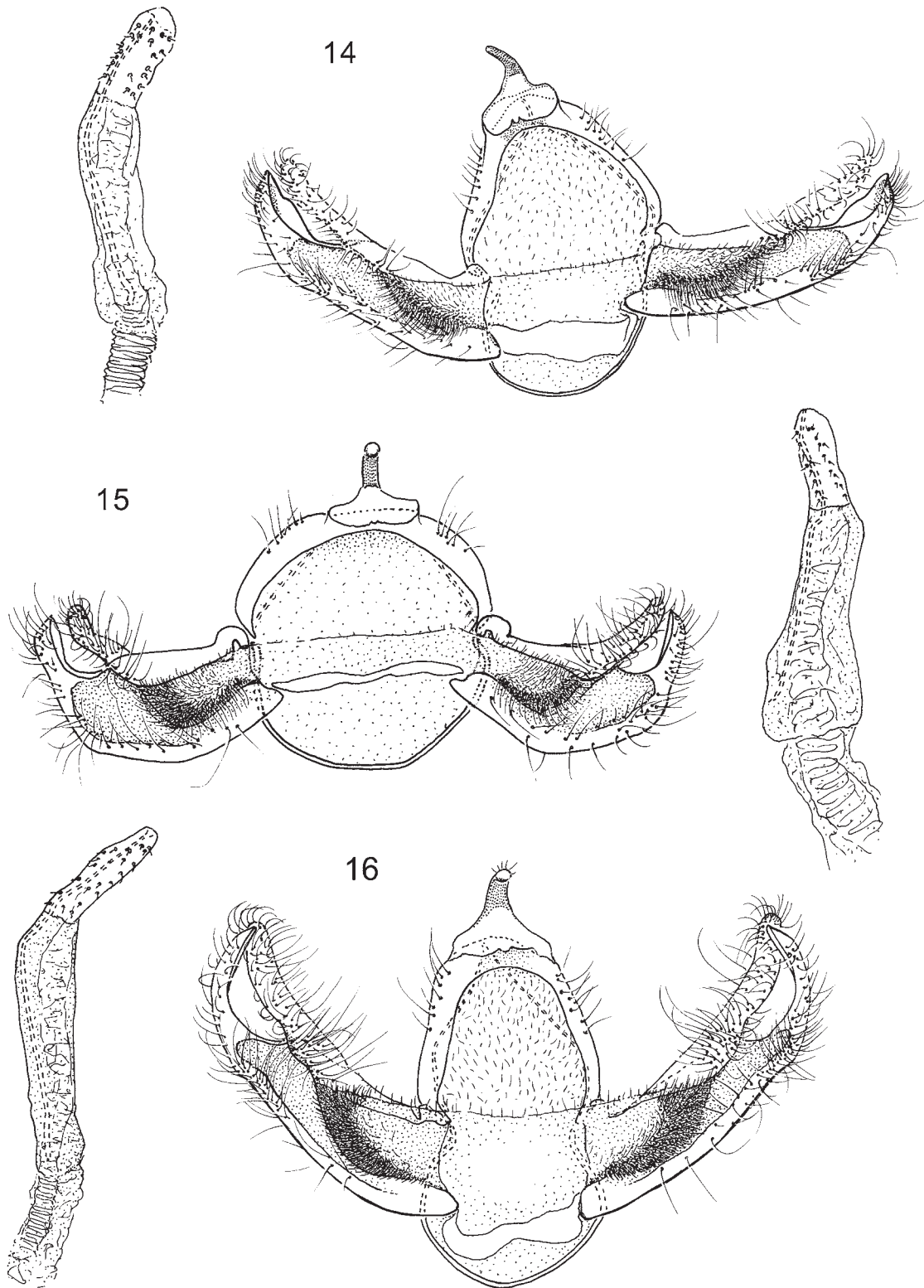
FIGURES 5–7. Male genitalia of *Neoblastobasis* and *Blastobasis*. 5, *N. perisella*, holotype (BM slide 30238). 6, *N. ximeniaella*, holotype (DA slide 5052). 7, *B. fatigata*, holotype (DA slide 4378).



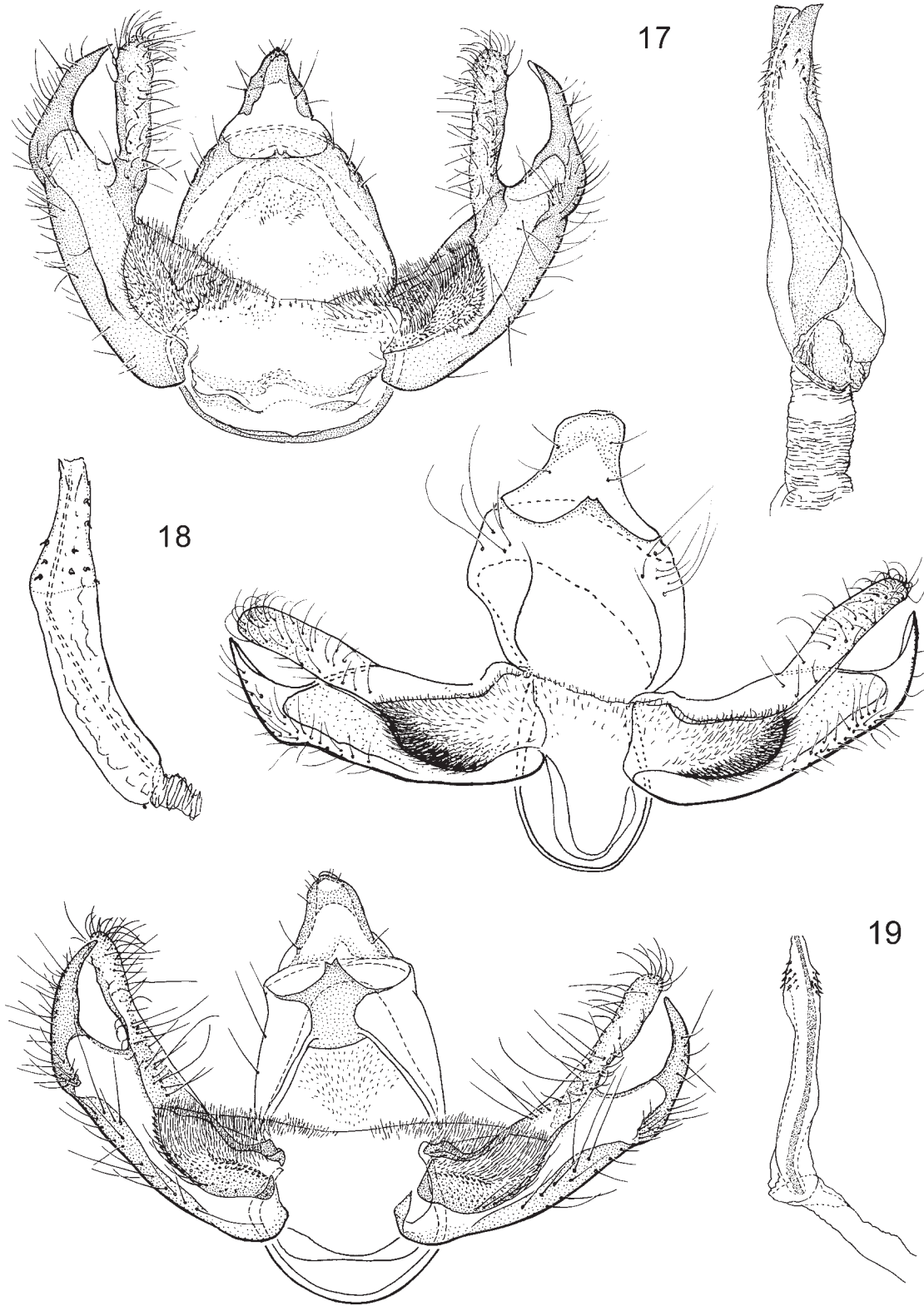
FIGURES 8–10. Male genitalia of *Blastobasis*. 8, *B. indigesta*, lectotype (DA slide 4735). 9, *B. millicentae*, holotype (DA slide 4739). 10, *B. kenya*, holotype (DA slide 4218).



FIGURES 11–13. Male genitalia of *Blastobasis*. 11, *B. acirfa*, holotype (DA slide 5048). 12, *B. aymeikiella*, holotype (DA slide 5045). 13, *B. catappaella*, holotype (DA slide 5071).

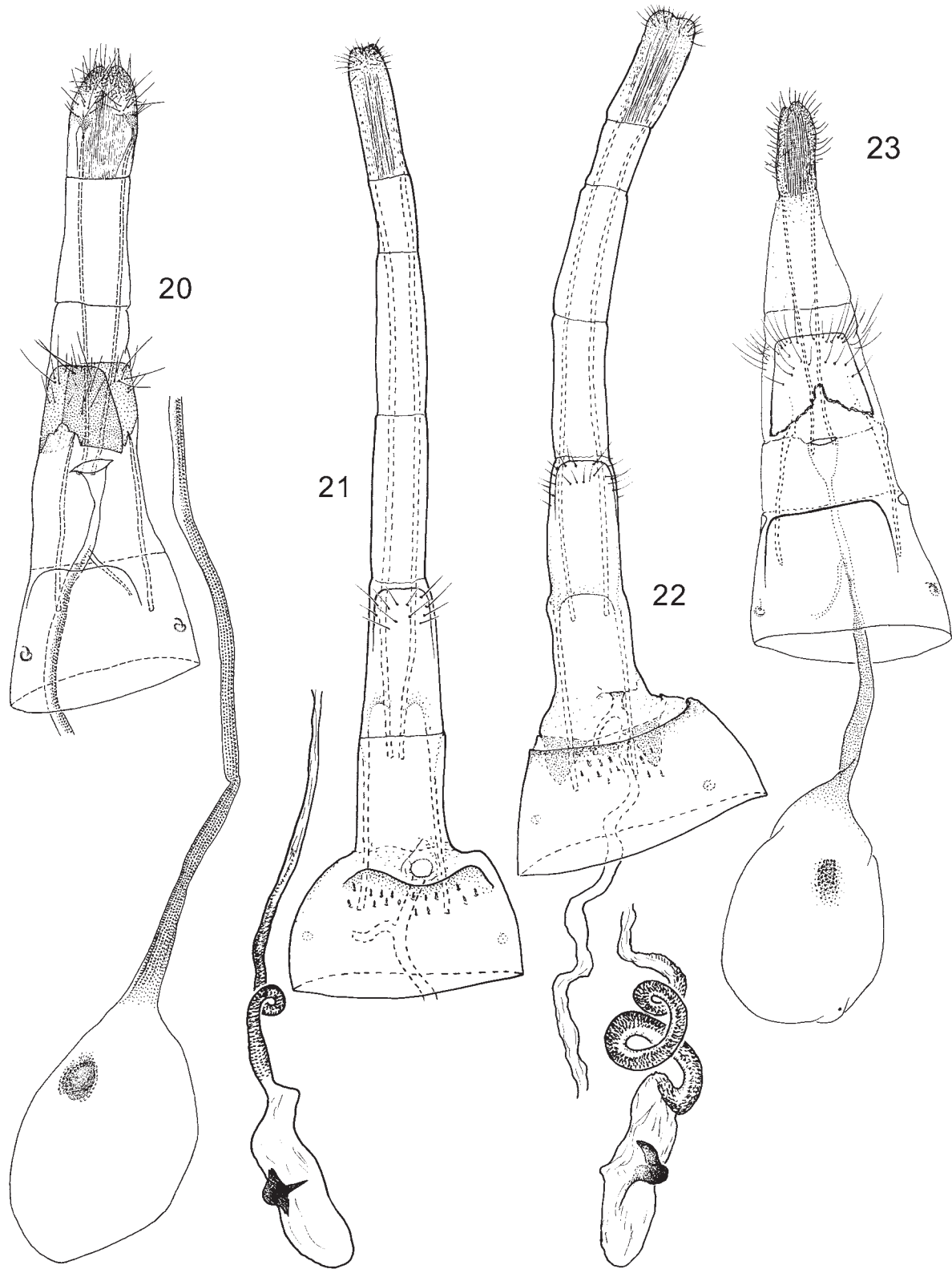


FIGURES 14–16. Male genitalia of *Blastobasis*. 14, *B. glauconotata*, paratype (USNM 83420, DA slide 5017). 15, *B. elgonae*, holotype (DA slide 5020). 16, *B. chuka*, holotype (DA slide 5025).

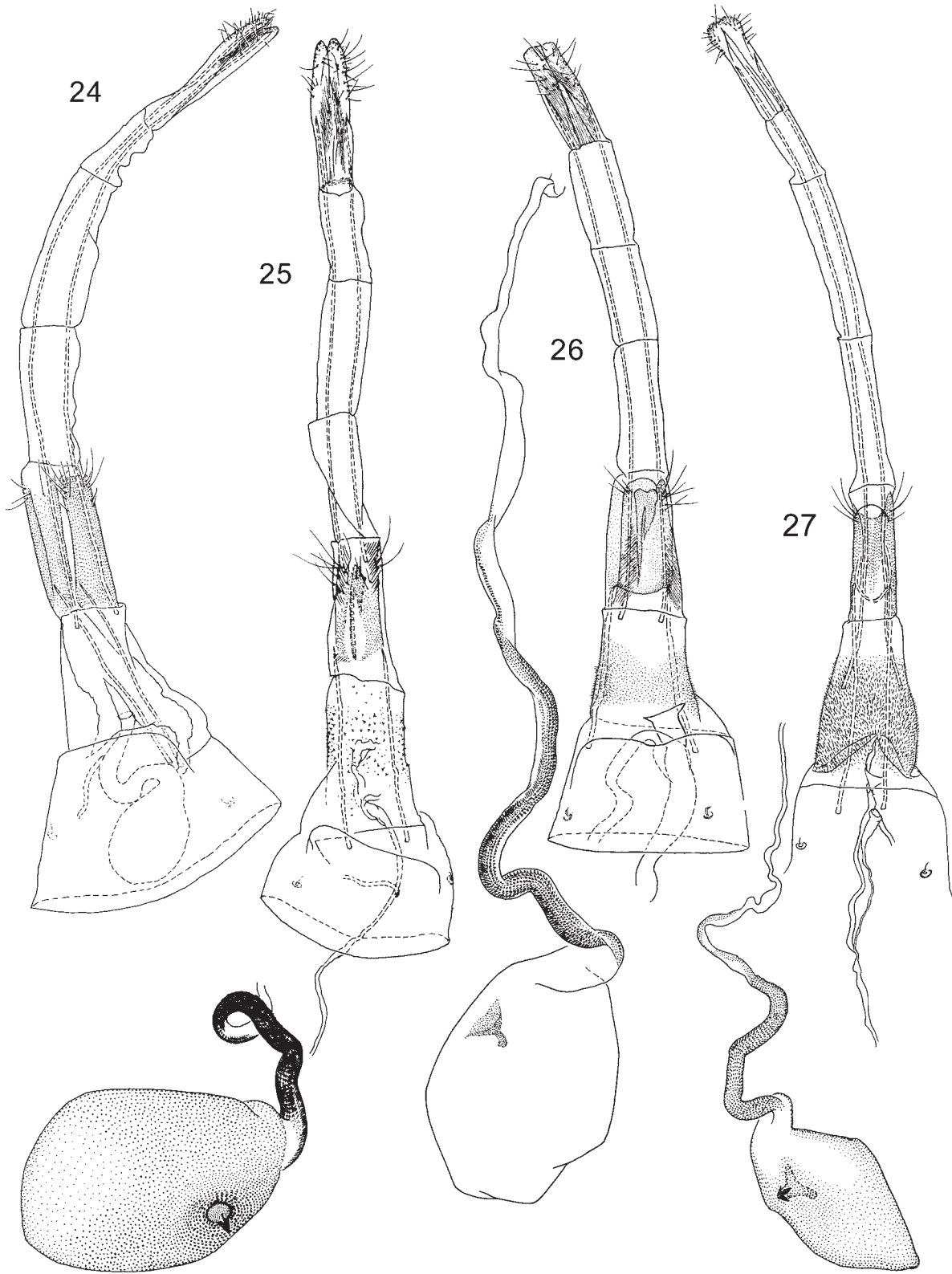


FIGURES 17–19. Male genitalia of *Blastobasis*. 17, *B. mpala*, holotype (DA slide 4137). 18, *B. eridryas*, lectotype (BM slide 30245). 19, *B. egens*, lectotype (DA slide 4740).

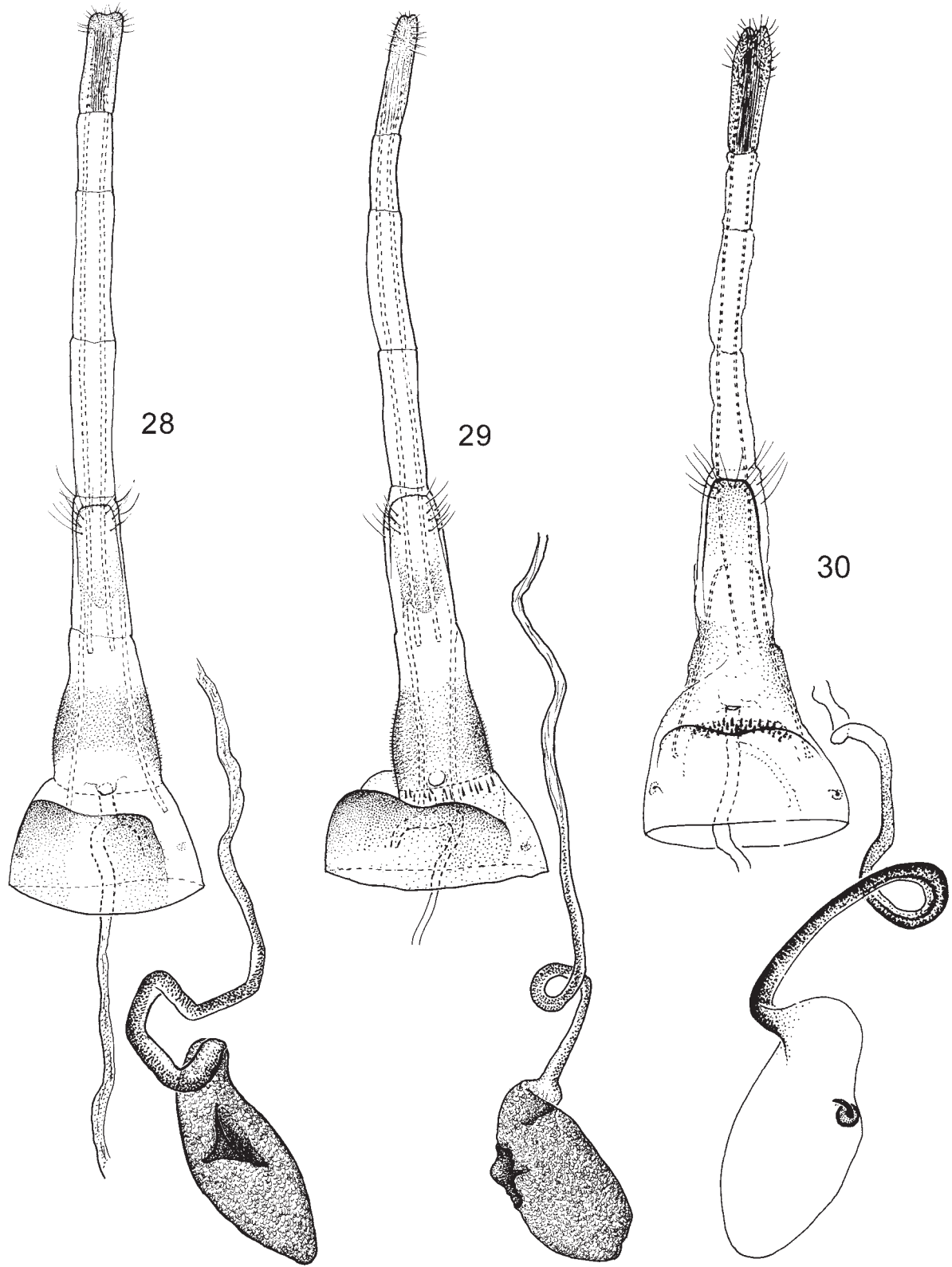




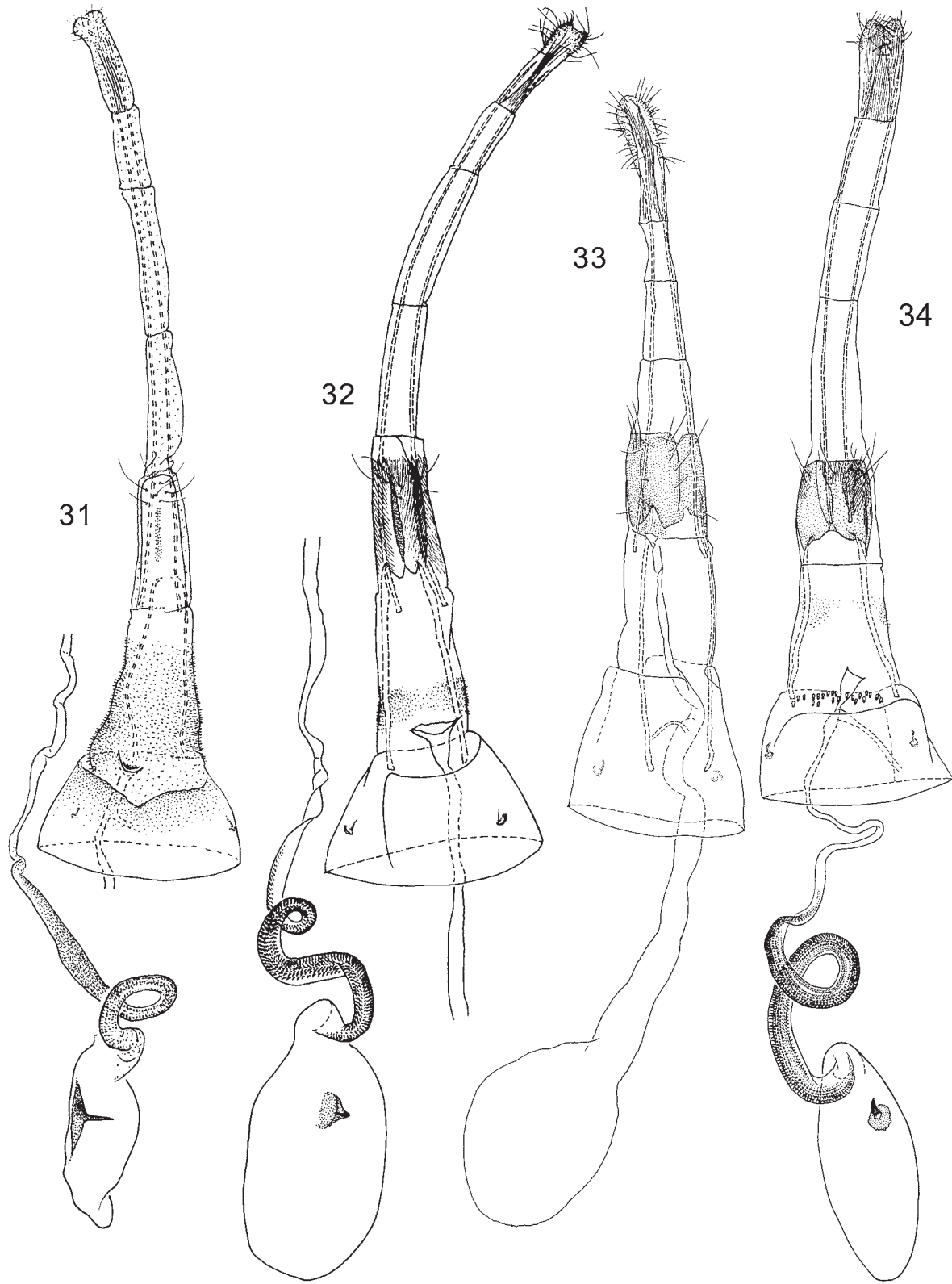
FIGURES 20–23. Female genitalia of *Calosima*, *Neoblastobasis*, and *Holcocera*. 20, *C. arguta*, paralectotype (DA slide 4629). 21, *N. perisella*, paratype (DA slide 5103). 22, *N. ximieniaella*, paratype (USNM 83367, DA slide 5104). 23, *H. extensa*, lectotype (DA slide 4489).



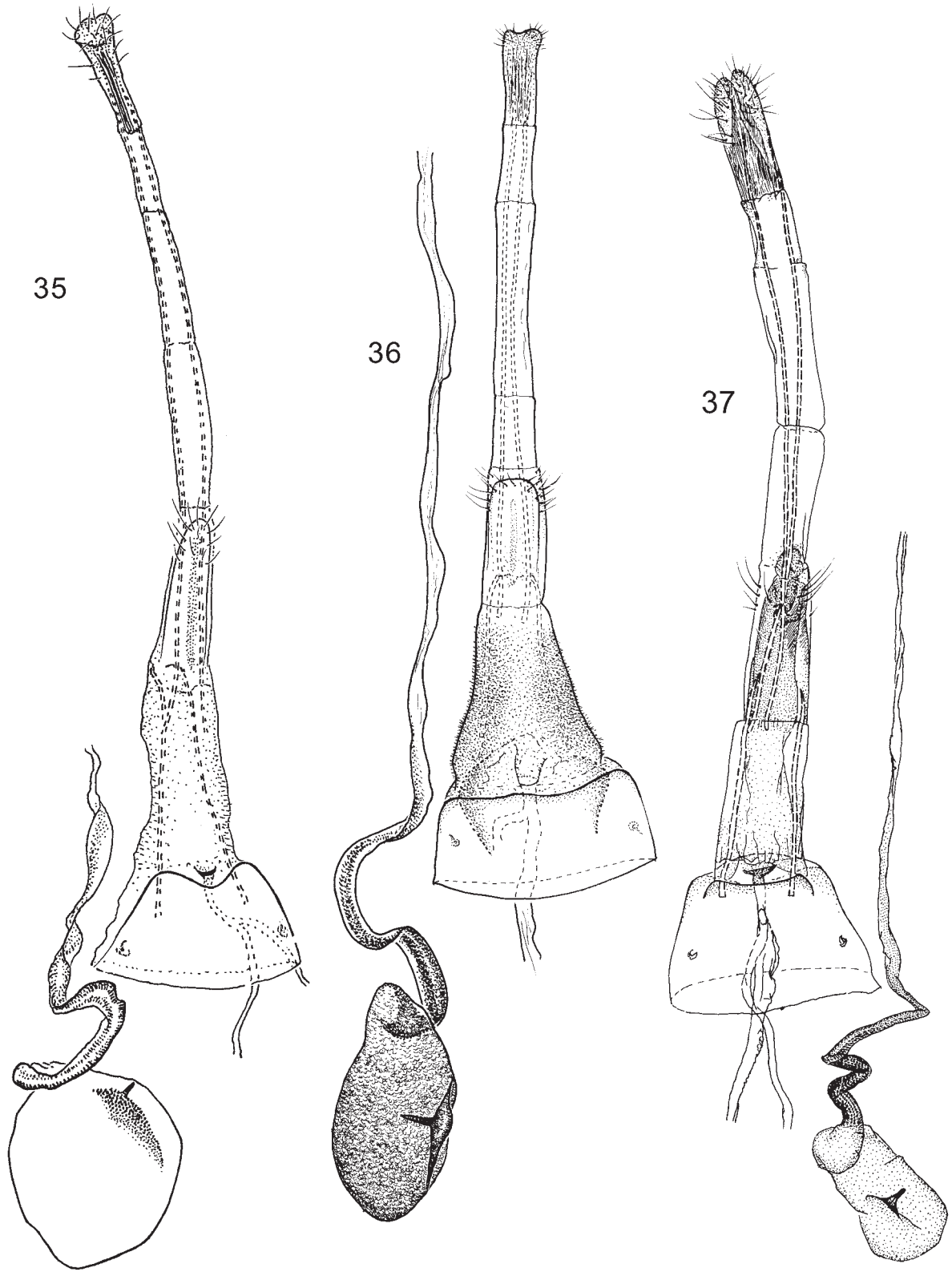
FIGURES 24–27. Female genitalia of *Blastobasis*. 24, *B. egens* paralectotype (BM slide 30241). 25, *B. trachilista*, lectotype (BM slide 30236). 26, *B. taricheuta*, holotype (DA slide 4539). 27, *B. kenya*, paratype (USNM 83387, DA slide 4358).



FIGURES 28–30. Female genitalia of *Blastobasis*. 28, *B. acirfa*, paratype (USNM 83402, DA slide 5110). 29, *B. aynekiella*, paratype (USNM 83448, DA slide 4915). 30. *B. determinata*, holotype (DA slide 4488).



FIGURES 31–34. Female genitalia of *Blastobasis* and *Holcocera*. 31, *B. glauconotata*, paratype (USNM 83442, DA slide 5029). 32, *B. industriaria*, lectotype (DA slide 4737). 33, *H. irroratella*, holotype (BM slide 30237). 34, *B. byrsodepta*, lectotype (DA slide 4630).



FIGURES 35–37. Female genitalia of *Blastobasis*. 35, *B. catappaella*, paratype (USNM 83412, DA slide 5072). 36, *B. chuka*, paratype (USNM 83431, DA slide 5094). 37, *B. mpala*, paratype (USNM 83408, DA slide 4138).

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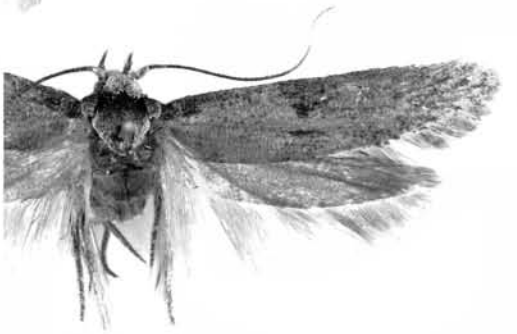
FIGURES 38–49. (Opposite) Adults of *Holcocera* and *Blastobasis*. 38, *B. millicentae*, holotype. 39, *B. industria*, lectotype. 40, *B. eridryas*, lectotype. 41, *B. determinata*, holotype. 42, *H. extensa*, lectotype. 43, *B. indigesta*, lectotype. 44, *B. chuka*, holotype. 45, *B. egens*, lectotype. 46, *B. glauconotata*, holotype. 47, *B. byrsodepta*, lectotype. 48, *H. irroratella*, holotype. 49, *B. elgonae*, holotype.

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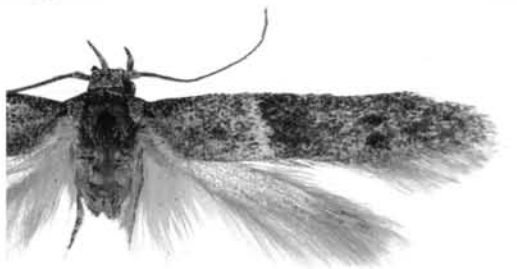
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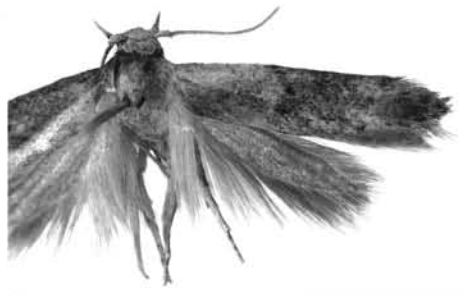
42



43



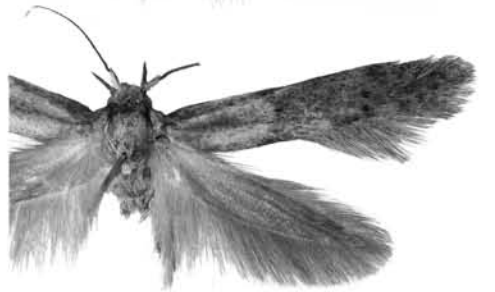
44



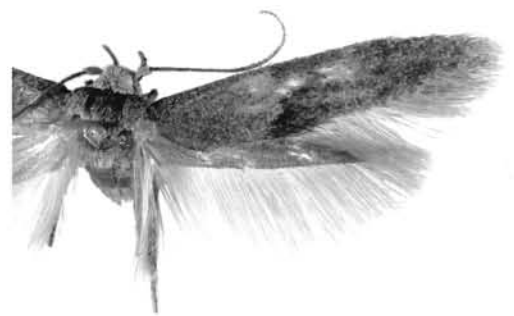
45



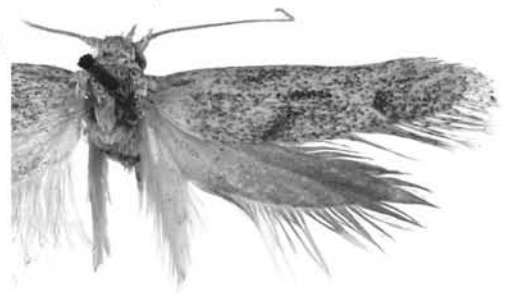
46



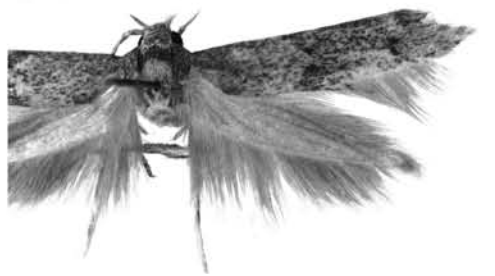
47

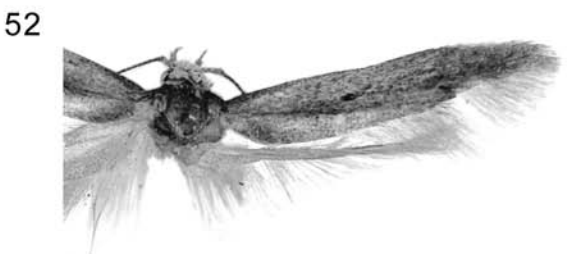
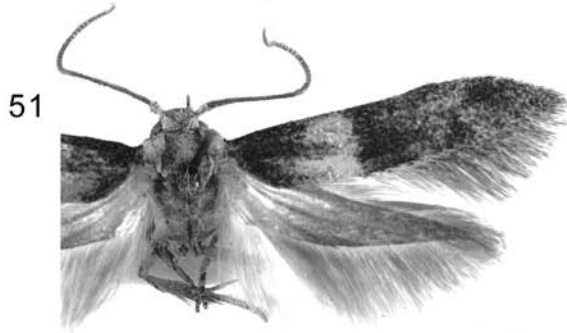


48



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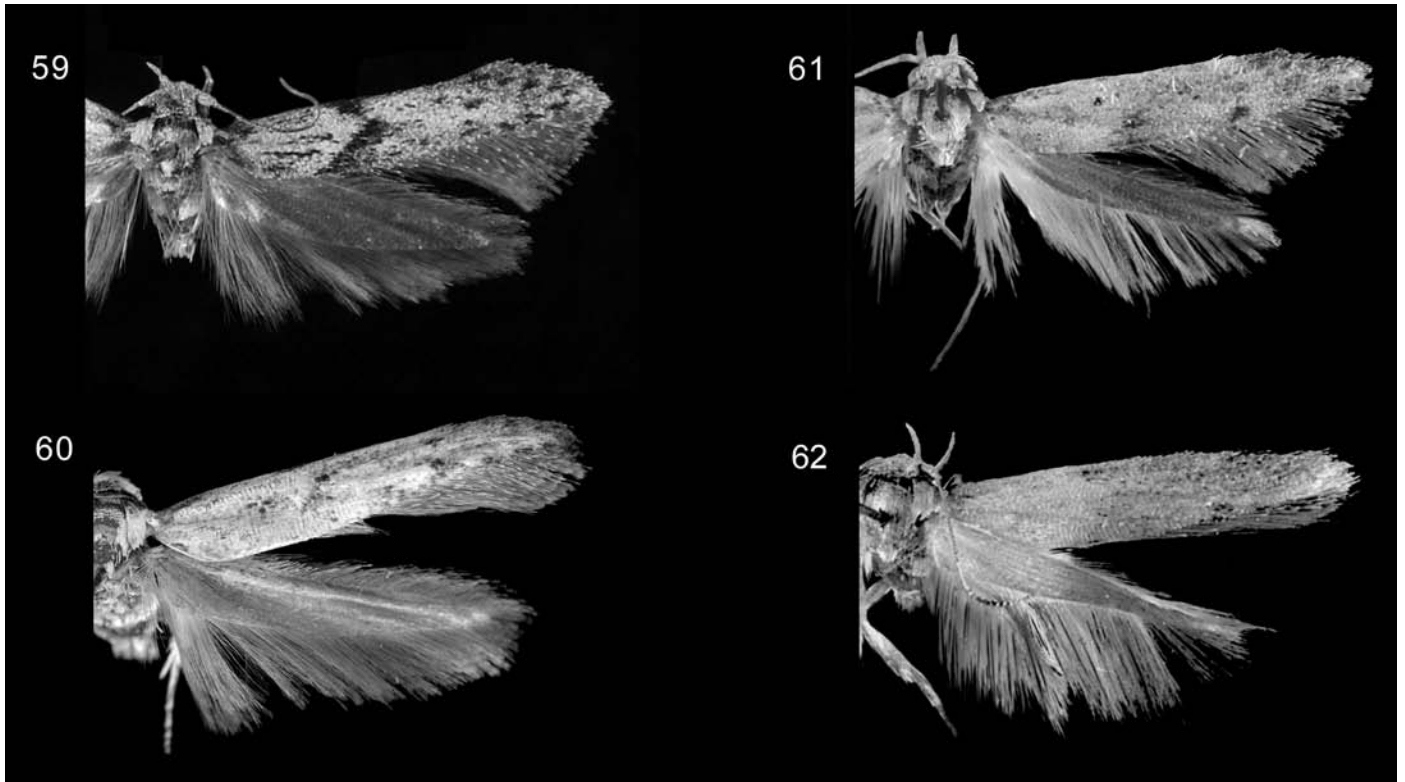


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FIGURES 50–58. Adults of *Blastobasis*, *Calosima*, and *Neoblastobasis*. 50, *B. taricheuta*, holotype. 51, *C. arguta*, lectotype. 52, *B. trachilista*, lectotype. 53, *N. ximenaella*, holotype. 54, *N. wangithiae*, holotype. 55, *B. mpala*, holotype. 56, *B. aynekiella*, holotype. 57, *B. acirfa*, holotype. 58, *N. laikipiae*, holotype.

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FIGURES 59–62. Adults of *Blastobasis* and *Neoblastobasis*. 59, *B. catappaella*, holotype. 60, *B. kenya*, holotype. 61, *B. fatigata*, lectotype. 62, *N. perisella*, holotype.

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