






Phylogeny and systematics of the *Acrapex apicestriata* (Bethune-Baker, 1911) species complex (Lepidoptera, Noctuidae, Noctuinae, Apameini, Sesamiina) with the description of eight new species from the Afrotropics

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Phylogeny and systematics of the *Acrapex apicestriata* (Bethune-Baker, 1911) species complex (Lepidoptera, Noctuidae, Noctuinae, Apameini, Sesamiina) with the description of eight new species from the Afrotropics

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Summary. Twelve morphologically similar species of *Acrapex* Hampson 1894, (Lepidoptera, Noctuidae, Noctuinae, Apameini, Sesamiina), from Western, Central and Eastern Africa are reviewed. Eight of these species are new to science and are described: *Acrapex akunamatata* n. sp. and *A. incrassata* n. sp. from Kenya; *A. gracilis* n. sp., *A. iringa* n. sp., *A. lukumbura* n. sp. and *A. rungwe* n. sp. from Tanzania; *A. soyema* n. sp. from Ethiopia; and *A. zoutoi* n. sp. from Benin. All 12 species belong to a species complex that we hereby define as the *Acrapex apicestriata* group. Host-plants for three of the new species are recorded: *Setaria incrassata* (Hochst.) Hack. for *Acrapex incrassata*; *Cymbopogon pospishilii* (K. Schum.) C.E. Hubb. for *A. rungwe*; and *Andropogon perligulatus* Stapf. for *A. zoutoi*. We also conducted molecular phylogenetic analyses (using maximum likelihood and Bayesian inference) on a six gene multimarker molecular dataset (four mitochondrial and two nuclear gene fragments; 4581 nucleotides in length) consisting of 15 *Acrapex* species (including seven species from the *apicestriata* group) and four outgroups species from the subtribe Sesamiina (from genera *Busseola* Thunberg 1804, *Sciomesa* Tams & Bowden 1953, *Pirateolea* Moyal, Le Ru, Conlong, Cugala, Defabachew, Matama-Kauma, Pallangyo & Van den Berg 2010 and *Sesamia* Boisduval & Guenée 1852). Both maximum likelihood and Bayesian inference analyses yield a similar and well-supported topology, which supports the monophyly of the *apicestriata* group.

Résumé. Phylogénie moléculaire et systématique du groupe d'espèces *Acrapex apicestriata* (Bethune-Baker, 1911) (Lepidoptera, Noctuidae, Apameini, Sesamiina), avec la description de huit nouvelles espèces de la région afrotropicale. Cette étude porte sur la révision de douze espèces du genre *Acrapex* Hampson 1894, (Lepidoptera, Noctuidae, Noctuinae, Apameini) distribuées en Afrique de l'Ouest, Centrale et de l'Est. Huit espèces sont décrites : *Acrapex akunamatata* n. sp. et *A. incrassata* n. sp. du Kenya ; *A. gracilis* n. sp., *A. iringa* n. sp., *A. lukumbura* n. sp. et *A. rungwe* n. sp. de Tanzanie ; *A. soyema* n. sp. d'Éthiopie ; et *A. zoutoi* n. sp. du Bénin. Les 12 espèces appartiennent à un complexe d'espèces que nous définissons comme le groupe *Acrapex apicestriata*. Les plantes-hôtes de trois espèces sont répertoriées : *Acrapex incrassata* a été élevé sur *Setaria incrassata* (Hochst.) Hack. ; *A. rungwe* sur *Cymbopogon pospishilii* (K. Schum.) C.E. Hubb. ; et *A. zoutoi* sur *Andropogon perligulatus* Stapf. Des analyses de reconstruction phylogénétique (utilisant à la fois l'inférence bayésienne et le maximum de vraisemblance) ont été également conduites sur un jeu de données moléculaire multi-marqueurs (quatre gènes mitochondriaux et deux gènes nucléaires ; 4582 nucléotides) comprenant 15 espèces d'*Acrapex* (incluant sept espèces du groupe *apicestriata*) et des espèces de quatre groupes-frères de la sous-tribu des Sesamiina (appartenant aux genres *Busseola* Thunberg 1804, *Sciomesa* Tams & Bowden 1953, *Pirateolea* Moyal, Le Ru, Conlong, Cugala, Defabachew, Matama-Kauma, Pallangyo & Van den Berg 2010, et *Sesamia* Boisduval & Guenée 1852). Les résultats de ces analyses soutiennent à la fois l'hypothèse de monophylie du groupe et le statut d'espèces des taxa nouvellement décrits.

<http://www.zoobank.org/urn:lsid:zoobank.org:pub:C788DD18-7220-4381-804C-8006764F443D>

Keywords: Host-plants; molecular phylogenetics; morphology; taxonomy

Extensive field surveys conducted since 2004 (Le Ru et al. 2006a, 2006b; Matama-Kauma et al. 2008; Moolman et al.

2014; Ndemah et al. 2007; Ong'amo et al. 2006, 2013, 2014) in several sub-Saharan countries, targeting wild habitats rich in Poales combining infested host plant collections and light

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traps, allowed us to obtain several hundred *Acrapex* specimens (Lepidoptera, Noctuidae, Noctuinae, Apameini, Sesamiina). Among the Sesamiina, the genus *Acrapex* Hampson, 1894 consists of about 90 species that are mostly distributed in the Afrotropical region (Le Ru et al. 2014). A first study by Le Ru et al. (2014) focused on two small groups [*Acrapex albivena* Hampson, 1910, and *A. stygiata* (Hampson, 1910)] of morphologically related species belonging to subsets of two (groups B and C) of the four morphological groups that have been defined by Berio (1973) based on male genitalia. In a second study (Le Ru et al. 2017) the authors focused on a species complex that consists of *Acrapex unicolora* (Hampson, 1910) and nine morphologically related species, another subset of the group B defined by Berio (1973) based on male genitalia. These two studies unravelled six and five new species respectively, thus confirming that the *Acrapex* species diversity in Sub-Saharan Africa is likely greatly underestimated (Le Ru et al. 2014).

In the present study, we focus on a species complex that consists of *Acrapex apicestriata* (Bethune-Baker, 1911) and 11 morphologically related species (eight of which are new to science). These species constitute a subset of group C defined by Berio (1973), based on male genitalia; our subset of interest (hereby referred to as the *A. apicestriata* group) consists of *Acrapex apicestriata*, *A. holoscota* (Hampson 1914), *A. gibbosa* Berio, 1973, *A. ottusa* Berio, 1973, *A. akunamatata* n. sp., *A. gracilis* n. sp., *A. incrassata* n. sp., *A. iringa* n. sp., *A. lukumbura* n. sp., *A. rungwe* n. sp., *A. soyema* n. sp., and *A. zoutoi* n. sp.; it is characterised by the following combination of characters: (i) uncus narrow and long tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; (ii) valve short and broad at basal half, rather weakly sclerotised except the costa, broadly rounded along inner margin at base, roundly constricted at middle, small sacculus, broad cucullus concave downwards with apex fist shaped, edged posteriorly with long bristly hairs and a few stout papillated hairs on inner side; (iii) juxta large, plate like, two-lobed at tip without sclerotisation; (iv) aedeagus slightly elongated and curved, manica with a large two-lobed sclerotisation, vesica without ornamentation or if ornamented with a ventral tongue-shaped protuberance adorned with longitudinal villi like or two ventral cornuti in one species only.

For this study, we include the description of the eight new species which have been cross-checked against all *Acrapex* types preserved in museums to avoid coinage of synonymies. We also provide a supplemental description for the four previously described species of the *A. apicestriata* group. To facilitate species identification, we generated an identification key of the *Acrapex apicestriata* species group based on male genitalia (see the identification key at the end of the description paragraph). Finally, we conduct phylogenetic analyses on a multi-marker molecular dataset (four mitochondrial gene

fragments and two nuclear gene fragments) to investigate the phylogenetic placement of species belonging to the *apicestriata* group.

Materials and methods

Abbreviations

BMNH, The Natural History Museum, London, UK; MCSN, Museo Civico di Storia Naturale, Milan, Italy; MNHN, Muséum national d'Histoire naturelle, Paris, France; NMK, National Museums of Kenya, Nairobi, Kenya.

Sampling and morphological study

Sixty adult specimens belonging to the *Acrapex apicestriata* species group were collected from a light trap set up in Ethiopia, Kenya and Tanzania (sampling of specimens started in 2004). In addition, 27 adults (also from the *A. apicestriata* species group) collected from light trap set-ups were found in the BMNH and the MCSN. Finally, 39 larvae belonging to the *Acrapex apicestriata* species group were sampled from visually damaged grasses (Poales) in Western and Eastern Africa. Larvae were reared on an artificial diet (Onyango & Ochieng'odero 1994) until pupation and emergence of adults (Le Ru et al. 2006a, 2006b). Plant specimens were identified by Simon Mathenge (Botany Department, University of Nairobi, Kenya). The morphological study is based on 101 adult specimens belonging to 12 species collected in 13 localities in seven countries: Benin, Ethiopia, Guinea-Bissau, Kenya, Nigeria and Tanzania.

Genitalia were dissected after immersion of the end of the abdomen in a boiling 10% potash bath for a few minutes, then cleaned, immersed in absolute alcohol for a few minutes and mounted on slides in Euparal (after separating the aedeagus from the rest of the genitalia in the male). Collected insects were identified by comparison with types and specimens housed in the BMNH and the MCSN. The types of the new species were deposited in the MNHN whereas paratypes were deposited in the MNHN and in the NMK; only the holotype of *A. akunamatata* n. sp. was preserved in the BMNH where it has been found.

DNA extraction and sequencing

For this study, 12 *Acrapex* specimens belonging to seven species of the *apicestriata* group were selected for the molecular analyses. We also included eight specimens from species belonging to the following *Acrapex* species groups: the *albivena* group (represented in our sampling by *Acrapex albivena*, *A. salmons* Le Ru, 2014, *A. sporobola* Le Ru, 2014, *A. syscia* Fletcher, 1961, and *A. yakoba* Le Ru, 2014), the *aenigma* group (represented in our sampling by *Acrapex nr. brunnea*), the *stygiata* group (represented in our sampling by *A. stygiata*) and the *unicolora* group (represented in our sampling by *A. unicolora*). In addition, we included representatives of four other genera in the subtribe Sesamiina as outgroups (i.e. *Busseola*, *Sciomesa*, *Pirateolea* and *Sesamia*) based on the results of recent molecular studies on Apameini moths (Toussaint et al. 2012; Le Ru et al. 2014, 2015, 2017). DNA was extracted from hind legs using Qiagen DNAeasy tissue kits (Qiagen, Hilden, Germany). Polymerase chain reaction (PCR) amplifications were conducted for four mitochondrial gene fragments, a 658 bp region of the cytochrome oxidase subunit I (COI), 1012 bp of the cytochrome

b (Cytb), 352 bp of the ribosomal 12S RNA (12S), and 490 bp of the ribosomal 16S RNA (16S). Two nuclear gene regions were also sequenced, 839 bp of the 28S ribosomal DNA (28S), and 1230 bp of the elongation factor-1a (EF1a). For all genes, we used the primers and settings detailed in Kergoat et al. (2012). Sanger sequencing of the resulting PCR products was carried out by the Eurofins MWG Operon Company (Ebersberg, Germany). Both strands were sequenced for all specimens to minimise PCR artefacts and ambiguities. Sequences of complementary strands were edited and reconciled using Geneious v8.0 software (available at www.geneious.com/). All the sequences generated in this study were deposited in GenBank (see Appendix S1 for the accession numbers). Unlike the sequences of coding genes (COI, Cytb, and EF1a), the sequences of ribosomal genes (12S, 16S and 28S) were variable in length. Their alignment was accomplished using MAFFT 7 (Kato & Standley 2013) with default option settings. For all protein-coding genes, we used Mesquite 3.10 (available at www.mesquiteproject.org) to check the coding frame for possible errors or stop codons. The combination of the six gene fragments resulted in a combined matrix of 24 specimens and 4581 aligned characters.

Phylogenetic analyses

Phylogenetic analyses were conducted using Bayesian inference (BI) and maximum likelihood (ML). For both methods, we used partitioned analyses to improve phylogenetic accuracy (Nylander et al. 2004). We specified one partition for each non-coding gene and three partitions for each of the coding genes. Best partitioning schemes and substitution models were determined using PartitionFinder v1.1.1 (Lanfear et al. 2012). The Bayesian information criterion (BIC) was preferentially used for both partition and model selection under BI and ML (Ripplinger & Sullivan 2008). Based on the BIC results we used two partitions (one with a general time reversible (GTR)+G + I model and on with a GTR+G model; see Appendix S2).

Bayesian inference analyses were carried out using MrBayes 3.2.3 (Ronquist et al. 2012). We conducted two independent runs with four MCMC (one cold and three incrementally heated) that ran for 50 million generations, with trees sampled every 5000 generations. A conservative burn-in of 25% was then applied after checking for stability on the log-likelihood curves and the split-frequencies of the runs (split-frequencies of run were below 1%). Support of nodes for MrBayes analyses was provided by clade posterior probabilities (PP) as directly estimated from the majority-rule consensus topology. Nodes supported by $PP \geq 0.95$ were considered strongly supported following Erixon et al. (2003).

ML analyses were performed using the recently developed IQ-TREE (Nguyen et al. 2015) using a dedicated web server available at <http://iqtree.cibiv.univie.ac.at/> (Trifinopoulos et al. 2016). IQ-TREE searches were conducted with default settings; the models of substitutions were determined using the *Auto* function on the IQ-TREE web server, following the authors' recommendations. Based on the BIC results we used two partitions (one with a GTR+G + I model and on with a GTR+G model; see Appendix S2). Clade support was then assessed using ultrafast bootstrap replicates (Minh et al. 2013) (1000 replicates were used). Ultrafast bootstrap values (uBV) $\geq 95\%$ were considered strongly supported following authors' recommendations.

Results

Taxonomy

After having cross-checked against types preserved in the museum to avoid coincidence of synonymies we present the description of nine new species: *Acrapex akunamatata* n. sp. and *A. incrassata* n. sp. from Kenya; *A. gracilis* n. sp., *A. iringa* n. sp., *A. lukumbura* n. sp. and *A. rungwe* n. sp., from Tanzania; *A. soyema* n. sp. from Ethiopia; and *A. zoutoi* n. sp. from Benin. We also provide a supplemental description of the previously described species, *A. apicestriata* (Bethune-Baker, 1911), *A. gibbosa* Berio, 1973, *A. holoscota* (Hampson, 1914), *A. ignota* Berio, 1973, and *A. otusa* Berio, 1973.

Acrapex akunamatata Le Ru, n. sp. (Figures 1a, b, 2a)

Type material. Holotype: ♂, Kenya, Western, Mt Elgon, X.1931, ex light trap, Noctuidae genitalia slide 2490, T.H. E. Jackson Coll., Brit. Mus. 1935–177 [BMNH].

Diagnosis. This species can be distinguished from other male species of the group by the contrasted colour of the wings, ochreous-buff in forewings and brown in hind wings. The genitalia present also good characters to separate it from other species of the group with the distal part of the costa elbow shaped along the external margin, a cucullus with the apex fist shaped bulb-like, the manica with a two-lobed sclerotisation and the vesica with a large tongue-shaped tuft.

Description. Figure 1a, b. Antennae ochreous, filiform, slightly ciliate; flagellum ochreous, palpus fuscous, eyes black. Head and base of thorax fuscous, thorax ochreous-buff; legs ochreous-buff suffused with white scales, tarsi ringed with white. Forewings: ground-colour ochreous-buff, costal area strongly irrorated with fuscous scales, diffusely edged on the lower side and extended beyond the upper median with all the veins of the ground colour; median area slightly irrorated with fuscous scales extended on distal side to termen, ending obliquely adorned with three fuscous-brown elongated spots between the veins; one proximal transverse jagged line of fuscous and brown scales extending towards the base, one subterminal transverse and concave line of fuscous and brown scales; reniform indicated by few white scales, surrounded by some fuscous and brown scales; outer margin adorned with dark-brown spots between the veins; fringe ochreous grey slightly suffused with fuscous. Hind wings: uniformly brown; fringe grey ochreous strongly suffused with fuscous. Underside of the forewings with ground colour light ochreous strongly suffused with fuscous and brown scales, more heavily on the median area, almost no brown scales in the

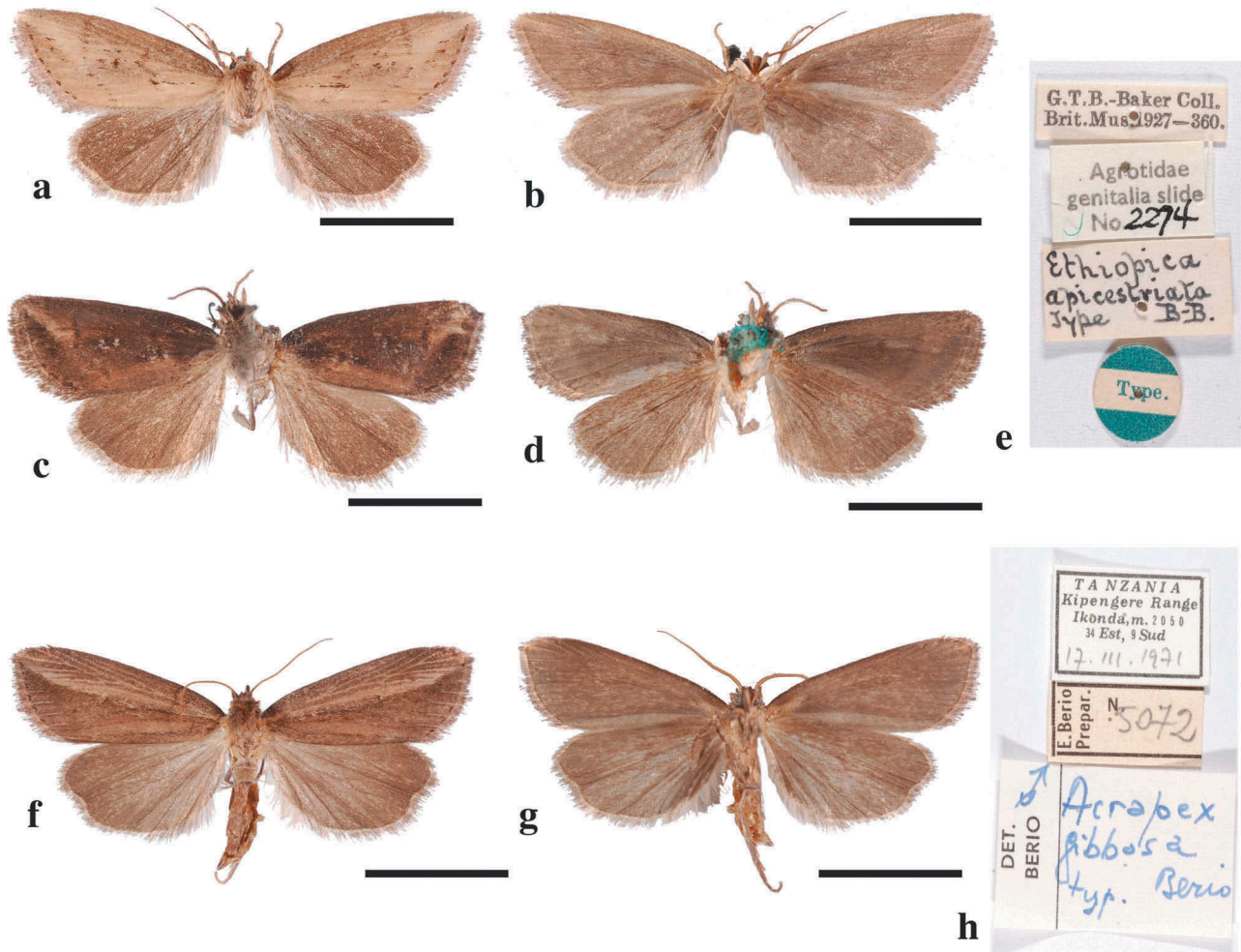


Figure 1. *Acrapex* spp., ♂, holotypes. **a, b**, *A. akunamatata* n. sp.: **a**, upper side; **b**, underside. **c, d**, *A. apicestriata* (Bethune-Baker): **c**, upper side; **d**, underside; **e**, original labels from BMNH. **f, g**, *A. gibbosa* Berio: **f**, upper side; **g**, underside; **h**, original labels from Milan Museum. Scale bars = 6 mm.

area close to the posterior margin. Underside of hind wings light ochreous, suffused with fuscous scales but much more heavily on the median area towards the base.

Wingspan 21 mm (male) ($n = 1$)

Male genitalia (Figure 2a). Uncus narrow and long, tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a large saccus, V-shaped at the bottom margin; valves short and broad at basal half, slightly sclerotised except on the costa, broadly rounded along inner margin at base, roundly constricted at middle along the inner margin and elbow shaped along the external margin, extended with a broad cucullus making a 90° angle with the costal area, the apex fist shaped bulb-like, same width as the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta is not visible on the genitalia preparation;

although not completely visible, aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation, the quality of the preparation does not allow a conclusion about presence or absence of tongue-shaped protuberance or cornuti on the vesica.

Etymology. Named from the Swahili phrase “*hakuna matata*”; it roughly means “no worries”.

Bionomics. Biology unknown.

Distribution. Kenya (Table 1). One record only is from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although known from one specimen only, this Afromontane species is easily distinguished with the apex of the cucullus fist shaped bulb-like.

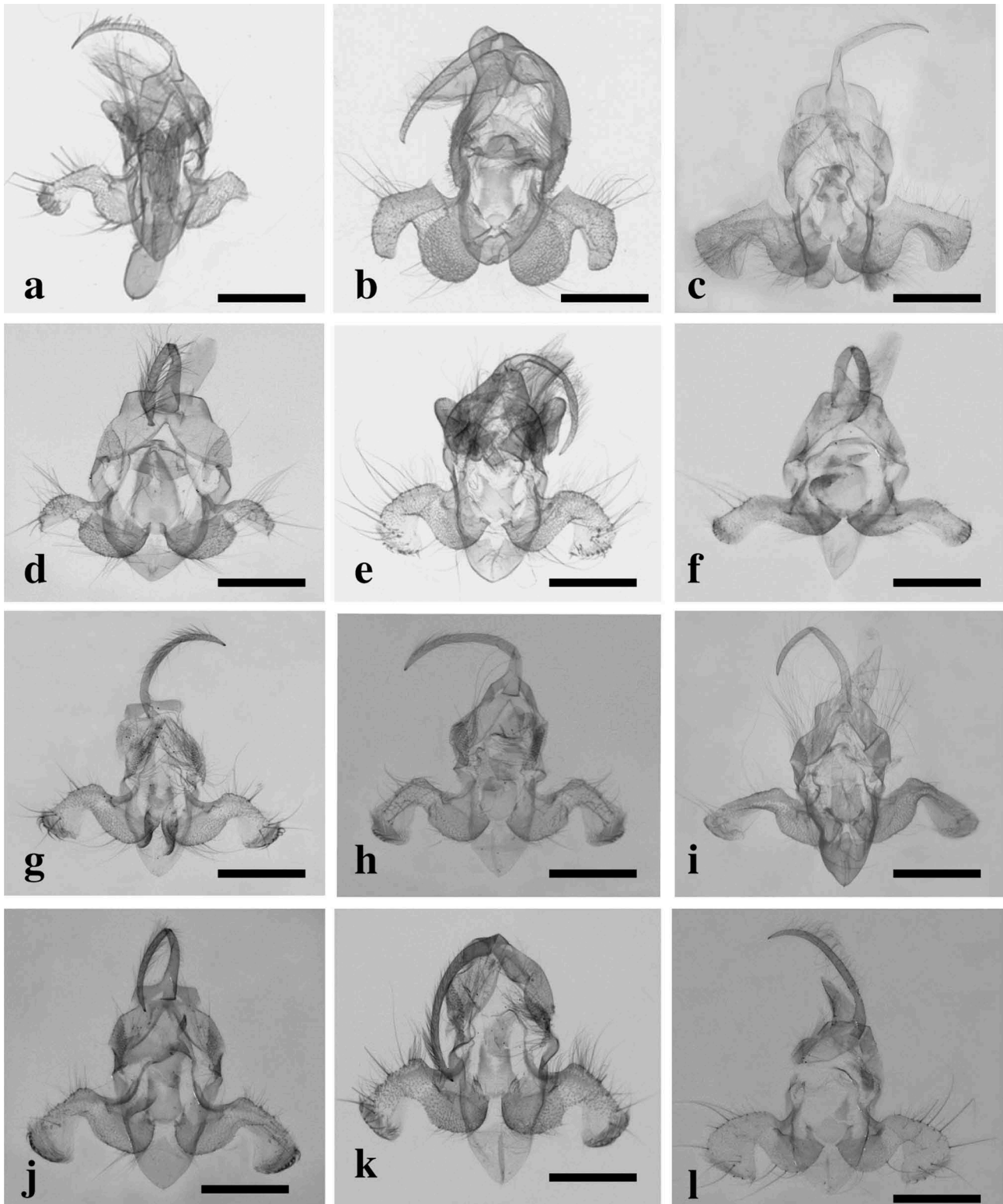


Figure 2. *Acrapex* spp., male genitalia. **a**, *A. akunamatata* **n. sp.**, holotype. **b**, *A. apicestriata* (Bethune-Baker), holotype. **c**, *A. gibbosa* Berio, holotype. **d**, *A. gracilis* **n. sp.**, holotype. **e**, *A. holoscota* (Hampson), lectotype. **f**, *A. incrassata* **n. sp.**, holotype. **g**, *A. iringa* **n. sp.**, holotype. **h**, *A. lukumbura* **n. sp.**, holotype. **i**, *A. ottusa* Berio, holotype. **j**, *A. rungwe* **n. sp.**, holotype. **k**, *A. soyema* **n. sp.**, holotype. **l**, *A. zoutoi* **n. sp.**, holotype. Scale bars = 0.4 mm.

Table 1. Localities at which specimens of the *Acrapex apicestriata* group were collected.

Country	Locality	Latitude	Longitude	Altitude (m)	<i>Acrapex</i> species
Benin	Zouto Bridge	7°33'58"N	2°08'02"E	53	<i>Acrapex zoutoi</i>
Ethiopia	Gibe Soyema	7°15'14"N	36°47'56"E	1051	<i>Acrapex soyema</i>
Ghana	Kete-Krachi	7°50'08"N	0°01'48"E	121	<i>Acrapex holoscota</i>
Guinea Bissau	Gunnal	12°28'N	13°54'E	1000 (?)	<i>Acrapex apicestriata</i>
Kenya	Mount Elgon	1°12'39"N	34°42'51"E	2360	<i>Acrapex akunamatata</i>
	Suam	1°11'44"N	34°49'06"E	2160	<i>Acrapex incrassata</i>
	Ilala North Kavirondo	0°02'N	34°29'E		<i>Acrapex iringa</i>
Nigeria	Minna	9°36'53"N	6°33'27"E	272	<i>Acrapex holoscota</i>
Tanzania	Ikonda, Kipengere	9°22'29"S	34°14'12"E	1992	<i>Acrapex gibbosa</i> , <i>A. ottusa</i>
	Iboya	9°25'32"S	35°03'41"E	1664	<i>Acrapex gracilis</i> , <i>A. iringa</i>
	Sao Hill 2	8°27'25"S	35°10'02"E	1845	<i>Acrapex gracilis</i> , <i>A. iringa</i>
	Lukumburu	9°40'02"S	35°16'54"E	1299	<i>Acrapex lukumbura</i>
	Ibumba	9°10'41"S	33°43'41"E	1491	<i>Acrapex rungwe</i>
	Rungwe forest	9°07'16"S	33°42'44"E	1980	<i>Acrapex rungwe</i>
	Lilomwi	9°36'12"S	35°10'52"E	1555	<i>Acrapex lukumbura</i>

***Acrapex apicestriata* (Bethune-Baker, 1911)**
(Figures 1c–e, 2b, 5a)

Ethiopia apicestriata Bethune-Baker, 1911b: 512.

Acrapex apicestriata (Bethune-Baker, 1911); Poole 1989: 19.

Type material. Holotype: ♂, W. Africa, Gunnal, November, Agrotidae genitalia slide 2274, G.T.B. Baker Coll., Brit. Mus. 1927–360 [BMNH].

Diagnosis. This species is similar to *A. zoutoi* in external appearance but can be distinguished from it and from all other species of the group by the male genitalia: juxta plate-like, elongated, with a slight narrowing in the middle; costa of the valves terminating with a very small pointed tip, the apex of the cucullus pointing downward like a flamingo head, the manica with two short lobed sclerotisation, slightly curved and the vesica without any ornamentation.

Redescription. Figure 1c–e. Antennae ochreous, filiform, slightly ciliate; flagellum ochreous, palpus fuscous, eyes black. Head and base of thorax fuscous, thorax ochreous-buff. Forewings: ground-colour dark ochreous, strongly irrorated with dark-brown scales in the costal and median areas, diffusely edged on the lower side; some white scales suffused along the costal area; median area extended on distal side to termen, ending obliquely with a buff area, bordered with few diffused dark-brown elongated spots between the veins; one distal transverse and concave line of dark-brown scales; reniform indicated by few white scales, surrounded by some dark-brown scales; some white scales surrounding dark-brown scales at the lower proximal margin of the cell; outer margin adorned with dark-brown spots between the veins; fringe ochreous grey strongly suffused with fuscous. Hind wings: uniformly brown; fringe grey strongly

suffused with fuscous. Underside of the forewings with ground colour light ochreous strongly suffused with brown scales, more heavily on the median area, almost no brown scales in the area close to the posterior margin. Underside of hind wings light ochreous, uniformly suffused with brown scales.

Wingspan 20 mm (male) ($n = 1$)

Male genitalia (Figures 2b, 5a). Uncus narrow and long tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a small saccus, U-shaped at the bottom margin; valves short and broad at basal half, slightly sclerotised except on the costa terminating with a very small pointed tip, broadly rounded along inner margin at base, roundly constricted at middle along the inner margin, extended with a broad cucullus making a 15° angle with the costa, the apex pointing downward like a flamingo head, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate-like, elongated, with a slight narrowing in the middle; aedeagus slightly elongated and curved, manica with two short lobed sclerotisation, slightly curved, vesica without cornutus or tongue-shaped protuberance.

Bionomics. Biology unknown.

Distribution. West Africa, maybe Guinea (Table 1). One record only is from a mosaic of lowland rain forest and secondary grassland (mosaic #11a) vegetation mosaic (White 1983) (Figure 3), belonging to the Sudanian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although similar to *Acrapex zoutoi* in external appearance, *A. apicestriata* is easily distinguished by genitalia characters given in the diagnosis.

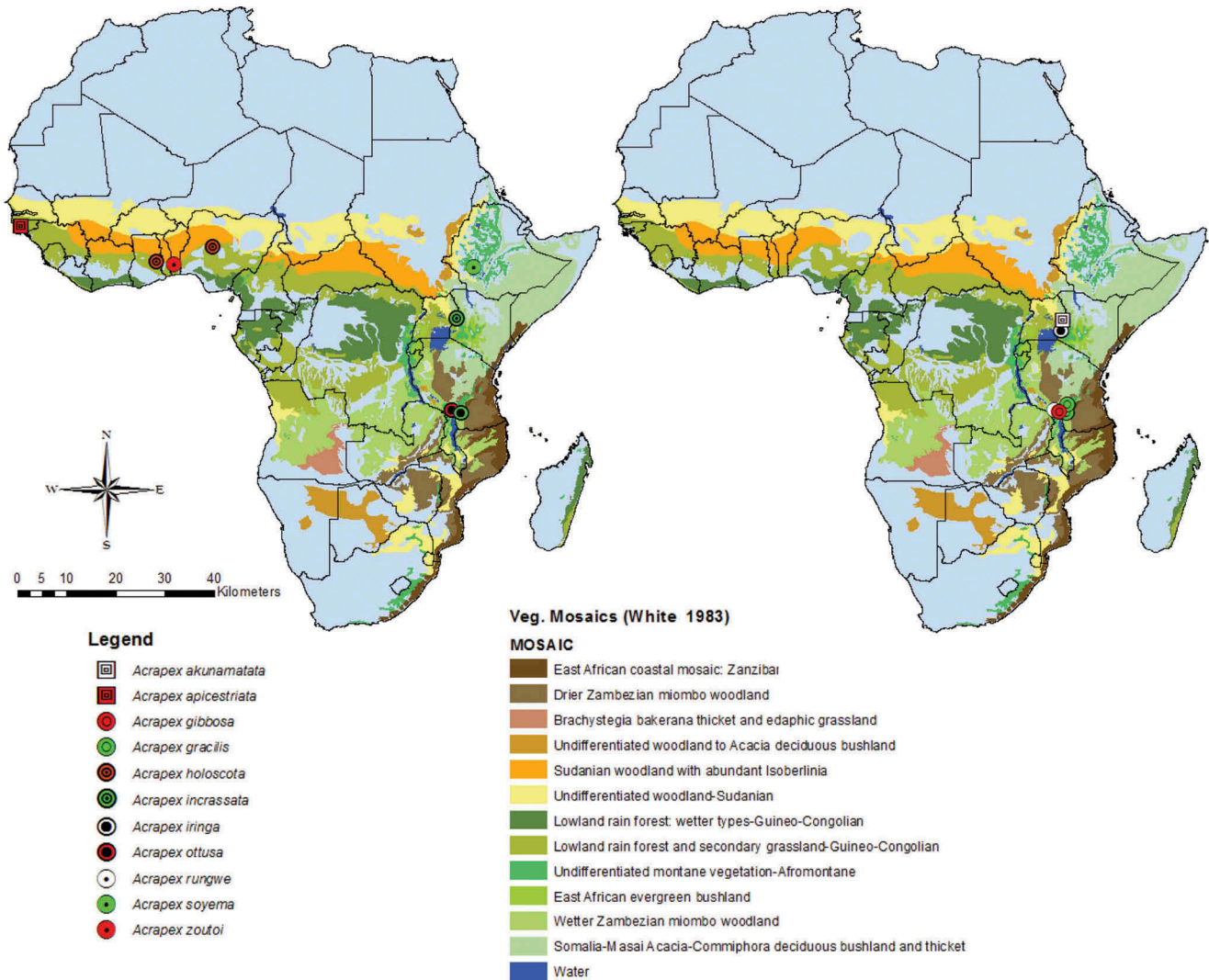


Figure 3. Distribution map of sampled *Acrapex* specimens.

***Acrapex gibbosa* Berio, 1973**
(Figures 1f–h, 2c, 5b)

Acrapex gibbosa Berio, 1973: 154; Poole 1989: 20; (catalogue).

Type material. Holotype: ♂, Tanzania, Iringa region, Njombe Kipengere Range, Ikonda, 09°S 34°E, 2050 m asl, 15.III.1971, ex light trap, E. Berio genitalia preparation no. 5072 [MCSN].

Paratypes: 4 ♂, Tanzania, same locality and date as holotype, ex light, E. Berio genitalia preparation no. 9576, no. 9580, no. 9596, no. 9577 [MCSN].

Other material. 18 ♂, Tanzania, same locality and date as holotype, ex light, E. Berio genitalia preparation no. 9608 [MCSN].

Diagnosis. This species is close to *Acrapex ottusa* in external appearance but the male genitalia present good

characters to separate it; the valves are shorter and broader in *A. gibbosa*; the costa terminate with a very small pointed tip in *A. gibbosa*, not recorded in *A. ottusa*; the juxta is longer and narrower in *A. gibbosa* compared to *A. ottusa*; the aedeagus is longer and thinner in *A. gibbosa*.

Redescription. Figures 1f–h. Antennae ochreous, filiform, slightly ciliate; flagellum ochreous, palpus fuscous, eyes fuscous. Head and base of thorax dark ochreous, thorax becoming gradually ochreous-buff; legs ochreous, tarsi ringed with white; abdomen ochreous. Forewings: ground-colour dark ochreous, strongly irrorated with dark-brown scales in the costal area, diffusely edged on the lower side and extended beyond the upper median with the veins of the ground colour suffused with brown scales; no transverse lines; the cell along the lower margin is adorned externally with some

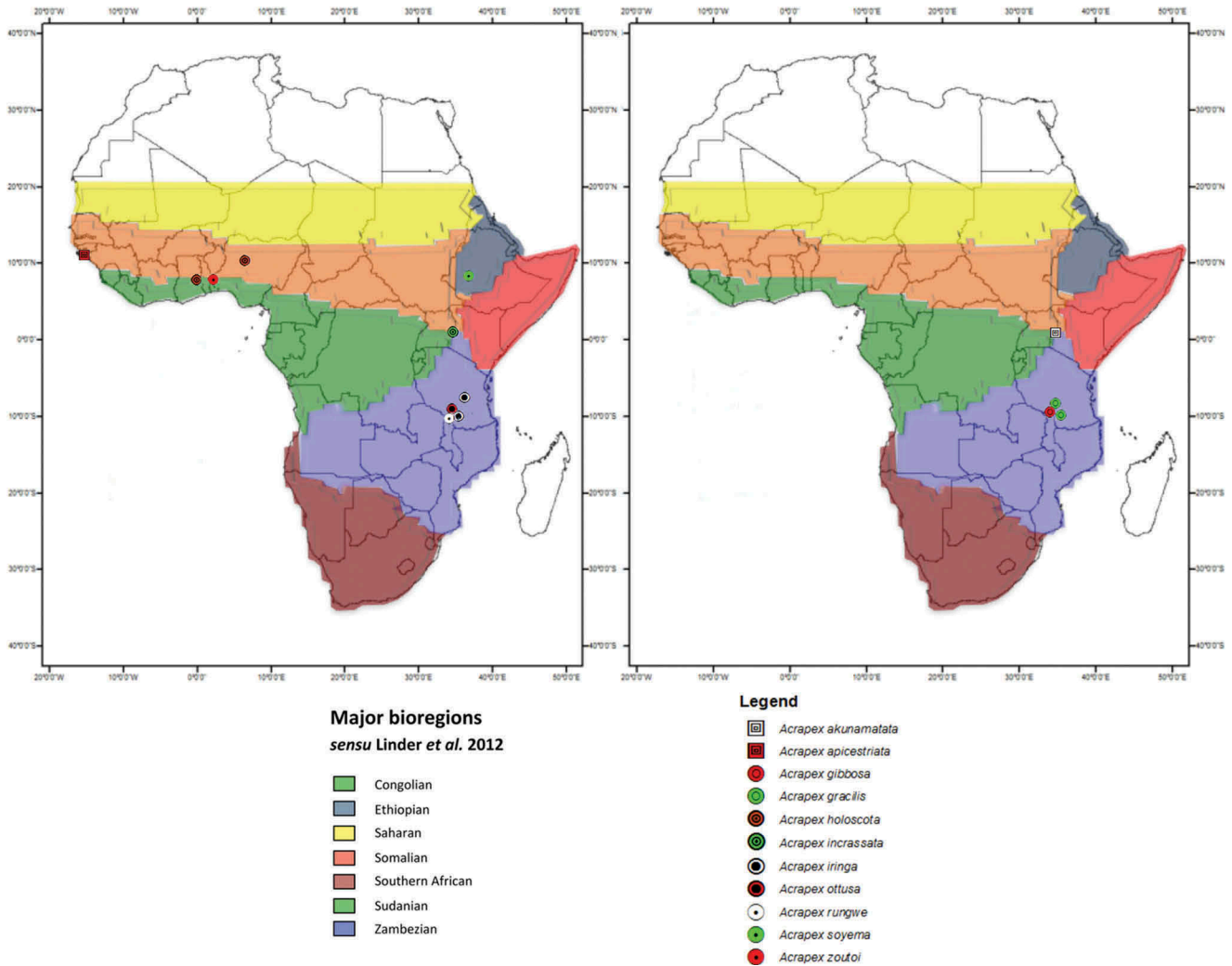


Figure 4. Major bioregions from Linder et al. (2012), with location of collected specimens of *Acrapex*.

dark-brown markings, variable in extent and intensity; a longitudinal fascia from base along lower margin of the cell ending obliquely to apex, bordered by an external area strongly suffused with dark-brown scales; reniform indicated by few white scales, surrounded by some dark-brown scales; outer margin adorned with dark-brown spots between the veins; fringe ochreous grey strongly suffused with fuscous. Hind wings: uniformly brown; fringe ochreous grey suffused with brown. Underside of the forewings with ground colour light ochreous-buff strongly suffused with brown scales, almost no brown scales in the area close to the posterior margin. Underside of hind wings light ochreous, uniformly suffused with brown scales.

Wingspan 22–25 mm (males) ($n = 10$) (22–22–23–24–24–24–24–25–25–25).

Male genitalia (Figures 2c, 5b). Uncus narrow and long tapering to a very fine and long point, tufted with long hair on

upper side; base of tegumen with peniculi; valves short and broad at basal half, slightly sclerotised except on the costa terminating with a very small pointed tip, broadly rounded along inner margin at base, roundly constricted at middle along the inner margin and elbow shaped along the external margin, extended with a broad cucullus making a 90° angle with the costa, the apex triangle shaped, more than two times wider than the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate-like with a long narrowing neck, shortly bifid; aedeagus slightly elongated and curved, manica with two-lobed sclerotisation, flattened, vesica without spine or tongue-shaped tuft.

Bionomics. Biology unknown.

Distribution. Tanzania (Table 1). All specimens recorded from one locality only from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezi bioregion (Linder et al. 2012) (Figure 4).

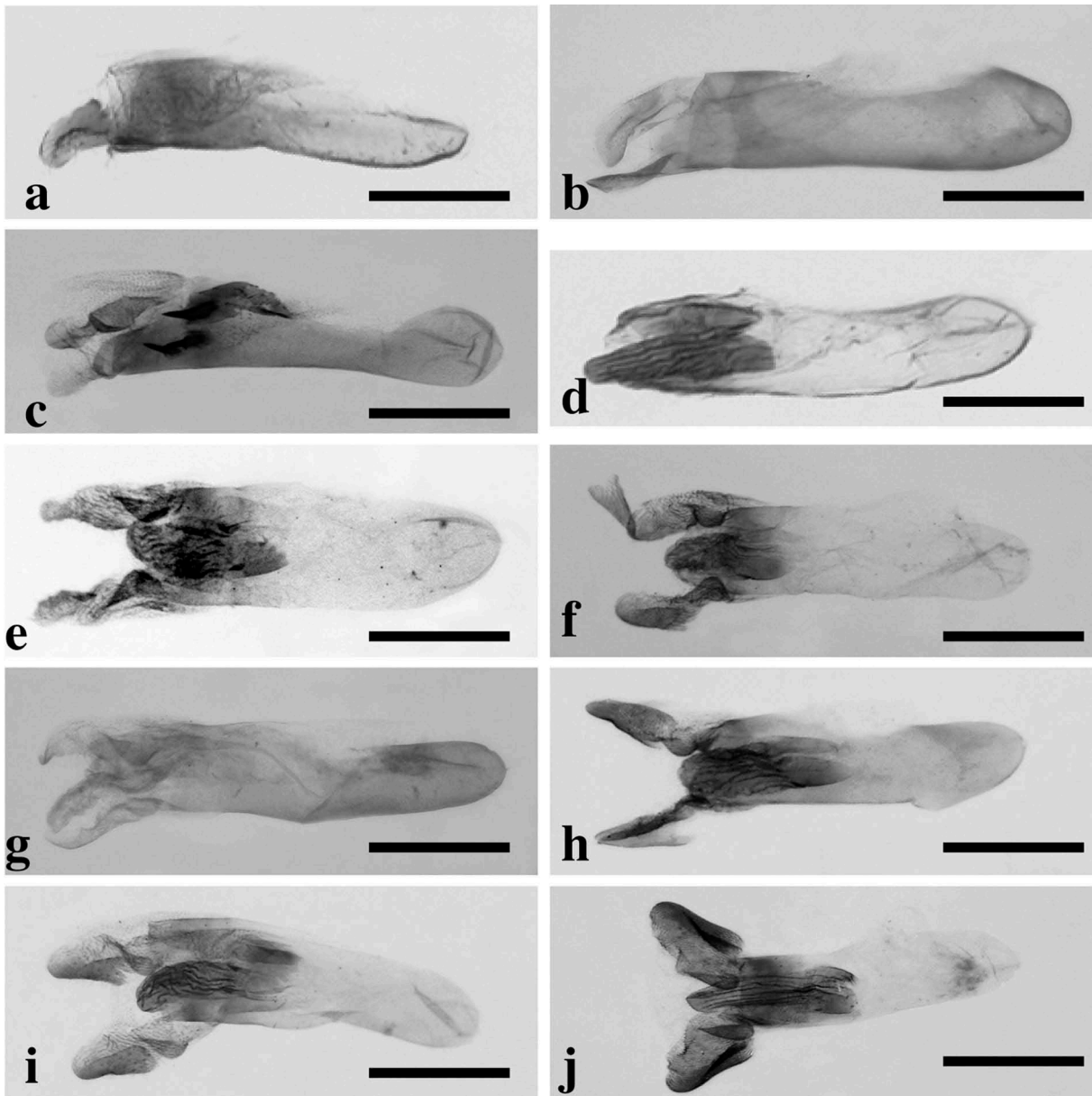


Figure 5. *Acrapex* spp., aedeagus. **a**, *A. apicestriata* (Bethune-Baker), holotype. **b**, *A. gibbosa* Berio, holotype. **c**, *A. gracilis* n. sp., holotype **d**, *A. holoscota* (Hampson), lectotype. **e**, *A. iringa* n. sp., holotype. **f**, *A. lukumbura* n. sp., holotype. **g**, *A. ottusa* Berio, holotype. **h**, *A. rungwe* n. sp., holotype. **i**, *A. soyema* n. sp., holotype. **j**, *A. zoutoi* n. sp., holotype. Scale bars = 0.5 mm.

Remarks. Given the sympatry and the very similar external appearance of this species with *Acrapex ottusa*, only the characters of the genitalia allow them to be distinguished.

***Acrapex gracilis* Le Ru, n. sp.**
(Figures 2d, 5c, 6a–d, 7a)

Type material. Holotype: ♂, Tanzania, Iringa region, Sao Hill, 08°27'25"S 35°10'02"E, 1845 m asl, XI.2015, ex

light trap [gen. prep. LERU Bruno/G934] (B. Le Ru leg.) [MNHN].

Paratypes: 1 ♀, Tanzania, same locality and date as holotype, ex light trap [gen. prep. LERU Bruno/G933] (B. Le Ru leg.) [MNHN]; 10 ♂, Tanzania, same locality and date as holotype, ex light trap, (B. Le Ru leg.) [MNHN]; 3 ♂, Tanzania, same locality and date as holotype, ex light, (B. Le Ru leg.) [NMK]; 5 ♂, Tanzania, Iringa region, Njombe, Iboya, 09°25'32"S 35°03'41"E, 1664 m asl, IV.2014, ex light trap [1 ♂ gen. prep. LERU Bruno/G658] (B. Le Ru leg.) [MNHN].

Diagnosis. This species is close to *Acrapex incrassata* in external appearance but can be distinguished from it by the distribution, darker ground colour of the hind wings of males, and darker ground colour of the forewings in female. The male genitalia present very good characteristics to differentiate them: valves shorter and much broader at basal half in *A. gracilis*; costa extended with a smaller cucullus making a 90° angle with the costal area terminating with a typical bird head form; the juxta longer and broader.

Description. The general shape of the female's forewings is more elongated at the apex than that of the male (Figure 6a–d). Antennae ochreous, filiform, slightly ciliate in male; flagellum fuscous, palpus fuscous, eyes fuscous. Head and base of thorax ochreous, legs ochreous suffused with brown scales, tarsi ringed with white; abdomen ochreous suffused with brown scales. Forewings: ground-colour ochreous, uniformly irrorated with dark-ochreous scales and strongly suffused with brown scales in the costal area; veins of the median area adorned with dark brown scales; a postmedial row of dark brown elongated spots on the veins; a curved subterminal line strongly suffused with dark ochreous scales

and adorned with dark brown spots; reniform barely visible; outer margin brown with dark-brown spots between veins; fringe ochreous grey strongly suffused with fuscous. Hind wings: white strongly suffused with brown scales particularly in the costal and anal areas; fringe white suffused with fuscous. Underside of the forewings with ground colour light ochreous suffused with brown and fuscous scales, more strongly on the costa. Underside of hind wings white, suffused with fuscous scales, more strongly on the costa.

Wingspan 13–19 mm (males) ($n = 16$); 21 mm (female) ($n = 1$). Males (13–14–15–15–16–16–17–17–17–17–17–17–18–18–19); female (21).

Male genitalia (Figures 2d, 5c). Uncus narrow and long, tapering to truncate apex, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a medium size saccus, V-shaped at the bottom margin; valves short and broad at basal half, slightly sclerotised except on the costa, broadly rounded along inner margin at base, roundly constricted at middle along the inner margin and gently rounding downward along the external margin, extended with a small cucullus making a 90°

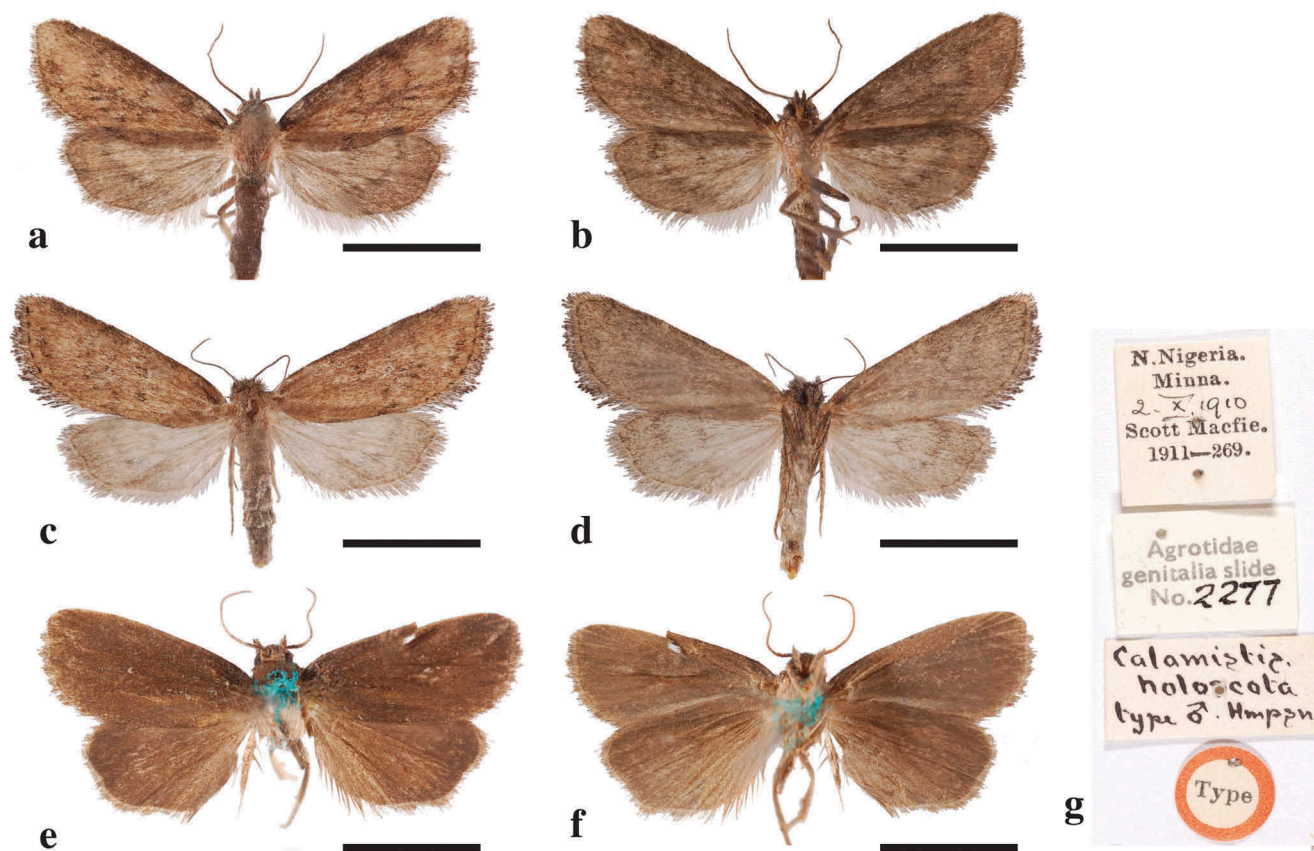


Figure 6. *Acrapex* spp., adults. a–d, *A. gracilis* n. sp.: a, ♂ holotype, upper side; b, ♂ holotype, underside; c, ♀ paratype, upper side; d, ♀ paratype, underside. e–g, *A. holoscota* (Hampson), ♂: e, upper side; f, underside; g, original labels from BMNH. Scale bars = 6 mm.

angle with the costal area, terminating with a bird head form, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate-like with a long narrowing neck, longly bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation with constriction in the middle, vesica with two strong cornuti close to the tip.

Female genitalia (Figure 7a). Corpus bursae elongated ovoid with two signa; ductus bursae short not sclerotised on bursa side, sclerotised on the ostium side. Ventral plate of ostium bursae wide band-like, slightly sclerotised and leaning on the back; apophyses anteriores long and slender, posteriores long with spatulate tips; ovipositor lobes short and wide (two times longer than wide) with dorsal surface bearing numerous short and stout setae.

Etymology. Named after the gracile appearance and small size of the adult moths.

Bionomics. Biology unknown. The moths were caught with a light trap in grasslands surrounding banks of marshes and wetlands inhabited with various Poales species belonging to the following genera: *Cymbopogon* Spreng., *Cyperus* L., *Hyparrhenia* Andersson ex E. Fourn. and *Sporobolus* R. Brown.

Distribution. Tanzania (Table 1). The two recorded localities are from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *A. incrassata*, *A. gracilis* is easily distinguished by both distribution and characters listed in the diagnosis. In addition, the ductus bursae of *A. gracilis* is not bulb-like on the ostium side, like in *A. incrassata*.

***Acrapex holoscota* (Hampson, 1914)
(Figures 2e, 5d, 6e–g)**

Busseola holoscota Hampson, 1914: 162.

Acrapex holoscota (Hampson, 1914); Poole 1989: 20.

Type material. Lectotype: ♂, Nigeria, N. Nigeria, Minna, 2.X.1910, Agrotidae genitalia slide 2277, Scott Macfie, 1911–269 [BMNH].

Paralectotype: 1 ♂, Nigeria, same locality and date as lectotype, ex light trap, Scott Macfie [BMNH].

Other material. 1 ♂, Ghana, Gold Coast, North territories, Kete-Krachi, 1924, A.W. Cardinall [BMNH].

Diagnosis. This species can be distinguished from other species by the dark brown and homogeneous ground colour of both forewings and hind wings. The male genitalia present also very good characteristics to differentiate it: valves short and broad at basal half, gently rounding downward along the external margin, extended with a broad cucullus making a 90° angle with the costal area, the apex triangle shaped, 1.7 times wider than the constriction; juxta short, narrowed in the middle, shortly bifid; manica with a two-lobed sclerotisation short

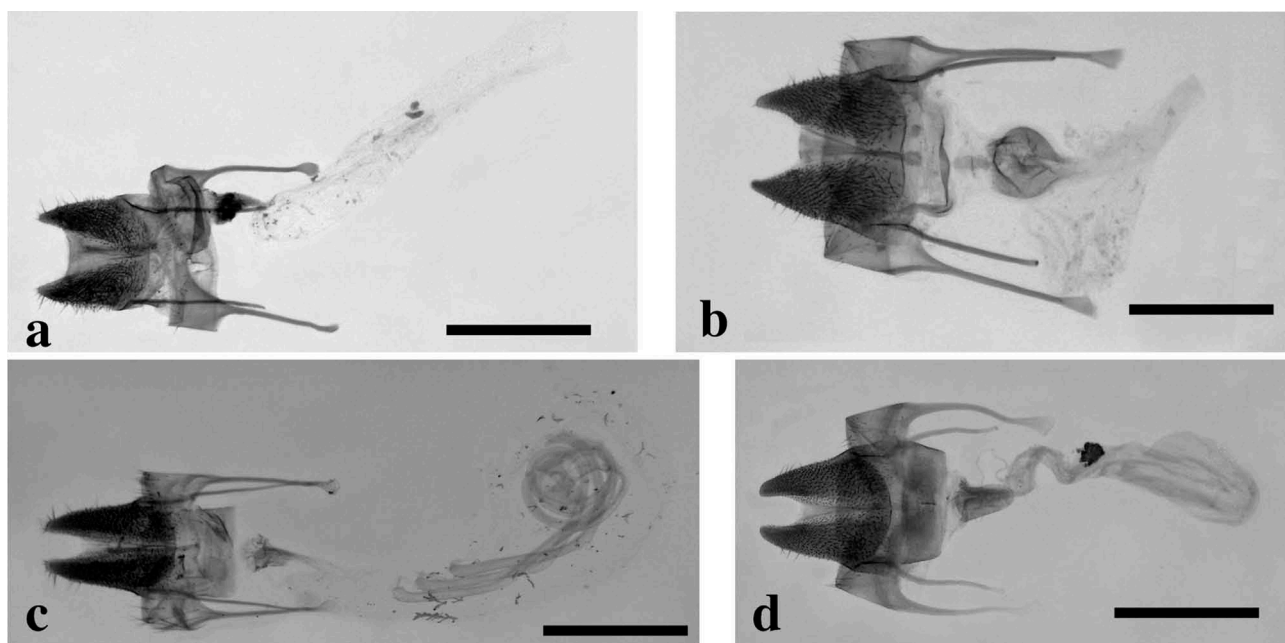


Figure 7. *Acrapex* spp., paratypes, ♀ genitalia. a, *A. gracilis* n. sp. b, *A. incrassata* n. sp. c, *A. lukumbura* n. sp. d, *A. zoutoi* n. sp. Scale bars = 1 mm.

and flat, vesica with a ventral tongue-shaped protuberance longer than the two-lobed sclerotisation.

Redescription. Figure 6e–g. Antennae ochreous, filiform, slightly ciliate; flagellum ochreous, palpus ochreous, eyes fuscous. Head and base of thorax dark brown, thorax becoming gradually buff; legs ochreous, tarsi ringed with white. Forewings: ground-colour ochreous, uniformly irrorated with dark-brown scales, suffused with few white scales on the costa at the base; no transverse lines; some ochreous scales along the lower margin of the cell and obliquely to the apex; reniform indicated by few white scales; fringe white strongly suffused with brown. Hind wings: dark brown, a little brighter in the anal area; fringe white strongly suffused with brown. Underside of the forewings with ground colour ochreous strongly suffused with brown scales, almost no brown scales in the area close to the posterior margin. Underside of hind wings light ochreous, strongly suffused with brown scales in the costal area.

Wingspan 21–22 mm (males) ($n = 3$)

Male genitalia (Figures 2e, 5d). Uncus narrow and long, tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a medium size saccus, U-shaped at the bottom margin; valves short and broad at basal half, slightly sclerotised except on the costa, broadly rounded along inner margin at base, roundly constricted at middle along the inner margin and gently rounding downward along the external margin, extended with a broad cucullus making a 90° angle with the costal area, the apex triangle shaped, 1.7 times wider than the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate-like with a short neck, narrowed in the middle, shortly bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation relatively short and flat, vesica with a ventral tongue-shaped protuberance longer than two-lobed sclerotisation, adorned with longitudinal villi like close to the tip.

Bionomics. Biology unknown.

Distribution. Nigeria and Ghana (Table 1). Recorded from two localities only from lowland rainforest and secondary grassland (mosaic #11) (White 1983) (Figure 3), belonging to the Sudanian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *Acrapex apicestriata* and *A. lukumbura* in external appearance, this species is easily distinguished by genitalia characters given in the diagnosis.

***Acrapex incrassata* Le Ru, n. sp.**
(Figures 2f, 7b, 8a–d)

Type material. Holotype: ♂, Kenya, Western region, Suam, 01°11'44"N 34°49'06"E, 2160 m asl, V.2007, ex larvae in *Setaria incrassata* (Hochst.) Hack. [gen. prep. LERU Bruno/G363] (B. Le Ru leg.) [MNHN].

Paratypes: 2 ♀, 1 ♂, Kenya, same locality as holotype, V.2011, ex larvae in *S. incrassata* [female gen. prep. LERU Bruno/G62] (B. Le Ru leg.) [MNHN]; 2 ♀, Kenya, same locality as holotype, VI.2005, ex larvae in *S. incrassata* (B. Le Ru leg.) [MNHN]; 1 ♀, Kenya, same locality as holotype, V.2012, ex larvae in *S. incrassata* (B. Le Ru leg.) [NMK].

Diagnosis. This species is close to *Acrapex gracilis* in external appearance but can be distinguished from it by the distribution, brighter ground colour of the hind wings of males, and brighter ground colour of the forewings in females. The male genitalia present very good characteristics to differentiate them: valves longer and narrower at basal half in *A. incrassata*; costa extended with a cucullus making an angle less than 90° with the costa without constriction between the valves and the cucullus; the juxta shorter.

Description. The general shape of the female's forewings is more elongated at the apex than that of the male (Figure 8a–d). Antennae ochreous, filiform, slightly ciliate in male; flagellum fuscous, palpus fuscous, eyes bright brown.

Male. Head and base of thorax black, becoming gradually ochreous; legs and abdomen fuscous suffused with white scales, tarsi ochreous. Forewings: ground-colour ochreous, strongly suffused with fuscous and dark brown scales in the costal area; all the veins adorned with fuscous and dark brown scales; the cell along the lower margin is adorned with some fuscous scales; a subterminal line strongly suffused with dark brown scales; reniform indicated by few white scales, surrounded by some fuscous and dark-brown scales; outer margin adorned with dark-brown spots between the veins; fringe fuscous. Hind wings: white, slightly suffused with fuscous scales particularly on the veins; fringe white, slightly suffused with fuscous. Underside of the forewings with ground colour buff strongly suffused with fuscous scales in the median area and whitish scales in the costal and termen areas, almost no fuscous scales in the area close to the posterior margin; Underside of hind wings white, suffused with fuscous scales, more heavily on the costal area; veins slightly irrorated with fuscous scales, fringe white adorned with a narrow fuscous line at the base.

Female. Head and base of thorax black, becoming gradually buff; legs and abdomen fuscous suffused with

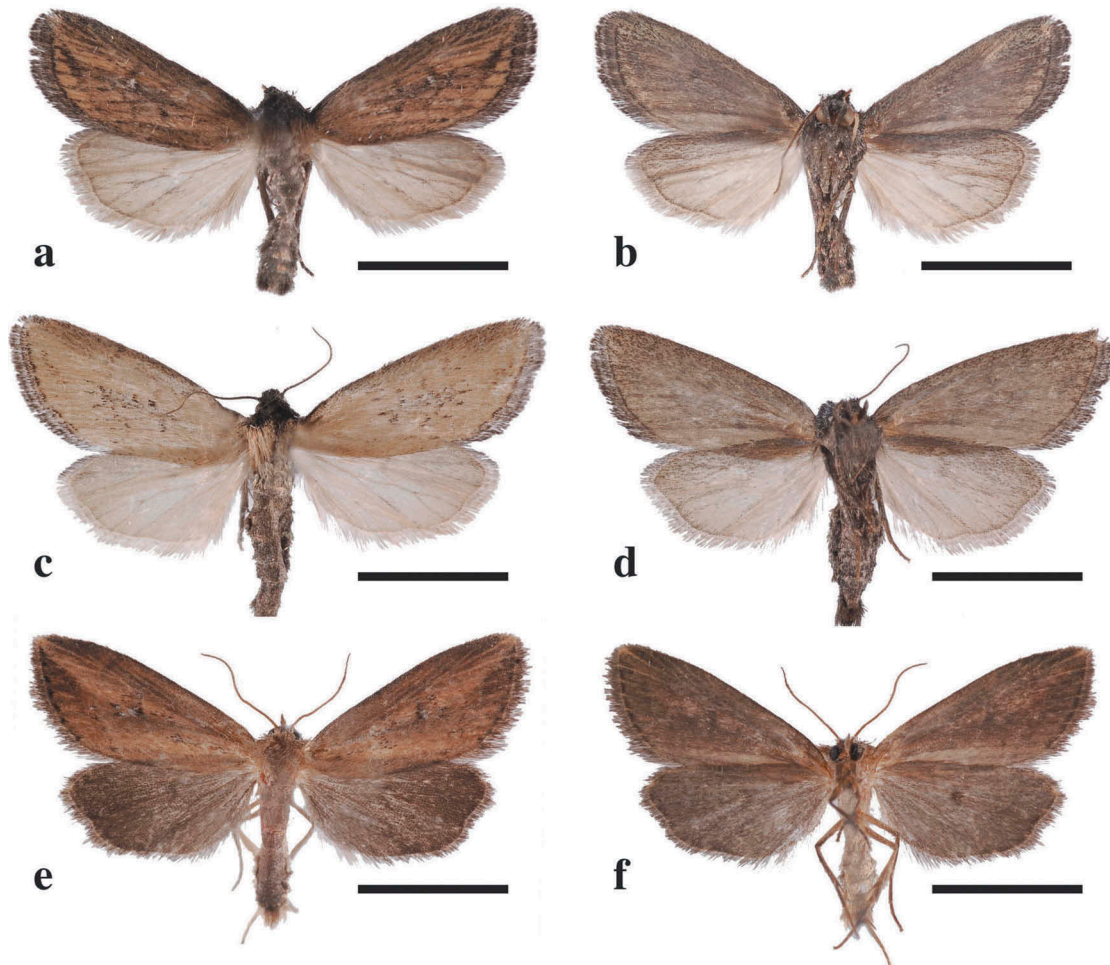


Figure 8. *Acrapex* spp., adults. **a–d.** *A. incrassate* **n. sp.**: **a,** ♂ holotype, upper side; **b,** ♂ holotype, underside; **c,** ♀ paratype, upper side; **d,** ♀ paratype, underside. **e, f,** *A. iringa* **n. sp.**, ♂ holotype: **e,** upper side; **f,** underside. Scale bars = 6 mm.

white scales, tarsi ochreous. Forewings: ground-colour buff suffused with ochreous and black scales in the costal area, fuscous and black scales in the medium area; the lower margin of the cell is externally adorned with some fuscous and white scales; reniform indicated by few white scales, surrounded by some fuscous and dark-brown scales; the terminal line with a row of black spots between the veins; fringe fuscous. Hind wings: similar to that of the male but less suffusion of scales; fringe white slightly suffused with fuscous. Underside of the forewings and hind wings similar to that of the male.

Wingspan 17–18 mm (males) ($n = 2$); 20–28 mm (females) ($n = 6$). Males (18–18); females (20–21–21–23–23–28).

Male genitalia (Figure 2f). Uncus narrow and long, tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a medium size saccus, strongly V-shaped at the

bottom margin; valves short and narrow at basal half, slightly sclerotised except on the costa, moderately rounded along inner margin at base, and gently rounding downward along the external margin, extended with a broad cucullus making an angle less than 90° with the costa; almost no constriction between the valves and the cucullus, apex of the cucullus broadly rounded, the same width as the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate-like, almost rectangular; unfortunately we did not manage to preserve the aedeagus.

Female genitalia (Figure 7b). Corpus bursae elongated ovoid without signa; ductus bursae short, not sclerotised on bursa side, sclerotised and bulb-like on the ostium side. Antrum narrow band-like, slightly sclerotised and leaning on the back; apophyses anteriores long and slender, posteriores long with spatulate tips; ovipositor lobes relatively short and wide (1.7 times longer than wide)

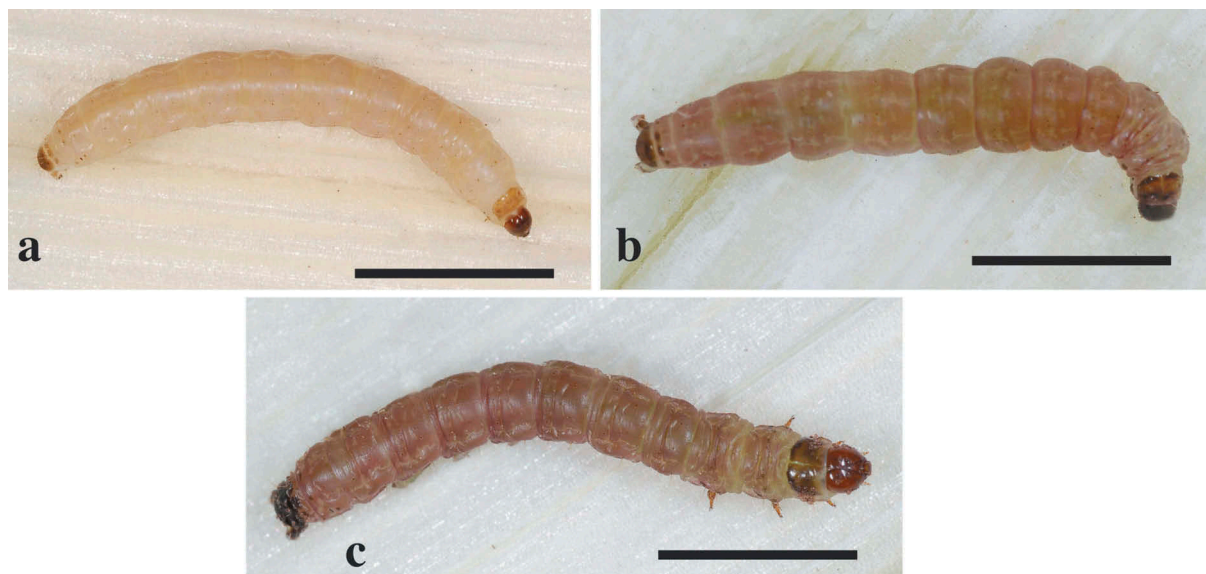


Figure 9. *Acrapex* spp., last instar larvae. **a.** *A. incrassata* **n. sp.** **b.** *A. rungwe* **n. sp.** **c.** *A. zoutoi* **n. sp.** Scale bar = 10 mm.

with dorsal surface bearing numerous short and stout setae, the ventral side of each lobe curved and tooth-shaped.

Larvae L₅ instar (Figure 9a). Length 20–25 mm, width 2.5 mm; head smooth, orange brown, prothoracic shield yellow buff; body with ground colour buff suffused with pink, pinacula and caudal plate bright brown. Young larvae are very similar to mature ones.

Etymology. Named after the host-plant *Setaria incrassata* in Uganda.

Bionomics. Larvae were collected on young stems and shoots of *Setaria incrassata* growing on the banks of a stream; like most *Acrapex* species, *A. incrassata* is a markedly hygrophilous species.

Distribution. Kenya (Table 1). One locality only is recorded from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *Acrapex gracilis*, *A. incrassata* is easily distinguished by both distribution and characters listed in the diagnosis. In addition, the ductus bursae strongly bulb-like on the ostium side in *A. incrassata* is not recorded in *A. gracilis*.

***Acrapex iringa* Le Ru, n. sp.**
(Figures 2g, 5e, 8e–f)

Type material. Holotype: ♂, Tanzania, Iringa region, Sao Hill, 08°27'25"S 35°10'02"E, 1845 m asl, XI.2015, ex

light trap [gen. prep. LERU Bruno/G651] (B. Le Ru leg.) [MNHN].

Paratypes: 4 ♂, Tanzania, same locality and date as holotype, ex light trap [gen. prep. LERU Bruno/G936] (B. Le Ru leg.) [MNHN]; 2 ♂, Tanzania, same locality and date as holotype, ex light trap, (B. Le Ru leg.) [NMK]; 1 ♂, Tanzania, Iringa region, Njombe, Iboya, 09°25'32"S 35°03'41"E, 1664 m asl, IV.2014, ex light trap [gen. prep. LERU Bruno/G673] (B. Le Ru leg.) [MNHN]; 1 ♂, Kenya, Br. E. Africa, N. Kavirondo, Maramas District, Ilala, 1372 m, VI.1911, S.A. Neave coll., Noctuidae genitalia slide 2487, Brit. Mus. 1912–1992 [BMNH].

Diagnosis. This species is close to *Acrapex rungwe* and *A. soyema* in external appearance but can be distinguished from them by the male genitalia: valves curved and not rounded at basal half in *A. iringa*; external margin of the costa less markedly elbow shaped that in *A. rungwe* and *A. soyema*; cucullus smaller in *A. iringa*; juxta shorter and narrower in *A. iringa*.

Description. Figure 8e–f. Antennae ochreous, filiform, slightly ciliate; flagellum and palpus ochreous, eyes black. Head and base of thorax ochreous, legs ochreous with some brown scales; abdomen ochreous dorsally suffused with brown scales. Forewings: ground-colour ochreous, strongly irrorated with dark-brown scales in the costal area, diffusely edged on the lower side; the cell along the lower margin is adorned externally with some white and black scales; a longitudinal fascia from base along lower margin of the cell ending obliquely to apex, bordered by an

external area strongly suffused with dark-brown scales; some black markings in the middle of the cell, reniform indicated by few white scales, surrounded by some dark-brown scales; a subterminal curved line, barely visible, with a row of dark brown spots; outer margin adorned with dark-brown spots between the veins; fringe brown suffused with white. Hind wings: dark brown, a little brighter in the anal area; fringe white, strongly suffused with brown. Underside of the forewings with ground colour ochreous, strongly suffused with brown scales, almost no brown scales in the area close to the posterior margin. Underside of hind wings fuscous, a little brighter in the anal area.

Wingspan 16–21 mm (males) ($n = 9$). Males (16–16–17–17–17–18–18–19–21).

Male genitalia (Figures 2g, 5e). Uncus narrow and long, tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a medium sized saccus, V-shaped at the bottom margin; valves short and broad at basal half, slightly sclerotised except on the costa, curved along inner margin at base, roundly constricted at middle along the inner margin, rounding downward along the external margin, extended with a broad cucullus making a 90° angle with the costa, the apex triangle shaped, 1.3× wider than the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate-like with a short neck, shortly bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation, vesica with a tongue-shaped protuberance as long as the two-lobbed sclerotisation, adorned with longitudinal villi like, close to the tip.

Etymology. After the name of Iringa in Central Tanzania.

Bionomics. Biology unknown. The moths were caught with a light trap in grasslands surrounding banks of marshes and wetlands inhabited with various Poales species belonging to the following genera: *Cymbopogon*, *Cyperus*, *Hyparrhenia* and *Sporobolus*.

Distribution. Tanzania and Kenya (Table 1). The three recorded localities are from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *Acrapex rungwe* and *A. soyema* in external appearance, *A. iringa* is easily distinguished by both distribution (*A. soyema* is recorded from Ethiopia) and characters of the genitalia listed in the diagnosis. In addition, *A. soyema* is recorded from much dryer and hot vegetation mosaic than the two other species.

***Acrapex lukumbura* Le Ru, n. sp.**
(Figures 2h, 5f, 7c, 10a–d)

Type material. Holotype: ♂, Tanzania, Iringa region, Njombe, Lukumburu, 09°40'02"S 35°16'54"E, 1299 m asl, IV.2015, ex light trap [gen. prep. LERU Bruno/G796] (B. Le Ru leg.) [MNHN].

Paratypes: 2 ♀, Tanzania, same locality and date as holotype, ex light trap [gen. prep. LERU Bruno/G800] (B. Le Ru leg.) [MNHN]; 1 ♀, Tanzania, Iringa region, Njombe, Lilomwi, 09°36'12"S 35°10'52"E, 1555 m asl, IV.2015, ex light (B. Le Ru leg.) [MNHN].

Diagnosis. This species is similar to *Acrapex ottusa* and *A. rungwe* in external appearance but can be distinguished from them by the darker ground colour of the wings. In addition, the male genitalia present good characters to separate it from *A. ottusa* and *A. rungwe* and other species of the group: valves short and broad at basal half, broadly rounded at base ending with a small deflection extended with a sclerotised groove-like, external margin elbow shaped, extended with a broad cucullus the apex triangle shaped; the juxta short and wide, shortly bifid; manica with a two-lobed sclerotisation rounded at tip, vesica with a tongue-shaped protuberance as long as the two-lobed sclerotisation.

Description. Figure 10a–d. The general shape of the female's forewings is more elongated at the apex than that of the male.

Male. Antennae fuscous, filiform, slightly ciliate; flagellum and palpus ochreous, eyes brown. Head and base of thorax fuscous brown, becoming gradually ochreous-buff, legs ochreous with some brown scales; abdomen fuscous, dorsally suffused with brown scales, ochreous ventrally. Forewings: ground-colour dark ochreous, strongly suffused with dark-brown scales in the costal and median areas, some fuscous scales; the cell along the lower margin is adorned externally with some dark-brown scales; a longitudinal fascia from base along lower margin of the cell ending obliquely to apex, bordered by an external area strongly suffused with dark-brown scales; reniform indicated by few white scales, surrounded by some dark-brown scales extending to the base with a diffuse row of white and dark-brown scales; a subterminal curved line, barely visible, with a row of dark brown spots; outer margin adorned with dark-brown spots between the veins; fringe brown suffused with white. Hind wings: uniformly dark brown; fringe white strongly suffused with brown at the base. Underside of the forewings with ground colour dark-fuscous suffused with brown scales, a discal spot, some white scales on the costal area, the area close to the posterior margin brighter. Underside of hind wings dark-fuscous suffused with brown scales, a little bit brighter in the anal area, a discal spot.

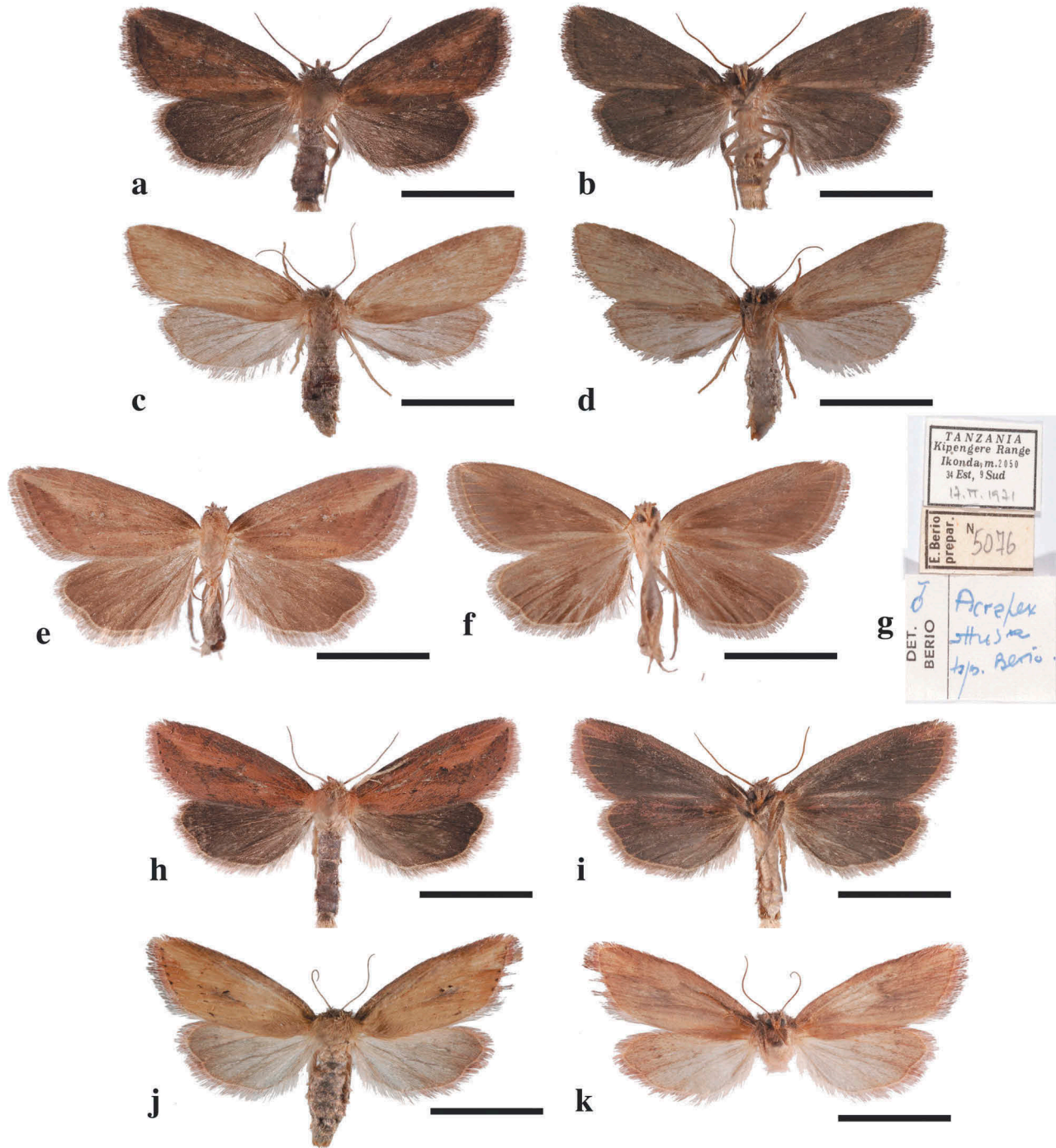


Figure 10. *Acrapex* spp., adults. **a–d**, *A. lukumbura* n. sp.: **a**, ♂ holotype, upper side; **b**, ♂ holotype, underside; **c**, ♀, upper side; **d**, ♀, underside. **e–g**, *A. ottusa* Berio, ♂ holotype: **e**, upper side; **f**, underside; **g**, original labels from Milan Museum. **h–k**, *A. rungwe* n. sp.: **h**, ♂ holotype, upper side; **i**, ♂ holotype, underside; **j**, ♀ paratype, upper side; **k**, ♀ paratype, underside. Scale bars = 6 mm.

Female. Antennae ochreous, filiform; flagellum and palpus ochreous, eyes brown. Head and base of thorax dark ochreous, becoming gradually ochreous-buff, legs ochreous with some brown scales; abdomen fuscous, dorsally suffused with brown scales, ochreous ventrally.

Forewings: ground-colour buff, suffused with ochreous scales in the costal area and close to the termen, some ochreous scales close to the reniform. Hind wings: ground colour buff, suffused with fuscous scales, more heavily on the veins; fringe white suffused with

fuscous. Underside of the forewings with ground colour buff, suffused with ochreous and fuscous scales, more heavily in the costal area and on the veins, a small diffuse discal spot brown. Underside of hind wings white heavily suffused with ochreous and fuscous scales on the costal area and on the veins, less suffused in the anal area.

Wingspan 18 mm (male) ($n = 1$); 18–21 mm (females) ($n = 3$). Male (18); females (18–19–21).

Male genitalia (Figures 2h, 5f). Uncus narrow and long, tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi adorned with many long posterior bristly hairs; vinculum with a large saccus, V-shaped at the bottom margin; valves short and broad at basal half, slightly sclerotised except on the costa, broadly rounded at base ending with a small deflection extended with a sclerotised groove-like, roundly constricted at middle along the inner margin and elbow shaped along the external margin, extended with a broad cucullus making a 90° angle with the costal area, the apex triangle shaped, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate like, rounded at the base, with a medium wide neck, shortly bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation rounded at tip, vesica with a tongue-shaped protuberance as long as the two-lobed sclerotisation, adorned with longitudinal villi like, close to the tip.

Female genitalia (Figure 7c). Corpus bursae elongated ovoid without signum; ductus bursae short, not sclerotised on bursa side, sclerotised and widening on the ostium side. Antrum wide band-like, slightly sclerotised; apophyses anteriores long and slender, posteriores long with spatulate tips; ovipositor lobes relatively long and narrow (2.5 times longer than wide) with dorsal surface bearing numerous short and stout setae.

Etymology. Named after Lukumbura, a village close to Njombe in Tanzania.

Bionomics. Biology unknown. The moths were caught with a light trap in grasslands surrounding banks of marshes and wetlands inhabited with various Poales species belonging to the following genera: *Cymbopogon*, *Cyperus*, *Hyparrhenia* and *Sporobolus*.

Distribution. Tanzania (Table 1). The two recorded localities are from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *Acrapex ottusa* and *A. rungwe* in external appearance, *A. lukumbura* is distinguished by characters of the genitalia listed in the diagnosis; the most discriminant character is the inner

margin of the valves ending with a small deflection extended with a sclerotised groove-like; the ratio length of cucullus to length of valves is 0.8.

***Acrapex ottusa* Berio, 1973**
(Figures 2i, 5g, 10e–g)

Acrapex ottusa Berio, 1973: 152; Poole 1989: 20 (catalogue).

Type material. Holotype: ♂, Tanzania, Iringa region, Njombe Kipengere Range, Ikonda, 09°S 34°E, 2050 m asl, II.1971, ex light trap, E. Berio genitalia preparation no. 5076 [MCSN].

Diagnosis. This species is similar to *Acrapex lukumbura* and *A. rungwe* in external appearance but can be distinguished from them by the brighter ground colour of the wings. In addition, the male genitalia presents valuable characters to separate it from *A. lukumbura* and *A. rungwe* and other species of the group: valves elongated and narrow at basal half, inner margin at base curved then straight, roundly constricted at middle along the thickened inner margin and elbow shaped along the external margin, extended with a broad cucullus with an apex triangle shaped, two times wider than the constriction; the juxta short and wide, shortly bifid; manica with a two-lobed sclerotisation, flattened, vesica with a tongue-shaped protuberance as long as two-lobed sclerotisation.

Redescription. Figure 10e–g. Antennae ochreous, filiform, slightly ciliate; flagellum ochreous, palpus buff, eyes black. Head and base of thorax ochreous, thorax becoming gradually buff; legs ochreous; abdomen ochreous. Forewings: ground-colour ochreous, suffused with dark-ochreous and white scales in the costal area; the cell along the lower margin is adorned externally with some white and brown scales; a longitudinal fascia from base along lower margin of the cell ending obliquely to apex, bordered by an external area strongly suffused with dark-ochreous scales; reniform indicated by few white scales, surrounded by some brown scales; a subterminal curved line, barely visible, with a row of brown spots; outer margin adorned with dark-brown spots between the veins; fringe ochreous fuscous suffused with fuscous. Hind wings: uniformly brown; fringe fuscous suffused with grey. Underside of the forewings with ground colour ochreous, heavily suffused with brown scales in the medium area and fuscous scales in the termen area, the area close to the posterior margin buff. Underside of hind wings uniformly brown.

Wingspan 22 mm (male) ($n = 1$).

Male genitalia (Figures 2i, 5g). Uncus narrow and long, tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi;

vinculum with a large saccus, V-shaped at the bottom margin; valves elongated and narrow at basal half, slightly sclerotised except on the costa, inner margin at base curved then straight, roundly constricted at middle along the thickened inner margin and elbow shaped along the external margin, extended with a broad cucullus making a 90° angle with the costal area, the apex triangle shaped, two times wider than the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate like, rounded at the base, with a short wide neck, shortly bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation, flattened, vesica with a tongue-shaped protuberance as long as two-lobed sclerotisation, adorned with longitudinal villi like, close to the tip.

Bionomics. Biology unknown.

Distribution. Tanzania (Table 1). The only known specimen is from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *A. lukumbura* and *A. rungwe* in external appearance, *A. ottusa* is distinguished by characters of the genitalia listed in the diagnosis; the most discriminant character is the absence of the small deflection extended with a sclerotised groove-like at the inner margin of the valves like in *A. lukumbura* and valves longer and narrower at base compared to *A. rungwe*; the ratio length of cucullus to length of valves is one.

***Acrapex rungwe* Le Ru, n. sp.**
(Figures 2j, 5h, 9b, 10h–k)

Type material. Holotype: ♂, Tanzania, Mbeya region, Tukuyu, Rungwe mountain, 09°07'16"S 33°42'44"E, 1980 m asl, I.2012, ex light trap [gen. prep. LERU Bruno/G87] (B. Le Ru leg.) [MNHN].

Paratypes: 6 ♂, Tanzania, same locality and date as holotype, ex light trap [gen. prep. LERU Bruno/G89-93] (B. Le Ru leg.) [MNHN]; 2 ♂, Tanzania, same locality and date as holotype, ex light trap, (B. Le Ru leg.) [NMK]; 1 ♀, Tanzania, Mbeya region, Tukuyu, Ibumba, 09°10'41"S 33°43'41"E, 1491 m asl, IV.2007, ex larvae in *Cymbopogon pospishilii* (K. Schum.) C.E. Hubb. (B. Le Ru leg.) [MNHN].

Diagnosis. This species is similar to *Acrapex lukumbura* and *A. ottusa* in external appearance but can be distinguished from them by the male genitalia characters: valves short and broad, broadly rounded at base, roundly constricted at middle along the inner margin and elbow shaped along the external margin,

extended with a broad and massive cucullus making a 90° angle with the costal area, the apex triangle shaped, two times wider than the constriction; the juxta short and narrow, bifid; manica with a two-lobed sclerotisation, long and narrowing to the tip, vesica with a long tongue-shaped protuberance, longer than two-lobed sclerotisation.

Description. Figure 10h–k. The general shape of the female's forewings is more elongated at the apex than that of the male.

Male. Antennae ochreous buff, filiform, slightly ciliate; flagellum and palpus fuscous, eyes brown. Head and base of thorax orange ochreous becoming gradually buff, legs dorsally fuscous, ventrally ochreous with some buff scales; abdomen fuscous, dorsally suffused with buff scales, buff ventrally. Forewings: ground-colour orange ochreous, suffused with fuscous and brown scales in the costal and median areas; the cell along the lower margin is adorned externally with some white scales; a longitudinal fascia from base along lower margin of the cell ending obliquely to apex, bordered by an external area suffused with brown scales; a subterminal curved line, barely visible, with a row of brown scales; outer margin adorned with brown spots between the veins; fringe ochreous suffused with buff. Hind wings: uniformly dark brown; fringe fuscous at the base, externally buff. Underside of the forewings with ground colour dark-brown suffused with some ochreous scales on the costal area, heavily suffused with orange-ochreous scales on the apex, the area close to the posterior margin with buff scales. Underside of hind wings dark-brown, suffused with orange-ochreous scales in the costal and apex areas.

Female. Antennae ochreous, filiform; flagellum and palpus bright fuscous, eyes brown. Head and base of thorax ochreous becoming gradually buff, legs fuscous with some brown scales, tarsi ringed with ochreous; abdomen fuscous, dorsally suffused with buff scales, buff ventrally. Forewings: ground-colour bright ochreous, suffused with orange ochreous scales in the costal area and close to the termen; reniform indicated by few grey scales and dark scales; a subterminal curved line, barely visible, with a row of elongated dark spots; outer margin adorned with brown spots between the veins; fringe ochreous suffused with grey. Hind wings: ground colour white, heavily suffused with fuscous scales in the apex and termen areas and on the veins; fringe white, suffused with fuscous and ochreous. Underside of the forewings with ground colour ochreous suffused with fuscous scales, more heavily in the costal and postmedial areas and on the veins. Underside of hind wings white, suffused with ochreous and fuscous scales on the apex and termen areas and on the veins, less suffused in the anal area.

Wingspan 19–22 mm (males) ($n = 9$); 21 mm (female) ($n = 1$). Males (19–19–20–21–21–21–21–21–22); female (21).

Male genitalia (Figures 2j, 5h). Uncus narrow and long tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a large saccus, V-shaped at the bottom margin; valves short and broad, slightly sclerotised except on the costa, broadly rounded at base, roundly constricted at middle along the inner margin and elbow shaped along the external margin, extended with a broad and massive cucullus making a 90° angle with the costal area, the apex triangle shaped, two times wider than the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate like, rounded at the base, slightly narrowing, with a short neck, bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation, long and narrowing to the tip, vesica with a long tongue-shaped protuberance, longer than two-lobed sclerotisation, adorned with longitudinal villi like, close to the tip.

Female genitalia. Unfortunately, the female genitalia were lost during a removal.

Larvae L₅ instar (Figure 9b). Length 20–25 mm, width 2.5 mm; head smooth, dark brown, prothoracic shield brown; body with ground colour dark pink, pinacula and caudal plate brown. Young larvae are very similar to that of mature ones.

Etymology. Named after Rungwe Mountain close to Tukuyu in Tanzania.

Bionomics. Larvae were collected on young stems and shoots of *Cymbopogon pospishilii* growing on the banks of a stream; like most *Acrapex* species, *A. rungwe* is a markedly hygrophilous species.

Distribution. Tanzania (Table 1). The specimens were collected from Afromontane (mosaic #19) vegetation mosaic (White 1983) (Figure 3), belonging to the Zambezian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *Acrapex lukumbura* and *A. ottusa* in external appearance, *A. rungwe* is distinguished by characters of the genitalia listed in the diagnosis; *A. rungwe* can be distinguish with the valves shorter at base; the ratio length of cucullus to length of valves is one.

***Acrapex soyema* Le Ru, n. sp.**
(Figures 2k, 5i, 11a, b)

Type material. Holotype: ♂, Ethiopia, Oromia region, Gibe, Soyema Bridge, 07°15'14"N 36°47'56"E, 1051 m

asl, IX.2015, ex light trap [gen. prep. LERU Bruno/G865] (B. Le Ru leg.) [MNHN].

Diagnosis. This species is similar to *Acrapex iringa* and *A. rungwe* in external appearance but can be distinguished from them by its distribution in Ethiopia and the male genitalia characters: valves short and markedly rounded at basal half, elbow shaped along the external margin, extended with a broad cucullus making a 90° angle with the costal area, the apex triangle shaped, 1.3 times wider than the constriction; the juxta plate like, almost not rounded at the base, with a short narrowing neck, bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation, broad and rounded at tip, vesica with a ventral tongue-shaped protuberance, shorter than two-lobed sclerotisation.

Description. Figure 11a, b. Antennae ochreous, filiform, slightly ciliate; flagellum ochreous, palpus ochreous and fuscous, eyes brown. Head and base of thorax becoming gradually buff, legs ochreous; abdomen fuscous dorsally suffused with ochreous scales, buff ventrally. Forewings: ground-colour ochreous, heavily suffused with brown scales in the costal and termen areas; the cell along the lower margin is adorned externally with some grey and brown scales; a large spot of brown scales in the middle of the cell, reniform indicated by few white scales, surrounded by some brown scales; a subterminal curved line, barely visible, with a row of brown spots; outer margin adorned with dark-brown spots between the veins; fringe grey suffused with fuscous. Hind wings: uniformly dark brown, fringe grey suffused with fuscous. Underside of the forewings dark brown particularly on the costal and termen areas, almost no brown scales in the area close to the posterior margin. Underside of hind wings dark brown.

Wingspan 19 mm (male) ($n = 1$).

Male genitalia (Figures 2k, 5i). Uncus narrow and long tapering to a very fine and long point, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a medium size saccus, V-shaped at the bottom margin; valves short and broad at basal half, slightly sclerotised except on the costa, regularly rounded along inner margin at base, roundly constricted at middle along the inner margin, elbow shaped along the external margin, extended with a broad cucullus making a 90° angle with the costal area, the apex triangle shaped, 1.3 times wider than the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate like, almost not rounded at the base, 1.5 wider at the base than at the apex, with a short neck, bifid; aedeagus slightly

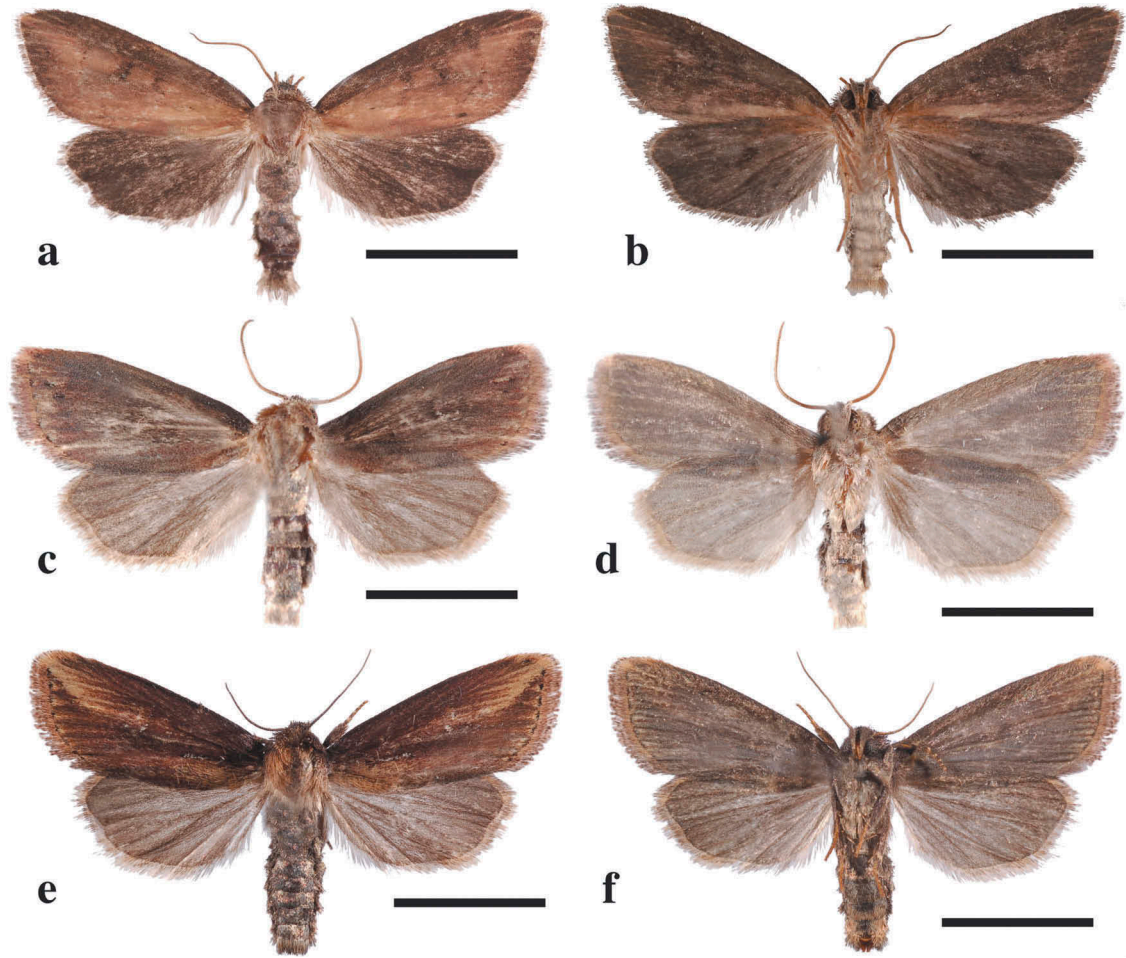


Figure 11. *Acrapex* spp., adults. **a, b**, *A. soyema* n. sp., ♂ holotype: **a**, upper side; **b**, underside. **c–f**, *A. zoutoi* n. sp.: **c**, ♂ holotype, upper side; **d**, ♂ holotype, underside; **e**, ♀ paratype, upper side; **f**, ♀ paratype, underside. Scale bars = 6 mm.

elongated and curved, manica with a two-lobed sclerotisation, broad and rounded at tip, vesica with a ventral tongue-shaped protuberance, shorter than two-lobed sclerotisation, adorned with longitudinal villi like, close to the tip.

Etymology. Named after the name of Soyema village in Oromia region in Ethiopia.

Bionomics. Biology unknown. The moth was caught with a light trap in grasslands surrounding a riverine forest along the Gibe river. These grasslands were inhabited with various Poales species belonging to the following genera: *Cymbopogon*, *Cyperus*, *Hyparrhenia* and *Sporobolus*.

Distribution. Ethiopia (Table 1). The only recorded locality is from undifferentiated woodland (mosaic #29) vegetation mosaic (White 1983) (Figure 3), belonging to the Ethiopian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *Acrapex iringa* and *A. rungwe* in external appearance, *A. soyema* is distinguished by characters of the genitalia listed in the diagnosis; *A. soyema* can be distinguished with the valves shorter and broader at base; the ratio length of cucullus to length of valves is 0.9.

***Acrapex zoutoi* Le Ru, n. sp.**
(Figures 2l, 5j, 7d, 9c, 11c–f)

Type material. Holotype: ♂, Benin, Zou region, Zoutoi, 07°33'58"N 02°08'02"E, 53 m asl, VII.2009, ex larvae in *Andropogon perligulatus* Stapf. [gen. prep. LERU Bruno/G356] (B. Le Ru leg.) [MNHN].

Paratypes: 2 ♀, 1 ♂, Benin, same locality and date as holotype, ex larvae in *A. perligulatus* [♀ gen. prep. LERU Bruno/G355] (B. Le Ru leg.) [MNHN].

Diagnosis. This species is similar to *Acrapex apicestriata* in external appearance but can be distinguished from it by

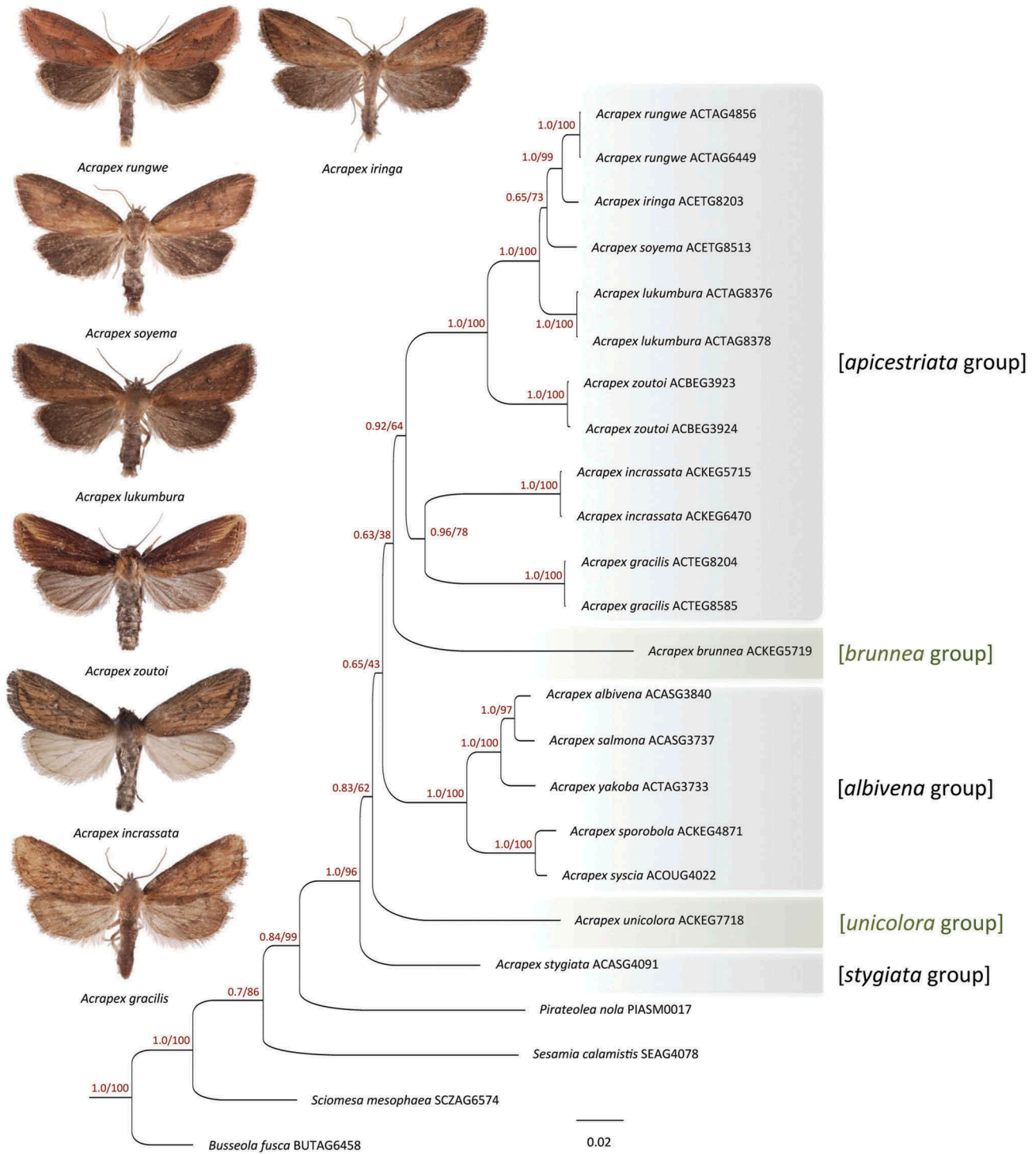


Figure 12. Bayesian inference tree resulting from the analysis of the combined dataset carried out with MrBayes (please note that the ML topology is exactly the same). Support of nodes is provided by uBV and PP. On the left, adult habitus (for species belonging to the *A. apicestriata* species group) are also included for illustrative purpose.

the male genitalia characters: valves very short and broad at basal half, elbow shaped along the external margin, extended with a short and massive cucullus making a 90°

angle with the costa, the apex triangle shaped, two times wider than the constriction; the juxta short and narrow, bifid; manica with a two-lobed sclerotisation short and

wide, rounded at tip, vesica with a ventral tongue-shaped protuberance longer than the two-lobbed sclerotisation.

Description. The general shape of the female's forewings is more elongated at the apex than that of the male (Figure 11c–f). Antennae fuscous, filiform, slightly ciliate in male; flagellum, palpus and eyes fuscous. Head and base of thorax fuscous becoming gradually ochreous-buff, legs fuscous, suffused with brown scales, tarsi ochreous ringed with buff; abdomen fuscous, slightly suffused with ochreous scales, heavily suffused with buff scales on the last ventral segments. Forewings: ground-colour brown, some white scales at the base of the costal area, the cell along the lower margin is adorned externally with some white scales, reniform indicated by few white scales, and oblique area from the cell to the apex heavily suffused with buff scales and some ochreous scales, no transversal lines, the area close to the posterior margin at the base suffused with long ochreous scales; outer margin adorned with dark-brown spots between the veins; fringe grey suffused with fuscous. Hind wings: uniformly grey suffused with fuscous, more heavily on the veins, fringe white suffused with fuscous. Underside of the forewings fuscous, suffused with white scales on the costal area, termen area with veins suffused with brown scales, small buff areas between the veins Underside of hind wings grey, suffused with fuscous, more heavily on the veins and on the apex and termen areas.

Wingspan 17–18 mm (males) (*n* = 2); 20–22 mm (female) (*n* = 2). Males (17–18); females (20–22).

Male genitalia (Figures 2l, 5j). Uncus narrow and long, tapering to truncate apex, tufted with long hair on upper side; base of tegumen with peniculi; vinculum with a small size saccus, V-shaped at the bottom margin; valves very short and rounded at basal half, slightly sclerotised except on the costa, roundly constricted at middle along the inner margin, elbow shaped along the external margin, extended with a short and massive cucullus making a 90° angle with the costa, the apex triangle shaped, two times wider than the constriction, with long posterior bristly hairs and a few stout papillated hairs on inner side; the juxta plate like, rounded at the base, with a short neck, bifid; aedeagus slightly elongated and curved, manica with a two-lobed sclerotisation short and wide, rounded at tip, vesica with a ventral tongue-shaped protuberance longer than the two-lobbed sclerotisation, adorned with longitudinal villi like, close to the tip.

Female genitalia (Figure 7d). Corpus bursae elongated ovoid without signum; ductus seminalis from the base of the bursae, ductus bursae short, sclerotised, bell-shaped widening on the ostium side. Ventral plate of ostium bursae wide band-like, sclerotised, the posterior lip

slightly concave; apophyses anteriores long and slender, posteriores long with spatulate tips; ovipositor lobes medium length (2.3 times longer than wide) with dorsal surface bearing numerous short and stout setae.

Larvae L₅ instar (Figure 9c). Length 20–25 mm, width 2.5 mm; head smooth, orange brown, prothoracic shield brown; body with ground colour dark pink, almost purple, pinacula and caudal plate black. Young larvae are very similar to that of mature ones.

Etymology. Named after the name of Zoutoi village in Zou region in Benin.

Bionomics. Larvae were collected on young stems and shoots of *Andropogon perligulatus* Stapf growing on the banks of Zou river; contrary to most *Acrapex* species, *A. zoutoi* looks more like a riverine forest species than a hygrophilous species.

Distribution. Benin (Table 1). The only recorded locality is from Sudanian woodland with abundant *Isoberlinia* Craib & Stapf (mosaic #27) vegetation mosaic (White 1983) (Figure 3), belonging to the Sudanian bioregion (Linder et al. 2012) (Figure 4).

Remarks. Although close to *Acrapex apicestriata* in external appearance, *A. zoutoi* is distinguished by characters of the genitalia listed in the diagnosis; *A. zoutoi* can be distinguished with the valves smaller and less rounded at base; the ratio length of cucullus to length of valves is one.

Key to the *Acrapex apicestriata* species group based on male genitalia morphology

1. External margin of the costa rounded..... 2
 - External margin of the costa elbow shaped (with or without a small pointed tip) 4
2. Valves short and narrow at basal half (Figure 2f).....
 - *Acrapex incrassata*
 - Valves short and broad at basal half (Figure 2d, e) 3
3. Apex of the cucullus triangle shaped (Figure 2e).....
 - *A. holoscota*
 - Apex of the cucullus with a bird head form (Figure 2d)..... *A. gracilis*
4. External margin of the costa with a small pointed tip (Figure 2b, c) 5
 - External margin of the costa without small pointed tip..... 6
5. Apex of the cucullus triangle shaped (Figure 2c).....
 - *A. gibbosa*
 - Apex of the cucullus not triangle shaped (Figure 2b) *A. apicestriata*

6. Apex of the cucullus fist shaped bulb-like (Figure 2a) *A. akunamatata*
– Apex of the cucullus triangle shaped (Figure 2g–l).. 7
7. Valves curved at basal half (Figure 2g, i)..... 8
– Valves rounded at basal half (Figure 2h, j–l) 9
8. Valves regularly curved along inner margin at basal half (Figure 2g)..... *A. iringa*
– Valves curved and then straight along inner margin at basal half (Figure 2i)..... *A. ottusa*
9. Cucullus as long as valves (Figure 2i)..... *A. zoutoi*
– Cucullus shorter than valves (Figure 2h, j, k)..... 10
10. Valves markedly rounded, globular, at base (Figure 2k)..... *A. soyema*
– Valves rounded, not globular, at base (Figure 2h, j). 11
11. Valves with a small deflection extended with a sclerotised groove-like..... *A. lukumbura*
– Valves without a small deflection and sclerotised groove-like..... *A. rungwe*

Phylogenetic analyses. Maximum likelihood and Bayesian inference phylogenetic analyses yield the same topology (Figure 12). Overall the tree is well supported: 16 nodes (out of 23) are supported by uBV \geq 95% and PP \geq 0.95. All species belonging to the *apicestriata* group are recovered monophyletic, with a moderate support (uBV of 64% and PP of 0.92). Within this clade, *Acrapex gracilis* and *A. incrassata* are recovered sister to a clade grouping *A. lukumbura*, *A. iringa*, *A. rungwe*, *A. soyema* and *A. zoutoi*. Interestingly, the four sampled species from Tanzania (*A. gracilis*, *A. lukumbura*, *A. iringa* and *A. rungwe*) are not grouped together. The genus *Acrapex* is also recovered monophyletic, with a high support (uBV of 96% and PP of 1.0).

Discussion

Although the 12 species revised here present a quite variable wing pattern and colour, they make up a morphologically homogeneous group when considering the male genitalia. However, a clear identification of the males of the different species is possible when examining characters of the inner and external margins of the valves, of the cucullus, particularly the ratio between the width of the apex and the width of the constriction at the middle of the valves, and of the juxta.

The group is composed of species with two distinct ecological preferences. Eight species are markedly hygrophilous (*Acrapex akunamatata*, *A. gibbosa*, *A. gracilis*, *A. incrassata*, *A. iringa*, *A. lukumbura*, *apicestriata*, *A. ottusa* and *A. rungwe*), inhabiting banks of streams, rivers and marshes in altitude wetlands (1299–2360 m asl) in the Afromontane vegetation mosaic (mosaic #19, White 1983) belonging to the Zambezian

bioregion (Linder et al. 2012) in Eastern Africa. The remaining four species (*Acrapex apicestriata*, *A. holoscota*, *A. soyema* and *A. zoutoi*) are recorded north of the equator from woodland and secondary grassland belonging to the Sudanian bioregion (Linder et al. 2012).

We record here for the first time a species of *Acrapex* (*A. soyema*) for the Ethiopian bioregion; in fact all the *Acrapex* species previously recorded from Ethiopia by Laporte (1984) and Rougeot et al. (1991) actually belong to genera *Feraxinia* Moyal, Le Ru, Conlong, Cugala, Defabachew, Matama-Kauma, Pallangyo & Van den Berg, 2010, and *Sciomesa* Tams & Bowden, 1953 (Moyal et al. 2010) and to a new genus not yet described (Le Ru, pers. comm.). Moreover, to date, not a single representative of the group has been recorded from Southern and Congolian bioregions despite extensive surveys carried out since more than one century ago (Hampson 1910; Janse 1939; Le Ru et al. 2006a; Moolman et al. 2014; Ong'amo et al. 2014). Like most *Acrapex* species (Le Ru et al. 2014, 2017) our results suggest that all 12 species have restricted areas of distribution.

Three species of the *Acrapex apicestriata* group were reared from known host-plants, with one host-plant record for each: *A. incrassata* on a Paniceae (*Setaria incrassata*) and *A. rungwe* and *A. zoutoi* on Andropogonae. Although we did not record any host-plant association for other species of the group, it is worth underlining that they were caught in grasslands inhabited mainly by Panicoideae (Andropogonae) species (*Andropogon* spp., *Cymbopogon* spp., *Hyparrhenia* spp.). Therefore we can hypothesise that most of the species of the group are likely to be associated with Panicoideae species, consistent with the general pattern of host-plant association that was evidenced for other *Acrapex* species (species group *albivena*, *stygiata* and *unicolora*), which were mostly reared from Panicoideae (Le Ru et al. 2014, 2017).

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Supplemental data

Supplemental data for this article can be accessed [here](#).

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