Phylogenetics, integrative taxonomy and systematics of the *Sesamia cretica* species group (Lepidoptera: Noctuidae: Apameini: Sesamiina), with the description of 21 new species from the Afrotropical region

Bruno Le Ru, Noémie M.-C. Hévin, Claire Capdevielle-Dulac, Boaz K. Musyoka, Michel Sezonlin, Desmond Conlong, Johnnie Van Den Berg, Rose Ndemah, Philippe Le Gall, Domingos Cugalaj, Casper Nyamukondiwa, Beatrice Pallangyo, Mohamedi Njaku, Muluken Goftshitu, Joseph Assefa, Grégoire Bani, Richard Molo, Gilson Chipapika, George Ong’amo, Anne-Laure Clamens, Jérôme Barbut & Gaël J. Kergoat

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*Corresponding author. Email: bpleru@gmail.com*

Summary. In this study, 31 species of noctuid stem borers belonging to the genus *Sesamia* Guenée, 1852 (Lepidoptera: Noctuidae: Noctuinae: Apameini: Sesamiina) are reviewed. All these species are assigned to the *Sesamia cretica* group sensu Tams & Bowden (1953). Based on genitalic characters, several subgroups are hereby defined. Nine species belong to a species complex defined as the *Sesamia albivena* Hampson, 1902 subgroup; it consists of *S. albivena*, *S. moccensis* Tams & Bowden, 1953, *n. stat.*, *S. sudanensis* Tams & Bowden, 1953, *n. stat.*, *S. taeniolaevula* (Wallengren, 1863), and five new species that are described (*S. aethiopica* Le Ru *n. sp.* from Ethiopia, *S. kafilo* Le Ru *n. sp.* from Botswana and Zambia, *S. kavirondo* Le Ru *n. sp.* from Kenya and Uganda, *S. maloukou* Le Ru *n. sp.* from Republic of Congo, and *S. soyema* Le Ru *n. sp.* from Ethiopia). Four species belong to a species complex defined as the *Sesamia cretica* subgroup; this encompasses *S. cretica*, *S. rufescens* Hampson, 1910, and two new species that are described (*S. ihambane* Le Ru *n. sp.* from Mozambique and Tanzania and *S. kikuyuensis* Le Ru *n. sp.* from Kenya); two new synonyms are introduced for *Sesamia cretica*: *Nonagria uniformis* Dudgeon, 1905 *n. syn.* and *Sesamia griselda* Warren, 1913, *n. syn.* Ten species belong to a species complex defined as the *Sesamia fuscifrontia* Hampson, 1914 subgroup; this includes *S. fuscifrontia*, *S. geyri* (Strand, 1915) and eight new species that are described (*S. babati* Le Ru *n. sp.* from Tanzania, *S. babesi* Le Ru *n. sp.* from Cameroon and Zambia, *S. mahira* Le Ru *n. sp.* from Uganda, *S. nangweensis* Le Ru *n. sp.* from Cameroon and Republic of Congo, *S. rungwa* Le Ru *n. sp.* from Tanzania, *S. similima* Le Ru *n. sp.* from Benin, Cameroon, Kenya and Uganda, *S. taveta* Le Ru *n. sp.* from Kenya and *S. ulauke* Le Ru *n. sp.* from Ethiopia). One species belongs to a species complex defined as the *Sesamia salama* Le Ru *n. sp.* subgroup; this consists of *S. salama* Le Ru *n. sp.* from Kenya and another undescribed *Sesamia* species from South Africa. One species belongs to a species complex defined as the *Sesamia vetti* Rungs, 1954 subgroup. Six species belong to a species complex defined as the *Sesamia wiltshirei* Rungs, 1963 subgroup; this groups *S. wiltshirei* and five new species that are described (*S. djenoensis* Le Ru *n. sp.* from Republic of Congo, *S. inexpectata* Le Ru *n. sp.* from South Africa and Zambia, *S. lepini* Le Ru *n. sp.* from Republic of Congo, *S. echinochloa* Le Ru *n. sp.* from Botswana, Kenya, Mozambique, South Africa, Tanzania and Zambia and *S. rindini* Le Ru *n. sp.* from Tanzania). A supplemental description of the previously
The taxonomy and systematics of speciose insect groups is generally complex, especially within groups lacking useful external diagnostic characters. In such groups, genitalia (especially male genitalia) often constitute a major source of information to morphologically discriminate, classify and identify species (e.g. Tuxen 1970). However, genitalia characters can be sometime misleading because they often evolve rapidly due to intense sexual selection (Song & Bucheli 2010; Simmons 2014). The latter could lead to high levels of homoplasy, even when contrasting taxa are distantly unrelated. In this context, it is worth making use of molecular phylogenies to better understand the evolution of genitalia and investigate their taxonomic utility (e.g. Kergoat & Alvarez 2008). Regarding species boundaries, integrative taxonomy approaches can also clarify the status of closely related species, even when differences in genitalia are subtle. However, caution must be exercised, because the availability of a plethora of molecular species delimitation (SD) approaches (see e.g. Carstens et al. 2013 for a review) and differences in data treatment can lead to incongruent results (e.g. Astrin et al. 2012; Renner et al. 2017), which are often difficult to disentangle and interpret. To clarify the results of SD analyses, several authors (Miralles & Vences 2013; Ahrens et al. 2016) proposed new
metrics that allow the comparison of species partitions generated by all kind of SD approaches. A tool to simplify this procedure was also recently released (Ducasse et al. 2020), which greatly facilitates the estimation of the corresponding indexes.

In this study both morphological and molecular information are used to revise a species group belonging to the noctuid stemborer genus *Sesamia* Guenée, 1852 (Lepidoptera: Noctuidae: Noctuinae: Apameini: Sesamini). In its current definition the genus *Sesamia* consists of about 50 species that are mostly distributed in the Afrotropical region. Based on genitalic characters, the genus was first divided by Tams & Bowden (1953) into the *S. ciretca* and *S. nonagrioides* (Lefèvre 1827) groups; however, they also underlined that several species (noticeably *S. coniota* Hampson, 1802 and *S. jansei* Tams & Bowden, 1953) could not be assigned to any of the two groups because they presented an intermediate morphology. The latter species were recently assigned to a novel species group – the *S. coniota* group – by Le Ru et al. (2020c). The genus *Sesamia* is the second most diversified genus among the Sesamini with at least 25% of the known species (Moyal 2006; Moyal et al. 2011; Kergoat et al. 2015; Le Ru et al. 2020c). Yet, recent investigations into this genus indicate that its diversity is likely greatly underestimated. About a decade ago, Moyal et al. (2011) described three new species related to *S. epunctifera* Hampson, 1902. Further, Kergoat et al. (2015) reassessed the *S. nonagrioides* species complex and described six new species. In parallel, molecular phylogenetics studies by Toussaint et al. (2012) and Kergoat et al. (2018) suggested a substantial number of other new *Sesamia* species, which led us to progressively undertake a global revision of the genus. However, given the large number of *Sesamia* species it was decided to tackle previously defined species groups one by one. As such, a first study by Le Ru et al. (2020c) only focused on the *S. coniota* species group, for which three new species were described.

In the present study, a focus is set on the *S. ciretca* group *sensu* Tams & Bowden (1953), which was defined based on the following genitalic characters: in males (i) valve with sacculus and cucullus fused, (ii) juxta with a medial projection, and (iii) strongly spinoce manica; in females: (i) more pointed bursa, (ii) broad ostium, (iii) frequently heavily sclerotized anteostial pad, and (iv) weakly sclerotized ostial segment. To revive this group, a morphological study was carried out on specimens (including type material) from all known species of the *S. ciretca* group as well on other *Sesamia* specimens that could correspond to new species.

To complement the morphological study, molecular phylogenetic analyses were also implemented on a multimarker molecular dataset encompassing 144 specimens representing 35 species. Molecular SD analyses were conducted with a wide array of approaches and settings, and we investigated the corresponding results and morphology with metrics that allow the comparison of species partitions (following Ducasse et al. 2020). In summary, an integrative/iterative approach was followed to refine hypotheses on species boundaries, as detailed in Le Ru et al. (2020a). These analyses allow discussion of the taxonomic usefulness of genitalic characters and the congruency of various SD methods in *Sesamia* stemborers.

### Material and methods

**Abbreviations**

MCSN, Museo Civico di Storia Naturale, Milan, Italy; MNHN, Muséum national d’Histoire naturelle, Paris, France; MRAC, Musée Royal d’Afrique Centrale, Tervuren, Belgium; NHM, the Natural History Museum, London, UK; NNMK, National Museum of Kenya, Nairobi, Kenya; NRM, the Swedish Royal Museum of Natural History, Stockholm, Sweden; TMSA, Ditsong Museum (formerly Transvaal Museum of South Africa), Pretoria, Republic of South Africa (hereafter referred to as South Africa); ZMB, Museum für Naturkunde (formerly MNHU, Museum für Naturkunde Humboldt-Universität), Berlin, Germany.

**Sampling, new host records and morphological study**

Numerous adult specimens belonging to the *S. ciretca* group were reared from hundreds of larvae sampled from visually damaged grasses (Poales) in Austral, Central, Eastern and Western Africa; the following 10 countries were surveyed: Benin, Botswana, Cameroon, Ethiopia, Kenya, Mozambique, Republic of Congo, South Africa, Tanzania and Uganda (Table 1). 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). Novel host plants records are provided for 11 species (Table 2). *Sesamia babati* n. sp., *S. djenensis* n. sp., *S. inexpectata* n. sp., *S. mabira* n. sp., *S. similima* n. sp., *S. taveta* n. sp., and *S. ulukazi* n. sp. were all found on *Echinochloa pyramidalis* (Lam.) Hissch. & Chase, 1917. *Sesamia ihambane* n. sp. and *S. kikuyuensis* n. sp. were found on *Rottboellia cochinchinensis* (Lour.) Clayton, 1981. *Sesamia rindini* n. sp. was found on *Sporobolus consilimis* Fresen, 1837. *Sesamia echinochloa* n. sp. was found on *Echinochloa pyramidalis*, *Echinochloa hapolclada* (Stapf) Stapf, 1920, *Eriochloa meyeriana* (Nees) Plg., 1940, *Eriochloa fatimensis* (Hochst. & Steud.) Clayton, 1975, *Phragmites australis* (Cav.) Trin. ex Steud., 1841 and *Vossia cuspidata* (Roxb.) Griff., 1851. In addition, 164 adult specimens were collected from light trapping in Botswana, Cameroon, Ethiopia, Kenya, Republic of Congo, South Africa, Tanzania and Zambia. Finally, 182 adults (including holotypes and paratypes of *Sesamia* spp.) were studied in MCSN, MNHN, MRAC, NRM, NRM, TMSA and ZMB.

To summarize, the morphological study of the *S. ciretca* group is based on a total of 728 adult specimens belonging to 31 species collected in 149 localities from the following 31 countries: Algeria, Angola, Benin, Botswana, Cameroon, Croatia, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, France, Greece, India, Iraq, Kenya, Libya, Madagascar, Malawi,
Table 1. Localities where specimens of the *Sesamia cretica* species group were collected.

| Country                  | Locality                  | Latitude  | Longitude | Altitude (m) | *Sesamia* species          |
|--------------------------|---------------------------|-----------|-----------|--------------|---------------------------|
| Angola                   | Capelongo-Dongo           | 14°53'58"S | 15°04'20"E | 390          | *S. mocoensis*            |
|                          | Mount Moco, Luimbale       | 12°27'43"S | 15°10'36"E | 14           | *S. mocoensis*            |
| Benin                    | Akassato                  | 06°30'11"N | 2°22'23"E  | 1850         | *S. simillima*            |
|                          | Cotontou Port             | 06°20'51"N | 2°24'21"E  | 1830         | *S. simillima*            |
|                          | Ganvi Dopko (Djregbe)      | 06°24'06"N | 2°37'29"E  | 1900         | *S. simillima*            |
|                          | Nanebou                   | 10°40'55"N | 1°19'06"E  | 1800         | *S. simillima*            |
|                          | Tampogole                 | 10°41'26"N | 1°20'30"E  | 1800         | *S. simillima*            |
| Botswana                 | Kasana 2                  | 17°47'38"S | 25°09'10"E | 929          | *S. perplexa*             |
|                          | Kuke Pan                  | 20°59'9"S  | 22°25"E    | 929          | *S. kafolo*               |
|                          | Mabele                    | 18°17'00"S | 26°41'00"E | 943          | *S. echinochloa*          |
|                          | Maun 1                    | 19°53'11"S | 23°32'44"E | 927          | *S. echinochloa*          |
|                          | Satau                     | 18°09'47"S | 24°43'49"E | 932          | *S. echinochloa*          |
|                          | Shakawe ferry 1           | 18°16'31"S | 21°59'54"E | 1009         | *S. echinochloa*          |
| Cameroon                 | Babessi                   | 6°01'55"N  | 10°33'07"E | 1203         | *S. babessi*              |
|                          | Limbe-Bimbiba             | 3°59'56"N  | 9°12'54"E  | 20           | *S. simillima*            |
|                          | Msah                      | 3°48'22"N  | 11°30'34"E | 696          | *S. simillima*            |
|                          | Sanaga River              | 4°22'23"N  | 11°15'10"E | 388          | *S. nangaensis*           |
| Congo                    | Djenjo                    | 4°53'28"S  | 11°55'26"E | 6            | *S. djenoensis*           |
|                          | Lac Nanga                 | 4°56'06"S  | 11°56'43"E | 2            | *S. nangaensis*           |
|                          | Maloukou Trechot          | 3°59'58"S  | 15°35'15"E | 585          | *S. maloukou*             |
|                          | Rivière Léfini            | 2°54'30"S  | 15°37'46"E | 320          | *S. lefini*               |
| Democratic Republic of Congo | Elisabethville          | 11°41'1"S | 27°28"E    | 1237         | *S. mocoensis*            |
| Egypt                    | Ismalia                   | 30°36"N    | 32°16"E    | 10           | *S. wiltshirei*           |
|                          | Kaf Al Scheikh            | 31°06"N    | 30°56"E    | 10           | *S. wiltshirei*           |
| Ethiopia                 | Gibe Soyema River         | 7°15'15"N  | 36°47'56"E | 1051         | *S. aethiopica, S. soyema*|
|                          | Kofe                      | 7°39'13"N  | 36°49'13"E | 1721         | *S. ulaukae*              |
|                          | Ula ukae                  | 7°34'03"N  | 36°39'52"E | 1908         | *S. ulaukae*              |
| Kenya                    | Aram                      | 0°17'38"S  | 34°25'37"E | 1146         | *S. simillima*            |
|                          | Bungoma                   | 0°35'43"N  | 34°28'07"E | 1330         | *S. simillima*            |
|                          | Busia                     | 0°26'15"N  | 34°07'19"E | 1278         | *S. simillima*            |
|                          | Cheplaskei                | 0°24'42"N  | 35°19'15"E | 2184         | *S. simillima*            |
|                          | Homa Bay 1-Opapo           | 0°40'24"S  | 34°32'07"E | 1448         | *S. simillima*            |
|                          | Ilala, Maramas District    | 0°33"S     | 34°28"E    | 1224         | *S. fuscirotecta*         |
|                          | Kapiti Ranch              | 1°38'15"S  | 37°08'46"E | 1795         | *S. salama*               |
|                          | Kasagamu                 | 0°06'39"S  | 34°46'32"E | 1156         | *S. simillima*            |
|                          | Kegati                    | 0°42'39"S  | 34°49'18"E | 1763         | *S. simillima*            |
|                          | Kijauni                   | 0°46'20"S  | 35°04'51"E | 1858         | *S. simillima*            |
|                          | Kima Ranch (Salama)       | 1°53'15"S  | 37°14'36"E | 1423         | *S. salama*               |
|                          | Kimugu                    | 0°20'44"S  | 35°19'21"E | 2035         | *S. simillima*            |
|                          | Kissii 2-Sare             | 0°54'47"S  | 34°31'44"E | 1583         | *S. simillima*            |
|                          | Londiani Junction         | 0°10'30"S  | 35°37'11"E | 2341         | *S. mabira*               |
|                          | Malindi 1                 | 3°08'03"S  | 40°08'06"E | 33           | *S. echinochloa*          |
|                          | Mombasa                   | 4°02'36"S  | 39°40'06"E | *S. kikuyensis*|
|                          | Mount Elgon               | 1°07'55"N  | 34°29'01"E | *S. kavirondo*|
|                          | Muhaka                    | 4°20"S     | 39°31"E    | *S. kikuyensis, S. echinochloa*|
|                          | Mukunuku                  | 1°11'37"S  | 36°55'14"E | 1574         | *S. simillima*            |
|                          | Ruiru                     | 1°05'27"S  | 36°54'40"E | 1568         | *S. echinochloa, S. simillima*|
|                          | Ruiru Aukland (Karimu Dam) | 1°05'04"S | 36°55'37"E | 1595         | *S. kikuyensis, S. salama*|
|                          | Ruma Main Gate            | 0°38'17"S  | 34°20'13"E | 1254         | *S. salama*               |
|                          | Ruma Sindo                | 0°36'18"S  | 34°16'03"E | 1221         | *S. salama*               |
|                          | Shimbila Hills            | 4°13'29"S  | 39°24'24"E | *S. kikuyensis*|
|                          | Silungai                  | 1°02'23"N  | 35°16'17"E | 1848         | *S. simillima*            |
|                          | Suna (South Kavirondo)     | 1°04'00"S  | 34°24'00"E | *S. kavirondo*|
|                          | Taveta Swamp              | 3°26'02"S  | 37°41'06"E | 812          | *S. taveta*               |
| Madagascar               | Perinet, forêt d'Analamazaotra | 18°57"S | 48°25"E    | 910          | *S. vietii*               |
|                          | Mt Mlanje                 | 15°58"S    | 35°35"E    | *S. rufescens*|
| Malawi                   | 3 de Fevereiro            | 25°09'03"S | 32°48'23"E | 19           | *S. echinochloa*          |
| Mozambique               | Matianine                 | 25°56'03"S | 32°01'09"E | 547          | *S. echinochloa*          |

(Continued)
### Table 1. Continued.

| Country          | Locality                  | Latitude       | Longitude      | Altitude (m) | Sesamia species            |
|------------------|----------------------------|----------------|----------------|--------------|-----------------------------|
| South Sudan      | Tembura                    | 5°35′59″S      | 27°28′00″E     | 389          | S. sudanensis              |
| Sudan            | Bahr el Abiad              | 15°30′N       | 32°38′E       | 389          | S. geyri                   |
| Tanzania         | Babati                     | 4°12′26″S     | 35°44′53″E    | 1354         | S. babati                  |
|                  | Ibiti                      | 5°49′40″S     | 34°19′27″E    | 1400         | S. rindini                 |
|                  | Impir                      | 13°08′38″S    | 40°13′18″E    | 206          | S. ihambane                |
|                  | Kibaoni                    | 9°19′50″S     | 39°29′14″E    | 160          | S. ihambane                |
|                  | Kilwa Sokoni               | 8°53′52″S     | 39°30′14″E    | 18           | S. ihambane                |
|                  | Kivukoni 1                 | 8°12′51″S     | 36°41′30″E    | 280          | S. echinochloa             |
|                  | Mandangui Tungu            | 8°20′05″S     | 39°14′40″E    | 18           | S. ihambane                |
|                  | Mbwenkuru                  | 9°45′20″S     | 39°33′14″E    | 147          | S. echinochloa             |
|                  | Mekuasse River             | 14°46′47″S    | 38°22′52″E    | 452          | S. ihambane                |
|                  | Pharani                    | 14°56′34″S    | 37°53′22″E    | 584          | S. ihambane                |
|                  | Rindini                    | 5°36′47″S     | 34°40′03″E    | 1389         | S. rindini                 |
|                  | Ruaha                      | 8°54′03″S     | 36°43′21″E    | 410          | S. echinochloa             |
|                  | Rufiji River               | 8°00′38″S     | 38°57′59″E    | 16           | S. ihambane, S. echinochloa|
|                  | Rungwa                     | 6°56′42″S     | 33°31′01″E    | 1280         | S. rungwa                  |
|                  | Ruvi                       | 6°42′03″S     | 38°42′31″E    | 211          | S. echinochloa             |
|                  | Sali                       | 8°55′30″S     | 36°43′35″E    | 410          | S. echinochloa             |

(Continued)
DNA extraction and sequencing

For the molecular dataset 143 specimens from 34 species were selected. This sampling consists of 142 Sesamia specimens, and ZMB. Types for 10 of the new species were deposited in MNHN (N.B. types of the 13 other new species were already housed in Museum collections) whereas paratypes were deposited in MNHN and NMK.
including 25 species from the *S. cretica* group, two species from the *S. conioti* group (*S. conioti* and *S. schoenoplectus* Le Ru, 2020) and six species from the *S. nonagrioides* group (*S. calamisitis* Hampson, 1910, *S. epunctiterra* Hampson, 1902, *S. natalensis* Le Ru, 2015, *S. nonagrioides*, *S. oriuila*, Tams & Bowden, 1953 and *S. penniscripta* Moyal, 2011). Based on the results of Kergoat et al. (2018), a representative of the closely related genus *Buakea* Moyal et al., 2011 (*Buakea kaeucae* Moyal et al., 2011) was used to root all phylogenetic trees. Except for the specimen of *S. viettei*, all specimens were collected by our research group (mostly by B. Le Ru).

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 I (COI), 992 bp of the cytochrome b (Cytb), 364 bp of the ribosomal 12S RNA (12S), and 534 bp of the ribosomal 16S RNA (16S). Two nuclear gene regions were also sequenced, 1240 bp of the elongation factor-1a (EF1a) and 28S ribosomal DNA (28S). For both genes, the primers and settings detailed in Kergoat et al. (2012) were used. Resulting PCR products were processed by the French sequencing centre Genoscope using a BigDye v3.1 sequencing kit and Applied 3730xl sequencers. Both strands were sequenced for all specimens to minimize PCR artefacts and ambiguities. Sequences of complementary strands were edited and reconciled using Geneious R9 software (available at: www.geneious.com/).

All PCR amplifications failed for the only specimen of *S. viettei* processed. As a leg from the male holotype collected in the early 1950s was used, this outcome was expected, so additional molecular work was carried out and the corresponding results of Kergoat et al. (2018), a representative of the closely related genus *Buakea* Moyal et al., 2011 (*Buakea kaeucae* Moyal et al., 2011) was used to root all phylogenetic trees. Except for the specimen of *S. viettei*, all specimens were collected by our research group (mostly by B. Le Ru).

**Phylogenetic analyses**

IQ-TREE v2.1.3 (Minh et al. 2020) was used to carry out phylogenetic analyses under maximum likelihood (ML). The concatenated dataset was divided a priori into 12 partitions, with three partitions (one per codon position) defined for each coding gene fragment (COI, Cytb and EF1a) and one partition defined for each non-coding gene fragment (12S, 16S and 28S). To infer individual gene trees, additional analyses were also conducted on each gene fragment, with three partitions implemented for the coding genes. Finally, ML analyses were conducted on the concatenated nuclear dataset (EF1a, 28S) to explore the phylogenetic signal of the nuclear dataset only. Best-fit substitution models and partition schemes were selected using the Bayesian information criterion implemented in IQ-TREE (see Appendix S2).

Maximum likelihood trees were obtained using heuristic searches implementing 500 random-addition replicates with the following settings: random-starting tree, hill-climbing nearest neighbour interchange (NNI) search (-allnni option), a perturbation strength set to 0.5 (-pers 0.5 option), partition-resampling strategy (-sampling GENE option), best partition scheme allowing the merging of partitions (-m MF+MERGE option). Clad support for all analyses was assessed using 1000 replicates for both SH-like approximate likelihood ratio tests (SH-alRT; Guindon et al. 2010) and ultrafast bootstraps (uBV; Minh et al. 2013). Nodes supported by ultrafast bootstrap values SH-alRT values ≥ 80% and (uBV) ≥ 95% were considered as strongly supported following authors’ recommendations.

**Molecular species delimitation analyses**

Distinct molecular SD approaches and settings were used in this study to better assess the reliability and repeatability of the proposed SDs (see e.g. Astrin et al. 2012; Luo et al. 2018).

First, two tree-based SD methods were carried out: the tree-based Poisson-tree-process (PTP) approach of Zhang et al. (2013) and the General Mixed Yule Coalescent (GMYC) model of Pons et al. (2006). Those SD methods were applied on the best-scoring ML tree resulting from the analyses of the concatenated dataset; they were also implemented on the COI and Cytb gene trees, which were well resolved. Analyses were carried out with default settings on a dedicated webserver (https://species.h-its.org/). For the GMYC model, both the default single threshold approach (results referred to as “GMYC”) of Pons et al. (2006) and the more parameter-rich approach (results referred to as “GMYCm”) of Monaghan et al. (2009) were implemented, which allows the use of multiple thresholds to account for the potential heterogeneity of evolutionary rates among lineages. As inputs GMYC approaches require ultrametric trees (where all tips are equidistant from the root), which were generated using treePL (Smith & O’Meara 2012) with default settings.

Second, two distance-based methods were used: the Automatic Barcode Gap Discovery (ABGD) model of Puillandre et al. (2012) and the Assemble Species by Automatic Partitioning (ASAP) model of Puillandre et al. (2021). Those approaches were only used on COI sequences.
and Cytb individual gene fragments for which there was enough intraspecific variability. ABGD analyses were performed on a dedicated webserver (https://bioinfo.mnhn.fr/abi/public/abgd/abgdweb.html) using default settings, a standard Kimura 2-parameter model (K80) and recursive partitioning strategies. ASAP analyses were carried out on a dedicated webserver (https://bioinfo.mnhn.fr/abi/public/asap/#) using default settings and a K80 model. Although the ASAP approach is similar to ABGD, it includes a specific scoring system to identify the best-fitting set of putative species. Here the partition with the best asap-score (results referred to as “ASAP”) as well as the partition with best W-score (results referred to as “ASAP-W”) were considered, following the authors’ recommendations.

Third, a multi-locus coalescent-based SD approach was used, as implemented in the program tr2 (Fujisawa et al. 2016). This method uses both gene trees and a guide tree as inputs, and relies on a Bayesian model comparison framework with rooted triplets. All six gene trees were used and the topology resulting from the analyses of the concatenated dataset was used as a guide tree.

Lastly, LIMES (Ducasse et al. 2020), an automatic calculation tool which compares partitions of SD analyses, was implemented. A SPART file (Miralles et al. 2022) was used (see Appendix S3) including all the results from SD analyses, the monophyletic clades inferred by the concatenated nuclear (see Appendix S3) including all the results from SD analyses, the monophyletic clades inferred by the concatenated nuclear phylogeny, as well as previously defined morphospecies to rank them depending on the mean congruence (mCtax) obtained. Following authors’ recommendations, specimens with missing gene fragments were excluded (e.g. Sesamia viettei and S. djenoensis).

### Results

#### Taxonomy

**Genus Sesamia Guenée, 1852**

**Sesamia cretica species group**

Based on the results of the morphological studies, the *Sesamia cretica* group is split into the following subgroups: *S. albivena* subgroup, *S. cretica* subgroup, *S. fuscinfrontia* subgroup, *S. salama* subgroup, *S. viettei* subgroup and *S. wiltshirei* subgroup. The *S. albivena* subgroup consists of *S. albivena* and of eight morphologically related species (seven of which are new to science). The *S. cretica* subgroup consists of *S. cretica* and of three morphologically related species (two of which are new to science). The *S. fuscinfrontia* subgroup consists of *S. fuscinfrontia* and of nine morphologically related species (eight of which are new to science). The *S. salama* subgroup consists of *S. salama* and of one related species that could not be described due to the genitalia loss of the unique known specimen. The *S. viettei* subgroup consists of *S. viettei* species only. The *S. wiltshirei* subgroup consists of *S. wiltshirei* and of five morphologically related species new to science. In all, this study includes the description of 23 species which have been cross-checked against all Sesamia types preserved in museums. A supplemental description is also provided for the eight previously described species belonging to the *S. albivena, S. cretica, S. fuscinfrontia, S. viettei* and *S. wiltshirei* subgroups. To facilitate species identification, identification keys are also provided for the five species subgroups based on male and female genitalia (see the identification keys at the end of the description paragraph of each species subgroup). A key to the *Sesamia cretica* species subgroups based on male and female genitalia is also provided just below along with a simplified tree that highlights the five key characters that have been used in the identification keys (Figure 1).

#### Identification key to the Sesamia cretica species subgroups

Key based on internal morphology of the adult males (A) and females (B) genitalia.

(A)

1. Juxta with a large medial projection (Figure 3b, g) ................. *S. albivena* subgroup
   - Juxta without a large medial projection (Figures 8c, b, 10g, 14e, g) .................................................. 2
2. Cucullus sclerotized, like a thick finger, curved at the tip (Figure 17a, d, e) .......... *S. wiltshirei* subgroup
   - Cucullus not sclerotized, broadly rounded (Figure 8a, d, 10c, i) .................................................. 3
3. Apex of costa ampulla-like (Figure 10c, h, i) or anvil-shaped (Figure 10f) or with teeth (Figure 9a, e) .......... 4
   - Apex without these characters ................................... 5
4. Inner side of sacculus with a clasper (Figure 14n, p) ...
   - Inner side of sacculus without clasper (Figure 10c, i, l) .................................................. *S. fuscinfrontia* subgroup
5. Apex of costa rather triangular (Figure 8a) or rectangular with an inner point (Figure 7b) or expanded in a shape of a small spoon (Figure 10d) ......................... *S. cretica* subgroup
   - Apex of costa with a thick shoulder without inner point (Figure 14e) .......................... *S. salama* subgroup

(B)

1. Anterior margin of ostium bursae heart-shaped with rows of villi like (Figure 3o, q, t) .......................... *S. albivena* subgroup
   - Anterior margin of ostium bursae not heart-shaped (Figures 8i, j, 11a, f, 17n, p) .......................... 2
2. Anterior margin of ostium bursae bean-shaped (Figure 11a), ribbon-shaped (Figure 11d), villi like (Figure 11e) or kidney-shaped (Figure 17n) .......................... *S. fuscinfrontia* subgroup
   - Ostium bursae strongly transverse without these characters (Figures 8i, l, 14g) .......................... 4
3. Anterior margin of ostium bursae bean-shaped (Figure 11a), ribbon-shaped (Figure 11d) or villi like (Figure 11e) .......................... *S. salama* subgroup
- Anterior margin of ostium bursae kidney-shaped (Figure 17n)...........................S. wiltshirei subgroup

4. Anterior margin of ostium bursae funnel-shaped (Figure 8i), bilobate (Figure 8j) or villi like (Figure 8l)...............................S. cretica subgroup

- Anterior margin of ostium bursae cup-shaped (Figure 14g)..............................S. salama subgroup

- Anterior margin in the form of a wavy bead (Figure 14q).................................S. viettei subgroup

**Sesamia albivena subgroup**

The *Sesamia albivena* subgroup consists of *S. albivena*, *S. aethiopica* n. sp., *S. kafulo* n. sp., *S. kavirondo* n. sp., *S. maloukou* n. sp., *S. mocoensis* n. stat., *S. soyema* n. sp., *S. sudanensis* n. stat. and *Sesamia taenioleuca*; it is characterized by the following combination of characters: (i) tegumen with prominent peniculi, vinculum with a small saccus; (ii) valve with sacculus and cucullus fused; costa short, costal spine broad, the internal side less sclerotized than the external side, spoon-shaped upwardly, most of the time produced downwardly into a sharp process; sacculus broad, well sclerotized with a strong narrowing below a more or less flared apex, inner side with a weak and only outlined harpe; cucullus not sclerotized, small and flat lying at a flatter angle on the sacculus, with scattered and papillated hairs; (iii) juxta trapezoidal with a very large laterally compressed mediolateral projection; (iv) uncus angled and stout at base then thin tapering to a fine point, tufted with long hair on upper side; (v) aedeagus short and stout; manica with a carina crest produced into paired lateral lobes strongly spinose and most of the time with the presence of one or two elongated scobinate lobes; (vi) ostium bursae slightly

**Figure 1.** Simplified phylogenetic tree highlighting the five subgroups belonging to the *Sesamia cretica* group (for the *S. fuscifrontia* subgroup, this simplified view does not show the paraphyletic nature of the subgroup). Based on the two identification keys, we identified five homologous characters that can be polarized through a parsimony analysis carried out under Mesquite (ancestral state in white, derived state in black; grey is used to underline a character that cannot be polarized). The corresponding characters are the following.

**Male characters:**
1a. juxta without a large medial projection; 1b. juxta with a large medial projection; 2a. cucullus not sclerotized; 2b. cucullus sclerotized; 3a. inner side of sacculus with a clasper; 3b. inner side of sacculus without a clasper (note that for the *S. cretica* subgroup one of the four known species –*S. rufescens*– has a clasper); 4a. shape of the apex of costa not ampulla-like or not anvil-shaped or not with teeth; 4b. shape of the apex of costa ampulla-like or anvil-shaped or with teeth. **Female character:** 5a. anterior margin of ostium bursae cup-shaped; 5b. anterior margin in the form of a wavy bead; 5c. anterior margin of ostium bursae funnel-shaped, bilobate or villi like; 5d. anterior margin of ostium bursae with row or villi like; 5e. anterior margin of ostium bursae bean-shaped, ribbon-shaped or villi like; 5f. anterior margin of ostium bursae kidney-shaped.
transverse, posterior margin strongly sclerotized, heart-shaped with rows of villi like, anterior margin cup-shaped with pointed tip on each side.

**Sesamia albivena** Hampson, 1902
(Figures 2a–f, 3a, h, o, 5)

*Sesamia albivena* Hampson 1902: 297; Gaede 1934–1940: 98 (catalogue); Janse 1939: 373 (taxonomy); Tams & Bowden 1953: 673 (taxonomy); Poole 1989: 907 (catalogue).

*Sesamia albavena* (sic); Hampson 1910: 330.

**Type material**

Holotype: ♂, [Zimbabwe], Mashonaland, Salisbury, 26.I.1898, G.A.K. Marshall, 1898–62, Agrotidae genitalia slide No. 1247, SES/149, Type (NHM).

**Additional material**

**Zimbabwe.** 6♂, 1♀, same locality as holotype, 1.I.1898, G.A.K. Marshall, 1898–62, male Agrotidae genitalia slide No. 1265/female Agrotidae genitalia slide No. 1295

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**Figure 2.** Adults of the *Sesamia albivena* species subgroup. a–f, *S. albivena*: a–c, male (a, upper side; b, underside; c, original labels, type from NHM); d–f, female (d, upper side; e, underside; f, original labels, type from NHM); g, h, *S. aethiopica*, female; g, upper side; h, underside; i–l, *S. kafulo*: i, j, male (i, upper side; j, underside); k, l, female (k, upper side; l, underside); m–o, *S. kavirondo*, male: m, upper side; n, underside; o, original labels, type from NHM; p, q, *S. maloukou*, male: p, upper side; q, underside. Scale bars: 11 mm.
Diagnosis

See also the identification key to species of the albivena subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with small prominent rounded peniculi; vinculum v-shaped at the bottom margin; base of costa small without indentation, internal side of costal spine curved, apex of the external side of the costal spine produced downwardly into a sharp pointed triangular process; apex of the sacculus very flared, inner side with a weak and only outlined harpe, slightly curved, 5.0 times longer than wide; apex of the cucullus very small and slightly rounded; juxta with a very large, thin and elongated, laterally compressed medial projection; posterior margin of ostium bursae strongly sclerotized, very flattened heart-shaped in the middle, barely concave, with rows of villi like, anterior margin cup-shaped with curved pointed tip on each side, ovipositor lobes curved, 2.1 times longer than wide.

Redescription

Figure 2a–f. Adults from both sexes have been described by Janse (1939) and Tams and Bowden (1953) based on specimens from Kenya, South Africa, Uganda and Zimbabwe. The specimens from Kenya and Uganda are considered to belong to a different species (i.e. S. kavirondo n. sp.), which can explain why their description does not fit well with those of the holotype preserved in the NHM. The latter still holds true even if the colours of old specimens could have become ochraceous with time, in contrast with the buff-pink and flesh-pink colours recorded by Janse (1939) and Tams & Bowden (1953), respectively. Our redescription is only based on specimens from the South Africa and Zimbabwe.

General shape of the female’s forewings more elongated at the apex than those of the male. Antennae ochraceous, serrate in the male, filiform in the female, flagellum adorned dorsally with pale ochraceous scales; palpus ochraceous in male, buff in female; eyes dark brown. Wing pattern similar in both sexes, thorax and wing colour pale ochraceous; head and thorax covered with long pale ochraceous hairs. Forelegs pale ochraceous, suffused with ochraceous-pink, fore tibia infuscate. Forewings pale ochraceous tinged with pinkish-buff more densely along costal, apex and termen areas, darkened to rufous at termen in some specimens; no transverse markings, veins streaked with white, some fuscous antemedial and postmedial markings more or less visible; a diffuse longitudinal fuscous fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a dark fuscous-black marking at lower angle of cell followed by a smaller one, indicating the reniform; outer margin adorned with fuscous-black elongated markings between the veins; fringe infuscate with a white basal line. Hind wings white without markings, fringe white with a basal fuscous line. Underside of forewings heavily suffused with pinkish-buff or buff in costa, apex and termen areas and below the cell; outer margin adorned with fuscous-black elongated markings between the veins, fringe fuscous with a white basal line, suffusion is more pronounced in male. Underside of hind wings white, costa and apex slightly suffused with buff and fuscous, fringe white with a fuscous basal line. Forewings length: males 26.5 mm (min=24–28 mm, N=8); female 30 mm (N=1).

Male genitalia (Figure 3a, h). Tegumen with small prominent rounded peniculi; vinculum narrow with a small sacculus, v-shaped at the bottom margin, w-shaped at the top margin with an indentation. Valve with sacculus and cucullus fused; costa short, the base small without indentation, costal spine large, internal side curved, less sclerotized than the external side, apex rounded upwardly, external side slightly wavy, apex produced downwardly into a sharp pointed triangular process; sacculus broad, well sclerotized, with a strong narrowing below a very flared apex, inner side with a weak and only outlined harpe, slightly curved, heavily sclerotized, 5.0 times longer than wide; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, slightly sclerotized, apex very small and slightly rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a very large, thin and elongated, laterally compressed medial projection, dentated at apex; uncus thin, curved at middle, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manicca with a carina crest produced into paired lateral lobes strongly spinose, two elongated scobinate lobes, one straight, the other one strongly curved.

Female genitalia (Figure 3o). The genitalia slide No. 1295 preserved in the NHM is the only female genitalia
Figure 3. Male and female genitalia of the *Sesamia albivena* species subgroup. a, h, o, *S. albivena*: a, male genitalia; h, male aedeagus; o, female genitalia; p, *S. aethiopica*, female genitalia; b, i, q, *S. kafuto*: b, male genitalia; i, male aedeagus; q, female genitalia; c, j, *S. kavirondo*: c, male genitalia; j, male aedeagus; d, k, *S. maloukou*: d, male genitalia; k, male aedeagus; e, l, *S. mocoensis*: e, male genitalia; l, male aedeagus; r, *S. soyema*, female genitalia; f, m, s, *S. sudanensis*: f, male genitalia; m, male aedeagus; s, female genitalia; g, n, t, *S. taeniolenca*: g, male genitalia; n, male aedeagus; t, female genitalia. Scale bars: male genitalia, 1 mm for valves and 0.5 mm for aedeagus; female genitalia, 1 mm.
preparation available. When comparing it with other female genitalia preparations of related species of the *S. cretica* group (i.e. *S. rufescens* and *S. sudanensis* n. stat. preserved in the NHM and *S. aethiopica* n. sp., *S. kafulo* n. sp., *S. soyema* n. sp. and *S. taeniouleuca* preserved in the MNHN and prepared by B. Le Ru), it was suspected that this particular specimen was poorly prepared as indicated by the reversal of the posterior lip of the anteoostial pad. In order to harmonize all descriptions, the female genitalia of *S. albivena* is redescribed. Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin strongly sclerotized, very flattened heart-shaped in the middle, barely concave, with rows of villi like, cup-shaped with curved pointed tip on each side; ductus bursae short, not sclerotized; corpus bursae short, ovoid, without signa; ovipositor lobes curved, 2.1 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores.

**Bionomics**

Biology unknown.

**Distribution**

South Africa and Zimbabwe. The recorded localities are from different vegetation mosaics: East African coastal (mosaic #16c), undifferentiated montane vegetation (mosaic #19a), drier Zambezian miombo woodland (mosaic #26), undifferentiated woodland (mosaics #29c, d, e), and highveld grassland (mosaic #58) (White 1983) (Figure 5).

**Remarks**

*Sesamia albivena* is widely distributed throughout South Africa and Zimbabwe. In addition to the specimens listed in the other material section, 70 male and female specimens are preserved in the TMSA. These specimens were collected from multiple localities in South Africa (Eastern Cape: Umtali; Free State: Lomagundi; Gauteng: Griffin, Modderfontein, Pretoria, Silverton; KwaZulu-Natal: Kranzlkloof, New Hanover, Sarnia; Limpopo: Mahuba’s Kloof, Naboomspruit, Ofcolaco, Sikororo; Mpumalanga: Barberton, Nelspruit, Sawmills, White river; North West: Rustenburg; Northern Cape: Springbok; Western Cape: Stoffberg, Harmonie farm, Butler South) and Zimbabwe (Bulawayo, Christon Bank, Darwendale, Mazoe and Sinoia). One male found in the MCSV (labelled “E. Berio Prepar. N 1089”), with writing impossible to decipher, belongs to this species.

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**Sesamia aethiopica Le Ru n. sp.**

*(Figures 2g, h, 3p, 5)*

**Type material**

**Holotype.** ♀, Ethiopia, Oromia region, Gibe, Soyema Bridge, 07°15′24″N, 36°47′94″E, 1051 m asl, IX.2015, ex light trap, gen. prep. LERU Bruno/G920 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *albivena* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the female genitalia: posterior margin of ostium bursae, strongly sclerotized, heart-shaped, slightly convex in the middle with rows of villi like, pointed base extending towards the ductus bursae, anterior margin cup-shaped with very sharp curved ends on each side; ovipositor lobes curved, 2.2 times longer than wide. *Sesamia aethiopica* n. sp. female genitalia are very similar to those of *S. kafulo* n. sp.; however, posterior margin is less concave in the middle than in *S. kafulo* n. sp. and the pointed base extending towards the ductus bursae is wider than in *S. aethiopica* n. sp.

**Description**

*Figure 2g, h.* Antennae pinkish-buff, filiform, flagellum adorned dorsally with pale beige scales; palpus ochraceous; eyes dark brown. Head and thorax covered with long pale beige hairs, abdomen pink beige. Legs ochraceous, suffused with beige. Forewings pinkish-buff tinged with buff more densely along costal, apex and termen areas, darkened to rufous at termen; no transverse markings, veins streaked with white, some brown antemedial and postmedial markings; a diffuse longitudinal pale pink fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a dark fuscos-black marking at lower angle of cell followed by a smaller one, indicating the reniform; outer margin adorned with fuscos-black elongated markings between the veins; fringe infuscate with a white basal line. Hind wings pinkish-white without markings, fringe white with a basal fuscos line. Underside of forewings heavily suffused with fuscos in costa, apex, termen areas and below the cell; outer margin adorned with fuscos-black elongated markings between the veins, fringe infuscate with a white basal line. Underside of hind wings white slightly suffused with fuscos, fringe white with a fuscos basal line. Forewings length: female 22.0 mm (N = 1).

**Female genitalia** (Figure 3p). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin...
strongly sclerotized, heart-shaped slightly convex in the middle with rows of villi like, pointed base extending towards the ducus bursae, anterior margin cup-shaped with very sharp curved ends on each side; ducus bursae short, slightly sclerotized on ostium side; corpus bursae short, ovoid, without sigma; ovipositor lobes curved, 2.2 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores.

**Etymology**

Named after Ethiopia, the country where the species has been collected, treated as an adjective.

**Bionomics**

Biology unknown. The moth was caught with a light trap in grasslands surrounding banks of a river inhabited with various Poales species belonging to the following genera: *Andropogon* L., 1753, *Cymbopogon* Spreng., 1815, *Hyparrhenia* Andersson ex E. Fourn., 1886, *Megathyrsus* (Pilg.) B.K. Simon & S.W.L. Jacobs, 2003 and *Sporobolus* R. Brown, 1810.

**Distribution**

Ethiopia. The recorded locality is from East African evergreen and semi-evergreen bushland and thicket (mosaic #38) vegetation mosaic (White 1983) (Figure 5).

**Remarks**

Although morphologically close to *S. kafulo* n. sp., *S. aethiopica* n. sp. female genitalia are easily distinguished with characters of the posterior margin of the antostial pad. The only known specimen of this species was collected at 9 pm, 3 h after sunset, at the same time as the only known specimen of *S. soyema* n. sp.

*Sesamia kafulo* Le Ru n. sp.

(Figures 2i–l, 3b, i, q, 5)

**Type material**

**Holotype.** ♂, Zambia, Western Province, Kafuolo, 14°08′43″S, 23°27′38″E, 1056 m asl, 18.III.2012, ex light trap, male gen. prep. LERU Bruno/G107 (B. Le Ru, leg.) (MNHN).

**Paratypes.** Botswana. 1♀, [Botswana] (B7), Kuke Pan, 20°59′S, 22°25′E, 14–15.IV.1972, Southern African Exp. B.M. 1972-1 (NHM). Zambia. 1♂, 2♀, same locality and date as holotype, ex light trap (B. Le Ru, leg.) (MNHN); 14♂, 4♀, North-Western Province, Kuende, 13°06′33″S, 25°21′25″E, 1225 m asl, 19.III.2012, ex light trap, male gen. prep. LERU Bruno/G163; female gen. prep. LERU Bruno/G109 (B. Le Ru, leg.) (MNHN); 2♂, Northern Province, Kantongo, 9°29′03″S, 32°37′5″E, 1378 m asl, 25.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 1♂, 2♀, North-Western Province, Kalale, 14°47′55″S, 25°19′17″E, 1154 m asl, 17.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 1♂, 2♀, Luapula Province, Ngwenya, 12°58′32″S, 28°27′19″E, 1243 m asl, 21.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 2♂, Central Province, Khaembe, 14°33′06″S, 28°19′18″E, 1191 m asl, 15.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 2♂, 2♀, North-Western Province, Rwanko Azi, 12°13′13″S, 25°39′04″E, 1413 m asl, 20.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 2♂, 2♀, Northern Province, Chalwe, 10°26′24″S, 29°30′02″E, 1295 m asl, 23.III.2012, ex light trap, male gen. prep. LERU Bruno/G105 (B. Le Ru, leg.) (MNHN); 1♀, Northern Province, Kuende, 12°13′13″S, 25°39′04″E, 1413 m asl, 20.III.2012, ex light trap, male gen. prep. LERU Bruno/G105 (B. Le Ru, leg.) (MNHN); 1♀, Northern Province, Kalale, 14°47′55″S, 25°19′17″E, 1154 m asl, 17.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 2♂, Central Province, Khaembe, 14°33′06″S, 28°19′18″E, 1191 m asl, 15.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 2♀, North-Western Province, Rwanko Azi, 12°13′13″S, 25°39′04″E, 1413 m asl, 20.III.2012, ex light trap (B. Le Ru, leg.) (MNHN); 2♂, 2♀, North-Western Province, Chalwe, 10°26′24″S, 29°30′02″E, 1295 m asl, 23.III.2012, ex light trap, male gen. prep. LERU Bruno/G105 (B. Le Ru, leg.) (MNHN); 1♀, Northern Province, Chalwe, 10°26′24″S, 29°30′02″E, 1295 m asl, 23.III.2012, ex light trap, male gen. prep. LERU Bruno/G105 (B. Le Ru, leg.) (MNHN); 1♀, N. Rhodesia, Fort Jameson, J.M. Phipps, B.M. 1931-380, 1948/327 (NHM); 1♀, N. Rhodesia, Lusaka, 7.III.1956, R.C. Dening, B.M. 1956-303, 214A (NHM).

**Diagnosis**

See also the identification key to species of the *alibivna* subgroup below. This species can be distinguished from all other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with small rounded peniculi; vinculum v-shaped at the bottom margin; base of costa large with indentations, internal side of costal spine flat, apex rounded upwardly, cap-shaped at the end, external side of costal spine produced downwardly into a sharp pointed triangular process; apex of the sacculus very flared, inner side with a weak and only outlined harpe, 6.0 times longer than wide; apex of the cucullus small and slightly rounded; juxta with a large, robust and thick, medial projection; posterior margin of ostium bursae heart-shaped, slightly convex in the middle, anterior margin cup-shaped with straight gutter-shaped ends on each side; ovipositor lobes curved, 2.0 times longer than wide. *Sesamia kafulo* n. sp. female genitalia are very similar to those of *S. aethiopica* n. sp.; however, the antostial pad is more concave in the middle than in *S. aethiopica* n. sp. and the pointed base extending towards the ducus bursae is narrower than in *S. aethiopica* n. sp.

**Description**

Figure 2i–l. Antennae ochraceous, serrate in the male, filiform in the female, flagellum adorned dorsally with buff scales; palpus buff; eyes dark brown. Wing pattern similar in both sexes, thorax and wing colour buff, head and thorax covered with long pale buff hairs. Forelegs pale brown, otherwise buff. Forewings pale buff tinged with dark buff more densely along costal, apex and
termen areas; no transverse markings; a diffuse longitudinal ochraceous fascia along the lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a dark fuscous-black marking at lower angle of cell indicating the reniform; outer margin adorned with fuscous-black elongated markings between the veins; fringe infuscate with a white basal line. Hind wings white slightly suffused with pale buff in costa, apex and termen areas; fringe suffused withbuff, fringe infuscate with a white basal line. Underside of hind wings white, costa and apex suffused with buff, fringe infuscate with a white basal line. Forewings length: males 27.5 mm (min – max 24–31 mm, N = 11); female 29.0 mm (min – max 19–26 mm, N = 11).

**Male genitalia** (Figure 3b, i). Tegumen with small rounded penicilli; vinculum narrow with a small saccus, v-shaped at the bottom margin, w-shaped at the top margin with an indentation. Valve with sacculus and cucullus fused; costa short, base large with indentations, costal spine large, internal side flat, less sclerotized than the external side, apex rounded upwardly, cap-shaped at the end, external side slightly wavy produced downwardly into a sharp pointed triangular process; sacculus broad, well sclerotized with a strong narrowing below a very flared apex, inner side with a weak and only outlined harpe, slightly curved, 6.0 times longer than wide; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, slightly sclerotized, the apex small and slightly rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a large, robust and thick, medial projection, slightly dentated at apex; uncus thin, curved at middle, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two elongated scobinate lobes, one straight, the other one strongly curved.

**Female genitalia** (Figure 3q). Apophyses anteriores with spicate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin strongly sclerotized, heart-shaped, slightly convex in the middle with rows of villi like, pointed base extending towards the ductus bursae, anterior margin cup-shaped with straight gutter-shaped ends on each side; ductus bursae short, slightly sclerotized on ostium side; corpus bursae short, ovoid, without sigilla; ovipositor lobes curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores.

**Etymology**

Named after Kafulo, the town close to the place where the species was collected; treated as a noun in apposition.

**Bionomics**

Biology unknown. The moths were caught with light traps in grasslands inhabited with various Poales species belonging to the following genera: *Andropogon*, *Cymbopogon*, *Hyparrhenia*, *Megathyrsus*, *Panicum* L., 1753 and *Sporobolus*.

**Distribution**

Botswana, Zambia. The recorded localities are from two different vegetation mosaics: wetter Zambezian miombo woodland (mosaic #25), and transition from undifferentiated woodland to *Acacia* Mill., 1754 deciduous bushland and wooded grassland (mosaic #35a) (White 1983) (Figure 5).

**Sesamia kavirondo Le Ru n. sp.**

(Figures 2m–o, 3c, j, 5)

**Type material**

**Holotype.** ♂, [Kenya], S. Kavirondo, Suna, XI.1911 (W. Feather), Agrotidae genitalia slide No. 1276 (NHM).

**Paratypes.** Kenya. 1♂, same locality and date as holotype, SES/165 (NHM); 1♂, S. Kavirondo, Suna, IV.1931 (W. Feather), Agrotidae genitalia slide No. 1279, Rothschild Bequest B.M. 1939-1 (NMH); 1♂, Mt Elgon, V.1932, T.H.E. Jackson, 1952/10, Brit. Mus.1935-177, slide No. 1247, SES/149, Type (NHM). Uganda. 1♂, S.E. Ruwenzori, [1067 m asl], 16.IV.1906, 1906–153, Coll. By Hon. G. Legge & A.F.R. Wollaston (NHM).

**Additional material**

**Kenya.** 1♂, Mt Elgon, VII.1929, T.H.E. Jackson, 1952/10, Brit. Mus.1935-177, Agrotidae genitalia slide No. 1428, *Sesamia albivena albivena* I.W.B. Nye det. 1958 (NHM).

**Diagnosis**

See also the identification key to species of the *albivena* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male genitalia: tegumen with small flat penicilli; vinculum v-shaped at the bottom margin; base of costa large without indentation, internal side of costal spine curved, apex rounded, upwardly cap-shaped at the end, external side of the costal spine produced downwardly into a large triangular process; apex of the sacculus very flared, inner side with a weak and only outlined harpe, slightly curved, 4.0 times longer than wide; apex of the cucullus very small, almost flat; juxta with a very large, thin and elongated, laterally compressed medial projection.
Description

Figure 2m–o. Antennae ochraceous, serrate, flagellum adorned dorsally with pale buff scales; palpus ochraceous; eyes dark brown. Thorax pale buff, wing pale ochraceous; head and thorax covered with long pale buff hairs. Forelegs dark ochraceous, otherwise pale ochraceous. Forewings pale ochraceous tinged with pinkish-buff more densely along costal, apex and termen areas; no transverse markings, some fuscous antemedial and postmedial markings more or less visible; a diffuse longitudinal fuscous fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a dark fuscous marking at lower angle of cell followed by a smaller one, indicating the reniform; outer margin adorned with fuscous-black elongated markings between the veins; fringe infuscate with a white basal line. Hind wings white without markings, fringe white with a basal fuscous line. Underside of forewings suffused with fuscous and pinkish-buff in costa, apex and termen areas and around the cell; outer margin adorned with fuscous-black elongated markings between the veins, fringe fuscous with a white basal line. Underside of hind wings white, costa and apex slightly suffused with fuscous, fringe white with a fuscous basal line. Forewings length: males 24.0 mm – max 28 mm, (min–max 20–28 mm, N = 4) Male genitalia (Figure 3c, j). Tegumen with small flat peniculi; vinculum narrow with a small saccus, v-shaped at the bottom margin, w-shaped at the top margin with an indentation. Valve with sacculus and cucullus fused; costa short, base large without indentation, costal spine large, internal side curved, less sclerotized than the external side, apex rounded, upwardly cap-shaped at the end, external side slightly wavy, produced downwardly into a large triangular process; sacculus broad, well sclerotized with a strong narrowing below a very flared apex, inner side with a weak and only outlined harpe, slightly curved, 4.0 times longer than wide; cucullus narrow lying at a flatter angle on the sacculus, base beaded-shaped, apex very small, almost flat, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a very large, thin and elongated, laterally compressed medial projection, dentated at apex; uncus thin, curved at middle, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two elongated scobinate lobes, one straight, the other one strongly curved.

Etymology

Named after Kavirondo, the name of the region along the north-east coast of Victoria lake where the holotype was collected; treated as a noun in apposition.

Bionomics

Biology unknown.

Distribution

Kenya and Uganda. The recorded localities are from two different vegetation mosaics: lowland rain forest and secondary grassland (mosaic #11a), and East African evergreen bushland and secondary Acacia wooded grassland (mosaic #45) (White 1983) (Figure 5).

Sesamia maloukou Le Ru n. sp.
(Figures 2p, q, 3d, k, 5)

Type material

Holotype. ♂, Republic of Congo, Pool Department, Maloukou Trechot, 3°59′58″S, 15°35′15″E, 585 m asl, 9.IV.2013, ex light trap, gen. prep. LERU Bruno/G551 (B. Le Ru leg.) (MNHN).

Paratype. Republic of Congo. 1♂, same locality and date as holotype, ex light trap, gen. prep. LERU Bruno/G580 (B. Le Ru, leg.) (MNHN).

Diagnosis

See also the identification key to species of the albivena subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male genitalia: tegumen with small flat peniculi; vinculum u-shaped at the bottom margin; base of costa large with indentations, internal side of costal spine slightly convex, apex rounded upwardly, produced downwardly into a small blunt triangular process; apex of the sacculus slightly flared, inner side with a weak and only outlined harpe, 5.0 longer than wide; apex of cucullus almost flat; juxta with a large, robust and thick, medial projection in dorsal position.

Description

Figure 2p, q. Antennae buff serrate, flagellum adorned dorsally with pale buff scales; palpus pale buff; eyes brown. Head covered with long dark buff hairs, thorax covered with long pale buff hairs, abdomen pale buff. Forelegs pale brown, otherwise buff. Forewings dark buff; no transverse markings, veins streaked with pale buff; a diffuse longitudinal fuscous fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a fuscous-black marking at lower angle of cell indicating the reniform; outer margin adorned with fuscous-black elongated markings between the veins; fringe infuscate with a white basal line. Hind wings pinkish white,
fringe concolour with a basal white line. Underside of forewings heavily suffused with dark-buff in costa, apex and termen areas; outer margin adorned with fuscous-black elongated markings between the veins, fringe infuscate with a white basal line. Underside of hind wings pinkish white, costa and apex slightly suffused with buff, fringe concolour. Forewings length: males 25.0 mm (min–max 24–26 mm, N = 2).

**Male genitalia** (Figure 3d, k). Tegumen with small flat peniculi; vinculum narrow with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin with an indentation. Valve with sacculus and cucullus fused; costa short, base large with indentations, costal spine large, internal side slightly convex, less sclerotized than the external side, apex rounded upwardly, external side slightly wavy produced downwardly into a small blunt triangular process; sacculus broad, well sclerotized with a strong narrowing below a slightly flared apex, inner side with a heavily sclerotized bead, 5.0 times longer than wide; cucullus narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex small, almost flat, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a large, robust and thick, medial projection in dorsal position, slightly dentated at apex; uncus thin, curved at middle, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, one elongated strongly curved scobinate lobe.

**Etymology**
Named after Maloukou, the name of the village along the Congo river where the only two known specimens have been collected; treated as a noun in apposition.

**Bionomics**
Biology unknown. The moths were caught with a light trap in grasslands inhabited with various Poales species belonging to the following genera: *Cymbopogon, Hyparrhenia, Megathyrsus, Panicum* and *Sporobolus*.

**Distribution**
Republic of Congo. The recorded localities are from lowland rain forest and secondary grassland (mosaic #11a) vegetation mosaic (White 1983) (Figure 5).

**Remarks**
There may be another elongated straight scobinate lobe like in all related species but it is not visible because of the poor genitalia preparation.

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**Sesamia mocoensis** Tams & Bowden, 1953, n. stat.
(Figures 3e, 1, 5, 6a–f)

*Sesamia albivena mocoensis* Tams & Bowden 1953: 674; Poole 1989: 908 (catalogue).

**Type material**

**Holotype.** ♂. [Angola], Mt. Moco, Luimbale, 1800–1900 m, 20.III.1934, Dr. K. Jordan, *Sesamia albivena mocoensis* Tams & Bowden holotype ♂. Rothschild Bequest B.M. 1939–1, Type, SES/126 male Agrotidae genitalia slide No. 1246 (NHM).

**Paratypes.** Angola. 3♂, same locality as holotype, 18.III.1934, Dr. K. Jordan, Rothschild Bequest B.M. 1939–1, Paratype (NHM).

**Additional material**

**Angola.** 7♂, 2♀, same locality as holotype, III.1934, Dr. K. Jordan, SES/121 male Agrotidae genitalia slide No. 1268, SES/97 male Agrotidae genitalia slide No. 1297 (NHM); 1♀, Capelongo-Dongo, I.1913, ex Rohan-Chabot, Museum-Paris, Joicey Bequest Brit. Mus. 1934-120 (NHM).

**Democratic Republic of Congo.** 1♂, S.W. Tanganyika, Marungu Plateau, W. side, 7000ft, II.1922, T.A. Barns, Joicey Bequest Brit. Mus. 1934-120, 004596 (NHM); ♂, [Katanga], Elisabethville, 17.I.1934 (Dr. Bourguignon leg.) (MRAC); 4♂, [Katanga], Elisabethville, 25.III.1933, 19.XII.1936, 11.I.1937, 18.XI.193?, M2725, gen. prep. LERU Bruno/G1051 (Ch. Seydel leg.) (MRAC); 3♂, [Katanga], Elisabethville, 24.I.1932/15.II.1935/17.III.1936, Musée du Congo, E. Berio Prepar. N 1104/1107/1112 (Ch. Seydel leg.) (MCSN).

**Diagnosis**
See also the identification key to species of the *albivena* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male genitalia: tegumen with rounded peniculi; vinculum narrow with a saccus u-shaped at the bottom margin; base of costa large without indentation, internal side of costal spine flat, apex rounded, upwardly cap-shaped, external side of costal spine produced downwardly into a sharp triangular process; apex of the sacculus slightly flared, inner side with a weak and only outlined harpe, 6.0 times longer than wide; apex of the cucullus slightly rounded; juxta with a very large, thin and elongated, laterally compressed medial projection.

**Redescription**

Figure 6a–f. Antennae ochraceous, serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus ochraceous; eyes dark brown. Head
and thorax covered with long pale buff hairs, abdomen pale buff. Forelegs ochraceous, otherwise pale ochraceous. Wing pattern similar in both sexes. Forewings pale ochraceous tinged with buff more densely along costal, apex and termen areas, darkened to rufous at termen in some specimens; no transverse markings, veins streaked with white; a diffuse longitudinal buff fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a darkfuscous-black marking at lower angle of cell followed by a smaller one, indicating the reniform; outer margin adorned with more or less visible fuscous-black elongated markings between the veins; fringe infuscate with a white basal line. Hind wings white without markings, fringe white with a basal buff line. Underside of forewings heavily suffused with buff in costa, apex and termen areas; outer margin adorned with fuscous-black elongated markings between the veins, fringe infuscate with a white basal line. Hind wings white without markings, fringe white with a basal buff line. Underside of hind wings white, costa and apex slightly suffused with buff and fuscous, fringe white, slightly infuscate in apex, a fuscous basal line. Forewings length: males 28.5 mm (min–max 26–31 mm, N = 11); females 31.7 mm (min–max 30–32 mm, N = 3).

Male genitalia (Figure 3e, l). Tegumen with small rounded peniculi; vinculum narrow with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin with an indentation. Valve with saccus and cucullus fused; costa short, base large without indentation, costal spine large, internal side flat, less sclerotized than the external side, apex rounded upwardly cap-shaped, external side slightly wavy, produced downwardly into a sharp triangular process; saccus broad, well sclerotized with a strong narrowing below a slightly flared apex, inner side with a weak and only outlined harpe, slightly curved, 6.0 times longer than wide; cucullus narrow, lying at a flatter angle on the saccus, base bead-shaped, sclerotized, apex slightly rounded, not sclerotized, with scattered and papillated hairs; xjeta trapezoidal, with a very large, thin and elongated, laterally compressed medial projection, dented at apex; uncus thin, curved at middle, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two elongated scobinate lobes, one straight, the other one strongly curved.

Bionomics

Biology unknown.

Distribution

Angola and Democratic Republic of Congo. The recorded localities are from wetter Zambezian miombo woodland (mosaic #25) vegetation mosaic (White 1983) (Figure 5).

Remarks

Tams & Bowden (1953) noticed the great morphological resemblance between S. albivena and S. mocoensis, which led them to consider S. mocoensis as a subspecies of S. albivena. However, when comparing male genitalia of the two taxa, notable differences are observed; in the male the most discriminating characters are the costa, the internal side of the costal spine, the inner side of the apex of the sacculus and the apex of the cucullus (see also the identification key to species of the albivena subgroup below). Unfortunately, without any available female genitalia preparation, it is not possible to describe it.

Sesamia soyema Le Ru n. sp. (Figures 3r, 5, 6g, h)

Type material

Holotype. ♀, Ethiopia, Oromia region, Gibe, Soyema Bridge, 07°15′24″N, 36°47″94″E, 1051 m asl, IX.2015, ex light trap, gen. prep. LERU Bruno/G882 (B. Le Ru, leg.) (MNHN).

Diagnosis

See also the identification key to species of the albivena subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the female genitalia: posterior margin of ostium bursae rounded heart-shaped with a pointed base extending towards the ductus bursae, anterior margin cup-shaped with straight gutter-shaped ends on each side; ovipositor lobes curved, 2.0 times longer than wide.

Description

Figure 6g, h. Antennae ochreous, filiform, flagellum adorned dorsally with pale beige scales; palpus buff; eyes dark brown. Head and thorax covered with long ochreous buff hairs, abdomen pink beige. Legs ochreous buff, suffused with beige. Forewings pale-buff tinged with ochreous buff more densely along costal, apex and termen areas, darkened to rufous at termen; no transverse markings, veins streaked with white; a diffuse longitudinal fuscous fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a fuscous marking at lower angle of cell, indicating the reniform; outer margin adorned with fuscous-brown markings between the veins; fringe infuscate with a white basal line. Hind wings white without markings, fringe white with a basal fuscous line. Underside of forewings pale buff heavily suffused with buff in costa, apex, termen areas; outer margin adorned with fuscous-brown markings between the veins, fringe infuscate with a white basal line. Underside of hind wings white slightly
suffused with fuscous in costa and apex areas, fringe white, slightly infuscate in apex, with a fuscous basal line. Forewings length: female 30.0 mm (N = 1).

**Female genitalia (Figure 3r).** Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin strongly sclerotized, rounded heart-shaped, slightly convex in the middle, with rows of villi like, a pointed base extending towards the ductus bursae, anterior margin cup-shaped with straight gutter-shaped ends on each side; ductus bursae short, slightly sclerotized on ostium side; corpus bursae short, ovoid, without signa; ovipositor lobes curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores.

**Etymology**

Named after Soyema, the town close to the place where the species was collected; treated as a noun in apposition.

**Bionomics**

Biology unknown. The adults were caught with a light trap in grasslands surrounding banks of a river inhabited with various Poales species belonging to the following genera: *Andropogon, Cymbopogon, Hyparrhenia, Megathyrsus* and *Sporobolus.*

**Distribution**

Ethiopia. The recorded locality is from East African evergreen and semi-evergreen bushland and thicket (mosaic #38) vegetation mosaic (White 1983) (Figure 5).

**Sesamia sudanensis** Tams & Bowden, 1953, n. stat.

(Figures 3f, m, s, 5, 6i–n)

*Sesamia albivena* sudanensis Tams & Bowden 1953: 673; Poole 1989: 908 (catalogue).

**Type material**

**Holotype.** ♂ [Republic of South Sudan], South Sudan, Tembura, Acq. Janson, London, XII.1922, ex Oberthür Coll. Brit. Mus. 1927–3, 1948/312, Agrotidae genitalia slide No. 1296, *Sesamia albivena sudanensis* Tams & Bowden, det. W.H.T. Tams 22.I.1919, Type (NHM).

**Allotype.** Republic of South Sudan. ♀, same locality and date as holotype, Agrotidae genitalia slide No. 1245, *Sesamia albivena sudanensis* Tams & Bowden, det. W.H.T. Tams 7.XI.1918, Type (NHM).

**Paratype.** Uganda. 1 ♂, Amugo, Lango, 27.III.35, at light, H.B. Johnston, 1948/298, 910, *Sesamia albivena sudanensis* Tams & Bowden, Paratype (NHM).

**Diagnosis**

See also the identification key to species of the *albivena* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with triangular peniculi; vinculum with a saccus u-shaped at the bottom margin; base of costa small without indentation, internal side of costal spine flat, apex rounded upwardly, cap-shaped at the end, apex of external side of costal spine produced downwardly into one or two small spikes; apex of the cucullus very flared, inner side with a weak and only outlined harpe, curved, 8.0 times longer than wide; apex of the cucullus large, rounded; juxta with a very large, thin and elongated, laterally compressed medial projection; posterior margin of ostium bursae strongly sclerotized, heart-shaped, strongly convex in the middle, square base extending towards the ductus bursae, anterior margin cup-shaped with very sharp straight ends on each side; ovipositor lobes curved, 2.7 times longer than wide.

**Redescription**

Figure 6i–n. Male ochraceous, female pale buff; antennae ochraceous, serrate, cilia short, in the male, pale buff, filiform in the female, flagellum adorned dorsally with ochraceous scales in male, with pale buff in female; palpus pale buff; eyes dark brown. Head and thorax covered with long ochraceous buff hairs in male, long pale buff hairs in female. Legs ochraceous buff, suffused with beige. Forewings buff tinged with ochraceous buff more densely along costal, apex and termen areas, darkened to rufous at termen, more pronounced in male; no transverse markings, veins streaked with white; some fuscous postmedial markings more or less visible; a diffuse longitudinal ochraceous fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; a fuscous marking at lower angle of cell, indicating the reniform; outer margin adorned with elongated fuscous-brown markings between the veins; fringe fuscous in male, infuscate in female, with a pale buff basal line. Hind wings white slightly suffused with buff in male, without markings, fringe infuscate in male, white, slightly infuscate in costa in female, basal line fuscous. Underside of forewings buff, heavily suffused with dark buff in costa, apex, termen areas and below the cell in male, slightly suffused in female; outer margin adorned with elongated fuscous-brown markings between the veins, fringe infuscate with a pale buff basal line. Underside of hind wings white suffused with fuscous in costa, apex and termen areas in male, slightly suffused in costa and apex in female, fringe infuscate in male, slightly infuscate in apex in female, with a fuscous basal line. Forewings
Male genitalia (Figure 3f, m). Tegumen with triangular peniculi; vinculum narrow with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin with an indentation. Valve with sacculus and cucullus fused; costa short, base small without indentation, costal spine large, internal side flat, less sclerotized than the external side, apex rounded upwardly, cap-shaped at the end, external side slightly wavy, apex produced downwardly into one or two small spikes; sacculus broad, well sclerotized with a strong narrowing below a very flared apex, inner side with a weak and only outlined harpe, slightly curved, heavily sclerotized, 8.0 times longer than wide; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped slightly sclerotized, apex large rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a very large, thin and elongated, laterally compressed medial projection, dentated at apex; uncus thin, curved at middle, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two elongated scobinate lobes, one straight, the other one strongly curved.

Female genitalia (Figure 3s). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin strongly sclerotized, heart-shaped strongly convex in the middle with rows of villi like, square base extending towards the ductus bursae, anterior margin cup-shaped with very sharp straight ends on each side; ductus bursae short, slightly sclerotized on ostium side; corpus bursae short, ovoid, without signa; ovipositor lobes curved, 2.7 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores.

Bionomics

Biology unknown.

Distribution

Republic of South Sudan and Uganda. The recorded localities are from Sudanian woodland with abundant Isoberlinia Craib & Stapf ex Holland, 1911 (mosaic #27) vegetation mosaic (White 1983) (Figure 5).

Remarks

Tams & Bowden (1953) noticed the great morphological resemblance between S. albivena and S. sudanensis, which led them to consider S. sudanensis as a subspecies of S. albivena. However, when comparing both male and female genitalia of the two taxa, notable differences are observed; in the males the most discriminating characters are the internal side and the apex of the external side of the costal spine, the inner side of the apex of the sacculus, the apex of the cucullus and the vinculum; in the females the posterior margin of the antostial pad (see also the identification key 2 below). Tams and Bowden (1956) recorded two paratypes from Cameroon (Upper Uelle District, Dungu, VII.1939) and Nigeria (British Cameroons, Kumba to Fumbo, [1219 m asl]; IX.1922); these two specimens were not found in the NHM. However, these two specimens have a doubtful origin; first Uelle District is not in Cameroon but in the north-east of the Democratic Republic of the Congo, and secondly these two records are from deep rainforest areas, ecologically very different from that of the three specimens recorded from Sudan and Uganda, collected in open savannah-type habitats, like all known species of the S. cretica group. In the NHM a male specimen collected in Uganda (S.E. Ruwenzori, [1067 m asl], 16.IV.1906, 1931-380, 1906/153, coll. By Hon G. Legge & A.F.R. Wollaston) was found, which cannot be assigned with certainty to S. sudanensis because the examination of its genitalia was not possible.

Sesamia taenioleuca (Wallengren, 1863)

(Figures 3g, n, t, 5, 6–r)

Tapinostola taenioleuca Wallengren 1863: 148.

Sesamia taenioleuca (Wallengren); Hampson 1910: 330 (recombination); Gaede 1934–1940: 98 (catalogue); Janse 1939: 372 (taxonomy); Tams & Bowden 1953: 672 (taxonomy); Poole 1989: 908 (catalogue).

Type material

Holotype. ♀, [Namibia], [Damaraland, Khomas highland, 22°40′S, 16°19′E], Kuisip Africae, J. Wahlb. (SMNH).

Additional material

South Africa. 1♂, Transvaal, 1907-262, C.H. Pead, Noctuidae genitalia slide N° 1249 (NHM).

Zambia. 1♀, N. Rhodesia, Lusaka, 2.II.1956, R.C. Dening, B.M. 1956-303, 199A (NHM); 1♂, N. Rhodesia, Fort Jameson, J.M. Phipps, B.M. 1931-380, SES/157, Agrotidae genitalia slide No 1267 (NHM); 4♀, 19, Western Province, Kabulo, 14°08′50″ S, 23°27′38″E, 1056 m asl, 20.III.2012, ex light trap (B. Le Ru leg.), male gen. prep. LERU Bruno/G108, female gen. prep. LERU Bruno/G136 (MNHN).

Zimbabwe. 3♂, Mashonaland, [Harare], Salisbury, 26.I.1898, G.A.K. Marshall, 98-62, SES/152, Agrotidae genitalia slide No 1266 (NHM).
**Description**

*Figure 6o–r.* The male of this species has been described in detail by Janse (1939) and Tams & Bowden (1953). The female is recorded here for the first time: antennae filiform, otherwise the general shape of the female’s forewings is more elongated at the apex than those of the male but the wing pattern and colour are similar in both sexes. Forewings length: males 29.7 mm (min–max 27–31 mm, \( N = 8 \)); female 32.5 mm (min–max 32–33 mm, \( N = 2 \)).

### Male genitalia (*Figure 3g, n)*

Tegumen with small triangular peniculi; vinculum with a small saccus, \( v \)-shaped at the bottom margin; costa large with indentations, internal side of costa large, \( v \)-shaped at the apex, produced downwardly into a very large triangular process; saccus broad, well sclerotized with a strong narrowing below a slightly flared apex, inner side with a weak and only outlined harpe, curved, 6.0 times longer than wide; apex of cucullus small and rounded; juxta with a large, robust and thick, laterally compressed mediodorsal projection; posterior margin of ostium bursae heart-shaped with a rounded base, anterior margin cup-shaped with very sharp slightly curved ends on each side; ovipositor lobes curved, 2.8 times longer than wide.

### Female genitalia

*Figure 3t).* Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin strongly sclerotized with rows of villi like, slightly convex in the middle, base rounded, anterior margin cup-shaped with very sharp slightly curved ends on each side; ductus bursae short, slightly sclerotized on ostium side; corpus bursae short, ovoid, without signa; ovipositor lobes curved, 2.8 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores.

**Bionomics**

Biology unknown. Adults were caught with light traps in grasslands inhabited with various Poales species belonging to the following genera: *Andropogon*, *Cymbopogon*, *Hyparrhenia*, *Megathyrsus*, *Panicum* and *Sporobolus*.

**Distribution**

Namibia, South Africa, Zambia and Zimbabwe. The recorded localities are from different vegetation mosaics: wetter Zambezian miombo woodland (Mosaic #25), drier Zambezian miombo woodland (Mosaic #26), *Colophospermum mopane* (Kirk ex Benth.) Kirk ex J. Léonard, 1949 woodland and scrub woodland (Mosaic #28), undifferentiated woodland (Mosaic #29c), Tugela basin wooded bushland (Mosaic #48), the Kalahari/Karoo-Namib transition (Mosaic #56), and highveld grassland (Mosaic #58) (White 1983) (*Figure 5*).

**Remarks**

In addition to the specimens recorded in the additional material section, 14 male and female specimens are preserved in the TMSA, collected from one locality in South Africa (Limpopo: Duiwelskloof) and from several localities in Zimbabwe (Bulawayo, Griffin, Emangeni, Mazoe, Salisbury (Harare), Sawmills, Shabana).

**Identification key to species of Sesamia albivena subgroup**

Key based on internal morphology of the adult males (A) and females (B) genitalia.

(A)

1. Juxta with a large, robust and thick medial projection (*Figure 3b, d, g*) .........................................................2
Juxta with a large, thin and elongated medial projection (Figure 3a, e, f).................................................4

2. Apex of the costal spine with a sharp pointed process (Figure 3b, g).....................................................3

3. Apex of the costal spine without a sharp pointed process (Figure 3d)..................................................S. maloukou

4. Juxta: with a small pointed process downwardly (Figure 3e).........................................................S. kafulo

5. Internal side of the costal spine curved (Figure 3b)...............................................................S. taeniroleuca

6. Apex of the costal spine with a large pointed process (Figure 3g)..................................................S. albivena

7. Internal side of the costal spine flat (Figure 3e, f)......6

8. Apex of the costal spine with a sharp pointed process (Figure 3a), harpe six times longer than wide (Figure 3a)....................................................................................................................S. sudanensis

(B)

1. Anterior margin of ostium bursae very flattened heart-shaped (Figure 3o) .................................S. albivena

2. Base of anterior margin of ostium bursae square-shaped (Figure 3s) or pointed (Figure 3p, q, r).........................3

3. Base of anterior margin of ostium bursae rounded (Figure 3t)............................................................S. taeniroleuca

4. Posterior margin of ostium bursae heart-shaped slightly flattened (Figure 3p, q)..........................S. soyema

5. Anterior margin of ostium bursae with very sharp curved ends on each side (Figure 3p)......S. aethiopica

Sesamia cretica subgroup

The Sesamia cretica subgroup consists of S. cretica, S. ihambane n. sp., S. kikuyensis n. sp. and S. rufescens; it is characterized by the following combination of characters: (i) tegumen with prominent peniculi, vinculum with a small saccus; (ii) valve with sacculus and cucullus fused; costa short, costal spine broad, the internal side less sclerotized than the external side, spoon-shaped upwardly, produced downwardly into a sharp process, sometimes a strong clasper; sacculus broad, well sclerotized; cucullus not sclerotized, broadly rounded with scattered and papillated hairs; (iii) juxta heart-shaped or trapezoidal, with a laterally small compressed medial projection; (iv) uncus angled and stout at base then thin tapering to a fine point, tufted with long hair on upper side; (v) aedeagus short and stout; manica with a carina crest produced into paired lateral lobes strongly spinose, presence of one or two elongated scobinate lobes or a tongue-shaped flat cornutus at apex of vesica; (vi) ostium bursae strongly transverse, posterior margin narrow band-shaped, anterior margin funnel-shaped, bilobate, with pointed tip on each side or villi like.

Sesamia cretica Lederer, 1857

(Figures 4a, 7a–d, 8a, e, i)

Sesamia cretica Lederer 1857: 225; Hampson 1910: 331 (taxonomy); Gaede 1934–1940: 98 (catalogue); Poole 1989: 907 (catalogue).

Syn. Sesamia fratera Moore 1882: 103; Hampson 1910: 331 (syn.).

Syn. Sesamia cretica var. striata Staudinger 1888: 27; Hampson 1910: 331 (syn.).

Syn. Nonagria uniformis Dudgeon 1905: 402, n. syn.

Syn. Sesamia griselda Warren 1913: 190, n. syn.

Syn. Sesamia vuteria var. vuterioides Strand 1915: 101; Tams & Bowden 1953: 671 (syn.).

Syn. Sesamia pecki Tams 1938: 9; Tams & Bowden 1953: 671 (syn.).

Type material

Sesamia cretica. Holotype: ♂, [Greece], [Crete], no locality given (MNHU).

Sesamia fratera. Syntypes: ♂ and ♀, India, Dharamsala (NHM). Not examined.

Sesamia cretica var. striata. Syntypes: ♂ and ♀, Uzbekistan, Marguian (NHM). Not examined.

Nonagria uniformis. Holotype: ♂, [India], Bengal, Saram, 1905 70, M. Mackenzie, Abdomen missing, Nonagria uniformis Dudgeon type ♀ (NHM), Londres; type ♀, [India], Bengal, Saram, 1905 70, M. Mackenzie, Abdomen missing, Noctuidae genitalia slide n°4107, Nonagria uniformis Dudgeon type ♀ (NHM).

Sesamia griselda. Holotype: ♂, [Sri-Lanka], Kandy, IV.1894, Rothchild Bequest B.M. 1939-1, Noctuidae genitalia slide n° 4111, Sesamia griselda Warren type ♀ (NHM).

Sesamia vuteria var. vuterioides. Holotype: Sudan, Here-dana Island, Bahr-el-Abiad, 14.II.1913, O. Le Roi & H. von Geyr (Koenig Museum, Bonn, Germany). Not examined.

Sesamia pecki. Holotype: ♂, [Somalia], Brit. Somaliland, Bursa, 1936, E.F. Peck, 1947/356, Brit. Mus. 1936-8, Agrotidae genitalia slide No1243, Sesamia pecki Tams holotype ♂ (NHM).
Additional material

Algeria. 1♂, Sidi-bel-Abbès, Prov. Oran, 2.VII.1916 (M. Rotrou), Rothschild Bequest B.M. 1939-1 (NHM).

Croatia. 1♂, Dalmatia, Frey Coll. 1890 (NHM). Eritrea. 3♂, 9♀, Keren, Hamelmalo, 15°43′45″N, 38°38′54″E, 1360 m asl, X.2004, ex larva in stems of Sorghum bicolor L. (B. Le Ru, leg.) (MNHN).

Ethiopia. 2♂, 3♀, Afar region, Tendaho, 11°22′N, 41°08′E, IV.2015, ex larva in stems of Saccharum officinarum L. (B. Le Ru, leg.) (MNHN).

France. 1♂, France, Corsica, Bibuglia (MNHN).

Iraq. 1♀, Bagdad, 2.19, Bonning, sorghum, Remount farm, Baghdad, 3.I.1920, Y. R. Rao coll., Pres. By Imp. Bur. Ent., Brit. Mus. 1921–91 (NHM).

Kenya. 1♂, Turkana, 8.VIII.1957, ex Sorghum vulgare, I.W.B. Nye, N 1596 (NHM); 1♀, N.F.D., Lodwar, 30.VII.1957, ex Sorghum vulgare, I.W.B. Nye, N 1596 (NHM).

Libya. 1♀, Tripolitania, El Maia, v.1964, Min. Agric. on corn, Pres by Com. Inst. Ent B M 1961-2 (NHM).

Somalia. 2♀, Brit. Somaliland, Buras, 1936, E.F. Peck, 1947/357, Brit. Mus. 1938-8, Agrotidae genitalia slide No1317, Sesamia pecki Tams paratype ♀ (NHM).

Thailand. 1♀, Cholbuxi, 7.IV.1962, Saccharum officinarum L., Lot 2808/2, Pres by Com Ins Fnt BM 1963-4, Noctuidae genitalia slide n° 4105, Sesamia uniformis Dudgeon, L.W.B. Nye, det. 1964 (NHM).

Turkey. 1♀, W. Anatolia, Mugla-Fethiye, Natlaneia, 27.VIII.1974, Misir Bitkisi, Hasan Kavut, Brit. Mus. 1975-372, 22 (NHM).

Diagnosis

See also the identification key to species of the cretica subgroup below. This species can be distinguished...
from other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with small flat peniculi; vinculum u-shaped at the bottom margin; internal side of the costal spine convex, apex rather triangular; apex of the sacculus slightly flared, inner side with a weak and
only outlined harpe; cucullus broadly rounded; juxta with a small laterally compressed medial projection; posterior margin of ostium bursae ribbon-shaped slightly convex in the middle ending in a point on each side; anterior margin funnel-shaped with a small medial depression; ovipositor lobes curved, 2.2 times longer than wide.

**Description**

Figure 7a–d. Both sexes were described in great details by Tams (1938) and Tams & Bowden (1953). Forewings length: males 26.3 mm (min–max 24–28 mm, N = 7); female 30.4 mm (min–max 29–32 mm, N = 7).

**Male genitalia** (Figure 8a, c). Tegumen with small flat peniculi; vinculum narrow with a small saccus, u-
shaped at the bottom margin, w-shaped at the top margin; valve with sacculus and cucullus fused; costa short, costal spine large, internal side convex, apex rather triangular; sacculus broad, well sclerotized with a strong narrowing below a slightly flared apex, inner side with a weak and only outlined harpe, heavily sclerotized; cucullus not sclerotized, broadly rounded, lying at a flatter angle on the sacculus, with scattered and papillated hairs; juxta trapezoidal, with a small laterally compressed medial projection, dentated at apex; uncus angled and stout at base, narrowing in distal part, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose.

Female genitalia (Figure 8i). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin ribbon-shaped, slightly convex in the middle ending in a point on each side, anterior margin funnel-shaped with a small medial depression on the posterior side, anterior side concave, strongly sclerotized; ductus bursae very short, slightly sclerotized on the ostium side; corpus bursae short, ovoid, without signa; ovipositor lobes curved, 2.2 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

Larvae – L5 instar (Figure 4a). Length, 35–40 mm, width, 4.0 mm; head smooth, light brown, prothoracic shield pale.
salmon beige; body with ground colour salmon pink, pinna-
cula and caudal plate pale yellow-brown. Young larvae are
very similar in appearance to mature ones.

**Bionomics**

This is a common pest species of maize, sorghum and
sugarcane (*Saccharum officinarum* L., 1753). The species

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**Figure 8.** Male and female genitalia of the *Sesamia cretica* species subgroup. 

- **a, e, i.** *S. cretica*: a, male genitalia; e, male aedeagus; i, female genitalia; 
  b, f, j, *S. ihambane*: b, male genitalia; f, male aedeagus; j, female genitalia; 
  c, g, k, *S. kikuyensis*: c, male genitalia; g, male aedeagus; k, female genitalia; 
  d, h, l, *S. rufescens*: d, male genitalia; h, male aedeagus; l, female genitalia. 
Scale bars: male genitalia, 1 mm for valves and 0.5 mm for aedeagus; female genitalia, 1 mm.
is also recorded from wild grasses, especially *Panicum repens* L., 1762; however, considering that this species is difficult to identify without genitalia dissection, other host plant records need to be considered with caution.

**Distribution**

*Sesamia cretica* is widely distributed in the Palearctic (mostly in the western Palearctic) and in the Oriental region; it is also found in the Afrotropics (mostly in eastern Africa, but also in North Cameroon and Mauritania). In Africa this species is generally found in dry vegetation mosaics – undifferentiated Sudanian and Ethiopian woodlands (mosaics #29), Somalia-Masai Acacia-Commiphora deciduous bushland and thicket (mosaics #42), Sahel *Acacia* wooded grassland and deciduous bushland (mosaics #43) – and even in very dry vegetation mosaics – semi-desert grassland and shrubland (mosaics #54a, 54b, 55) (White 1983).

**Remarks**

*Sesamia* (*Nonagria*) *cyrnaea* Mabille, 1866 from Corsica has been considered erroneously as a synonym of *S. cretica* by Hampson (1910), then by Poole (1989) and finally by Zilli et al. (2005). Indeed, the male antennae are longly bipectinate, where in *S. cyrnaea* it is serrate; this suggests that *S. cyrnaea* is most likely a synonym of *S. nonagrioides*.

*Sesamia inhambana* Le Ru n. sp.

(Figures 4b, 5, 7e–h, 8b, f, j)

**Type material**

*Holotype*. ♂, Tanzania, Lindi Region, Kilwa Sokoni, 8°53′ 53″S, 39°30′14″E, 18 m asl, III.2010, ex larvae in *Rottboellia cochinchinensis* (Lour.) Clayton, gen. prep. LERU Bruno/G30 (B. Le Ru, leg.) (MNHN).

*Paratypes*. Mozambique. 1♂, 1♀, Pumalanga Province, Pemba, Impiri River, 13°08′38″S, 40°13′18″E, 206 m asl, III.2010, ex larvae in *R. cochinchinensis* (B. Le Ru, leg.) (MNHN). Tanzania. 8♀, 6♂, same locality and date as holotype, ex larvae in stems of *Rottboellia cochinchinensis* (Lour.) Clayton, male gen. prep. LERU Bruno/G257-458; female gen. prep. LERU Bruno/G256 (B. Le Ru, leg.) (MNHN); 3♂, 6♀, Lindi Region, Mandungu-Tungu, 8°20′11″S, 39°14′40″E, 18 m asl, III.2007, ex larvae in *Rottboellia cochinchinensis* (Lour.) Clayton, male gen. prep. LERU Bruno/G255-505 (B. Le Ru, leg.) (MNHN); 1♂, 1♀, Lindi region, Mandungu-Tungu, 8°20′11″S, 39°14′40″E, 18 m asl, III.2007, ex larvae in stems of *R. cochinchinensis* (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *cretica* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with small flat peniculi; vinculum with rectangular saccus; internal side of the costal spine flat, apex rather rectangular upwardly ending in a point, produced downwardly into a sharp triangular process; sacculus broad, tapering sharply towards the apex, inner side with a weak harpe, only outlined; cucullus broadly spatulated, in the prolongation of the sacculus; juxta diamond-shaped, with a very small laterally compressed medial projection; vesica with a small tongue-shaped flat cornutus villi like; posterior margin of ostium bursae very open v-shaped, widening on each side; anterior margin bilobate with a v-shaped area between them, each lobe cup-shaped, with sharp curved ends on external side; ovipositor lobes curved, 2.4 times longer than wide.

**Description**

*Figure* 7e–h. The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae pinkish-buff, serrate in the male, filiform in the female, flagellum adorned dorsally with pinkish scales; palpus grey suffused with pinkish; eyes brown. Head and thorax covered with long pale pinkish hairs, abdomen white suffused with pinkish. Forelegs grey, otherwise pinkish. Wing pattern similar in both sexes. Forewings pinkish-buff suffused with brown more densely along costal, apex, termen and tornus areas; no transverse markings, some brown antemedial and post-medial markings, a longitudinal grey brown fascia along lower margin of cell, partly within, partly without cell from base of cell extending almost to termen; outer margin adorned with small black markings between the veins; fringe infuscate with a wide dark buff basal line. Hind wings pinkish-white to white, without markings, fringe pinkish-white with a basal pinkish line. Underside of forewings pinkish-buff heavily suffused with pinkish beige and brown in costa, apex and termen areas; outer margin adorned with black markings between the veins, fringe infuscate with a wide buff basal line. Underside of hind wings white to pinkish white slightly suffused with brown in costa and apex areas, fringe infuscate in the apex, otherwise white with a fuscous basal line. Forewings length: males 19.8 mm (min–max 17–22 mm, N = 10); female 23.5 mm (min–max 19–26 mm, N = 10).

**Male genitalia** (Figure 8b, f). Tegumen with small flat peniculi; vinculum narrow with a small rectangular saccus, with a bulge in the middle at the bottom margin,
w-shaped at the top margin; valve with sacculus and cucullus fused; costa short, costal spine large, internal side flat, apex rather rectangular, upwardly ending in a point, produced downwardly into a sharp triangular process strongly sclerotized; sacculus broad, well sclerotized, tapering sharply towards the apex, inner side with a weak and only outlined harpe; cucullus not sclerotized, broadly spatulated, in the prolongation of the sacculus with scattered and papillated hairs; juxta diamond-shaped, with a very small laterally compressed medial projection; uncus angled and stout at base, tapering near apex to a fine point, tufted with hair on upper side; aedeagus short and stout, manica with a small tongue-shaped flat cornutus villi like.

**Female genitalia** (Figure 8j). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin very open v-shaped, slightly sclerotized, widening on each side, anterior margin bilobate with a v-shaped area between them, each lobe cup-shaped, with sharp curved ends on external side, strongly sclerotized; ductus bursae very short, slightly sclerotized on the ostium side; corpus bursae short, ovoid, without signa; ovipositor lobes curved, 2.4 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Larvae – L5 instar** (Figure 4b). Length, 30–35 mm, width, 3.5 mm; head smooth, brown, prothoracic shield pale salmon beige; body with ground colour pale ochraceous, pinnacula and caudal plate brown. Young larvae are very similar in appearance to mature ones.

**Etymology**

Named after the Inhambane region in Mozambique, which is the south part of the Zanzibar-Inhambane coastal forest mosaic also known as the Swahili coastal forests and woodlands; treated as a noun in apposition.

**Bionomics**

The larvae were collected in stems of *Rottboellia cochinchinensis* in patches of grasslands in Zanzibar-Inhambane vegetation mosaic inhabited with various Poales species belonging to the following genera: *Cymbopogon, Hyparrhenia, Megathyrsus* and *Panicum*.

**Distribution**

Mozambique and Tanzania. The recorded localities are from East African coastal (mosaics #16a, b) vegetation mosaic (White 1983) (Figure 5).

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**Sesamia kikuyuensis Le Ru n. sp.**

*(Figures 5, 7l–l, 8c, g, k)*

**Type material**

*Holotype*. ♂, Kenya, Ruiru-Oakland, Karimu Dam, 1°05'04"S, 36°55'33"E, 1595 m asl, IV.2011, light trap, gen. prep. LERU Bruno/G261 (B. Le Ru, leg.) (MNHN).

*Paratypes*. Kenya. 2♂, 3♀, same locality and date as holotype, light trap, females gen. prep. LERU Bruno/G262-G263 (B. Le Ru, leg.) (MNHN); 1♀, Shimba Hills, Coast, 4°08'54"S, 39°24'58"E, 147 m asl, V.2004, ex larvae in *R. cochinchinensis* (B. Le Ru, leg.) (MNHN); 7♂, 1♀, Coast Province, Muhaka, 4°19'12"S, 39°32'28"E, 43 m asl, VI.2013, light trap, male gen. prep. LERU Bruno/G573, female gen. prep. LERU Bruno/G574 (B. Le Ru, leg.) (MNHN); 2♂, Coast Province, Muhaka, 4°19'12"S, 39°32'28"E, 43 m asl, VI.2013, light trap (B. Le Ru, leg.) (NMK); 1♂, 1♀, Mombasa, 26.VII.1956, D. Sevastopoulos, at light trap, male Agrotididae genitalia slide No. 1453, female Agrotididae genitalia slide No. 1454, *Sesamia sp.* near rufescens det. I.W.B. Nye 1958 (NHM).

**Diagnosis**

See also the identification key to species of the *cretica* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with small flat peniculi; vinculum with a rectangular saccus; internal side of costal spine flat, apex rather rectangular, upwardly ending in a point, produced downwardly into a sharp pointed process strongly sclerotized; sacculus with a slightly flared apex, inner side with a weak and only outlined harpe, heavily sclerotized; cucullus broadly ovoid, in the prolongation of the sacculus; juxta bilobate, each lobe diamond-shaped; vesica with a small tongue-shaped flat cornutus villi like; posterior margin of ostium bilobate with a convex area between them, each lobe cup-shaped with sharp curved ends on external side; ovipositor lobes curved, 2.0 times longer than wide, ventral surface with a pronounced indentation.

**Description**

Figure 7l–l. Antennae ochreous, shortly serrate in male, filiform in the female, flagellum adorned dorsally with white and buff scales, palpus white suffused with buff; eyes dark brown. Body colour and wing pattern similar in both sexes. Head, thorax and abdomen white buff with long white and brown hairs, eyes dark brown. Legs buff with brown scales, fore femur and tibia infuscate on inner surface. Forewings ochreous buff suffused with dark ochraceous and brown scales, more heavily on the costa, apex and termen. A longitudinal grey ochraceous
partly without the cell, limited to the fascia from base along lower margin of cell, partly within, partly without the cell, limited to the first two thirds of the wing; some few grey ochraceous markings around the cell; reniform not visible; outer margin adorned with dark brown spots between the veins, fringe infuscate with a narrow basal pale buff line. Hind wings white without markings, fringe whitish iridescent with a pale buff basal line. Underside of forewings with ground colour pale suffused with fuscous scales, fringe white, slightly infuscate in apex, with a fuscous basal line. Forewings length: 16.1 mm (min
suffused in apex, with a fuscous basal line. Hind wings white without markings, fringe whitish iridescent with a pale buff basal line. Underside of forewings with ground colour pale buff heavily suffused with fuscous and dark buff on costa, apex and along the cell, more heavily in male than in female. Underside of hind wings white, costa slightly suffused with fuscous scales, fringe white, slightly infuscate in apex, with a fuscous basal line. Forewings length: males 16.1 mm (min–max 15–19 mm, N= 13); females 19.2 mm (min–max 17–22 mm, N= 6).

Male genitalia (Figure 8c, g). Tegumen with small flat peniculi; vinculum narrow with a small rectangular saccus, w-shaped at the top margin; valve with sacculus and cucullus fused; costa short, costal spine large, internal side flat, apex rather rectangular upwardly ending in a point, produced downwardly into a sharp pointed process strongly sclerotized; saccus broad, well sclerotized with a strong narrowing below a slightly flared apex, inner side with a weak and only outlined harpe, heavily sclerotized; cucullus not sclerotized, broadly ovoid, in the prolongation of the saccus, with scattered and papillated hairs; juxta bilobate, each lobe cup-shaped, with sharp curved ends on external side strongly sclerotized; ductus bursae short, costal spine large, internal side with a weak and only outlined harpe, heavily sclerotized, anteriormargin bilobate with a convex point; aedeagus short and stout, tapering near apex to a fine point, tufted with hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, vesica with a small tongue-shaped flat cornutus villi like.

Female genitalia (Figure 8k). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium large, posterior margin slightly convex, slightly sclerotized, anterior margin bilobate with a convex area between them, each lobe cup-shaped, with sharp curved ends on external side strongly sclerotized; ductus bursae very short, slightly sclerotized on the ostium side; corpus bursae short, ovoid, without signa; ovipositor lobes curved, 2.0 times longer than wide, ventral surface with a pronounced indentation, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

Etymology
Named after Kikuyu, the name of the tribe of Central Kenya where the holotype has been collected; specific epithet treated as an adjective.

Bionomics
One larva was collected in stems of *Rottboellia cochinchinensis* in a grassland in Zanzibar-Inhambane vegetation mosaic at the bottom of Shimba Hills inhabited with various Poales species belonging to the following genera: *Cymbopogon, Hyparrhenia, Megathyrsus* and *Panicum*. Otherwise adults were caught with light traps in the same habitat as the larva and in a grassland of Central Kenya, north of Nairobi, inhabited with various Poales species belonging to the following genera: *Hyparrhenia, Megathyrsus, Panicum, Setaria* P. Beauv., 1812 and *Sporobolus*.

Distribution
Kenya. The recorded localities are from two different vegetation mosaics: East African coastal (mosaic #16a) and East African evergreen bushland and secondary *Acacia* wooded grassland (mosaic #45) (White 1983) (Figure 5).

Remarks
The couple collected by D. Sevastopulu in 1956 in Mombasa on the Kenyan Coast was studied by Nye and provisionally named *Sesamia* nov. sp. “marina”; Nye considered it as a species related to *S. rufescens*, which our study confirms.

*Sesamia rufescens* Hampson, 1910
(Figures 5, 7m–r, 8d, h, l)
*Sesamia rufescens* Hampson 1910: 329; Tams & Bowden 1953: 675 (taxonomy); Poole 1989: 908 (catalogue).

Type material
Holotype. ♀, South Africa, Natal, Durban, XII.1906, J.F. Leigh, 1909-71, SES/127, Agrotidae genitalia slide No. 1248 (NHM).

Additional material
Malawi. 2♂, Nyasaland, Mt Mlanje, 5–9.XII.1913, S.A. Neave, 1914-171 (NHM).
South Africa. 1♀, same locality as holotype, I.1907 (J.F. Leigh), Rothschild Bequest B.M. 1939-1, Agrotidae genitalia slide No. 1251 (NHM); 1♀, Natal, Mooi River, Rothschild Bequest B.M. 1939-1, SES/171, Agrotidae genitalia slide No. 1269 (NHM); 1♀, Zululand, E.D. Reynolds, B.M. 1938-353, 1948/326, Agrotidae genitalia slide No. 1270 (NHM); 1♀, Natal, Durban, 1908-256, E.L. Clark (NHM); 3♀, Natal, Durban, 1909-75, E.L. Clark (NHM); 1♀, Umkomass, 14.I.[19]14, A.J.T. Janse, Joicey Bequest Brit. Mus. 1934-120 (NHM); 1♀, Natal, [Krantz]Kloof, [457 m asl], IX.1926, Joicey Bequest Brit. Mus. 1926-404 (NHM).


Zambia. 1♂, N. Rhodesia, Gimson, 1908, Joicey Bequest Brit. Mus. 1934-120, SES/158, Agrotidae genitalia slide No. 1298 (NHM).

Diagnosis
See also the identification key to species of the cretica subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with flat peniculi; vinculum with a saccus u-shaped at the bottom margin; internal side of costal spine swollen at base, apex expanded upwardly in the shape of a small spoon irregularly edged with teeth, a strong hooked clasper below the costal spine; apex of the sacculus slightly flared, inner side with weak and only outlined harpe, 4.0 times longer than wide; apex of the cucullus rounded; juxta with a small elongated and blunt medial projection; posterior margin of ostium bursae convex in the middle with lateral expansion arm-shaped raised backwards, anterior margin thin and concave with villi like tip on each side; ovipositor lobes curved, 2.2 times longer than wide, ventral face strongly curved towards the apex.

Bionomics
Biology unknown.

Distribution
Malawi, South Africa and Zambia. The recorded localities are from two different vegetation mosaics: East African coastal (mosaic #16c), and undifferentiated montane vegetation (mosaic #19a) (White 1983) (Figure 5).

Remarks
In addition to the specimens listed in the other material section, 16 male and female specimens are preserved in the TMSA. These specimens were collected from four localities in South Africa (Eastern Cape: Kleinmonde, Umtata; Kwazulu-Natal: New Hanover, Hungababa).

Identification key to species of Sesamia cretica subgroup
Key based on internal morphology of the adult male (A) and female (B) genitalia.

(A) 1. Presence of a hook-shaped clasper (Figure 8d) .............

          ................................................................. S. rufescens

– Absence of a hook-shaped clasper (Figure 8a, b, c)... 2

2. Apex of the costal spine without sharp pointed process produced downwardly (Figure 8a).......................... S. cretica

– Apex of the costal spine with a sharp pointed process produced downwardly (Figure 8b, c).......................... 3

3. Juxta bilobate, each lobe diamond-shaped (Figure 8c)........................................ S. kikuyuensis

– Juxta not bilobate, with a very small laterally compressed medial projection (Figure 8b).......................... S. ihambane

(B) 1. Anterior margin of ostium bursae bilobate (Figure 8j, k) ................................................................. 2

– Anterior margin of ostium bursae not bilobate (Figure 8i, l) ................................................................. 3

2. Anterior margin of ostium bursae bilobate with a v-shaped area between them (Figure 8d)...... S. ihambane

– Anterior margin of ostium bursae bilobate with a rounded area between them (Figure 8f). S. kikuyuensis
3. Posterior margin of ostium bursae ribbon-shaped (Figure 8i).................................S. cretica

- Posterior margin of ostium bursae with lateral expansion arm-shaped (Figure 8i)....................S. rufescens

**Sesamia fuscifrontia subgroup**

The *Sesamia fuscifrontia* subgroup consists of *S. babati* n. sp., *S. babessi* n. sp., *S. fuscifrontia*, *S. geyri*, *S. mabira* n. sp., *S. nangaensis* n. sp., *S. rungwa* n. sp., *S. simillima* n. sp., *S. taveta* n. sp., and *S. ulaukae* n. sp.; it is characterized by the following combination of characters: (i) tegumen with small drooping peniculi, vinculum with a small saccus; (ii) valve with sacculus and cucullus fused; costa short, costal spine broad, the internal side less sclerotized than the external side, spoon-shaped or rounded upwardly, produced downwardly into a sharp process; sacculus broad, well sclerotized, with a strong narrowing below a narrow apex; cucullus small, not sclerotized, broadly rounded, in the extension of the sacculus or lying at a flatter angle on the sacculus with scattered and papillated hairs; (iii) juxta trapezoidal, with a small laterally compressed medial projection; (iv) uncus stout, angled at base, apex tapering to a fine point or blunt, tufted with long hair on upper side; (v) aedeagus short and stout; manica with a hair on upper side; (vi) ostium bursae large, posterior margin like a ribbon-shaped, small, narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex rounded; juxta trapezoidal, with a small, robust and thick, laterally compressed mediadorsal projection, slightly dentated at apex; uncus blunt at apex.

**Description**

Figure 9a, b. Antennae buff suffused with brown, shortly serrate, flagellum adorned dorsally with brown scales; palpus pale buff; eyes brown. Head and thorax covered with long ochraceous hairs, abdomen pale buff suffused with brown. Forelegs brown, otherwise pale buff suffused with fuscous. Forewings buff suffused with brown from base to medias areas, termen heavily suffused with dark ochraceous; a dark brown marking below the cell, a line of brown markings along the upper margin of the cell; obicular spot indistinct, reniform spot visible; a longitudinal dark buff fascia between lower and upper margins of cell, from base of cell to the termen; one postmedial and one subterminal series of brown markings on the veins; outer margin adorned with brown spots between the veins; fringe concolour with a basal ochraceous line. Hind wings white at base, pale buff at termen, suffused with brown, four elongated fuscous markings on the veins connected by a diffuse zigzagging fuscous line, outer margin adorned with brown spots between the veins, fringe light buff suffused with fuscous, with a basal white line. Underside of forewings fuscous around the cell, otherwise pale buff suffused with brown, reniform spot visible, outer margin adorned with brown spots between the veins; fringe concolour at the base otherwise fuscous. Underside of hind wings white, suffused with fuscous in costa, apex and termen areas, discal spot visible, outer margin adorned with brown spots between the veins, fringe white at the base, otherwise pale buff. Forewings length: males 24.0 mm (N=2).

**Male genitalia** (Figure 10a, b, m). Tegumen with flat drooping peniculi; vinculum narrow with a small saccus, v-shaped at the bottom margin, w-shaped at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, costal spine large strongly curved inwards, apex with two pointed teeth; sacculus broad, well sclerotized with a strong narrowing below a narrow apex; cucullus small, narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a small, robust and thick, laterally compressed mediadorsal projection, slightly dentated at apex; uncus stout and short, curved at middle, blunt at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.

**Etymology**

Named after the name of Babati town in Manyara province in Tanzania; treated as a noun in apposition.
**Bionomics**

*Sesamia babati* n. sp. is a markedly hygrophilous species inhabiting lakesides. Larvae were collected on young stems of antelope grass *Echinochloa pyramidalis*; typically, stems exhibiting signs of infestation by *S. babati* n. sp. larvae have dry leaves and shoots (dead hearts).

**Distribution**

Tanzania. The only recorded locality is from Somalia-Masai *Acacia-Commiphora* deciduous bushland and thicket (mosaic #29) vegetation mosaic (White 1983) (Figure 12).

**Sesamia babessi Le Ru n. sp.**  
(Figures 9c, d, 10c, n, 12)

**Type material**

**Holotype.** ♀, Cameroon, North-West Region, Babessi, 6°01’ 55”N, 10°33’07”E, 1203 m asl, XI.2013, ex light trap, male gen. prep. LERU Bruno/G623 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *fuscifrontia* subgroup below. This species can be distinguished...
Figure 10. Male genitalia of the *Sesamia fuscifrontia* species subgroup. a, b, m, *S. babati*: a, b, genitalia; m, aedeagus; c, n, *S. babessi*: c, genitalia; n, aedeagus; d, e, *S. fuscifrontia*, genitalia and aedeagus; f, o, *S. geyri*: f, genitalia; o, aedeagus; g, p, *S. mabira*: g, genitalia; p, aedeagus; h, q, *S. nangaensis*: h, genitalia; q, aedeagus; i, j, r, *S. simillima*: i, j, genitalia; r, aedeagus; k, s, *S. taveta*: k, genitalia; s, aedeagus; l, t, *S. ulaukae*: l, genitalia; t, aedeagus. Scale bars: 1 mm for valves and 0.5 mm for aedeagus.
from other known species of the subgroup by the following combination of characters of the male genitalia: vinculum with a small saccus, u-shaped at the bottom margin, flat at the top margin without indentation; internal side of the costal spine convex in the middle, apex ampulla-like, rounded, slightly triangular upwardly, markedly triangular downwardly without tooth at the base; sacculus with a strong narrowing below a slightly flared apex; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, apex rounded; juxta trapezoidal, with a small, robust and thick, laterally compressed mediadorsal projection, slightly dentated at apex; uncus blunt at apex.

**Description**

Figure 9c, d. The wings of the unique specimen of this species are heavily rubbed, also the wing pattern cannot be described precisely. Antennae dark buff shortly serrate, flagellum adorned dorsally with dark buff scales; palpus dark buff; eyes brown. Head and thorax covered with long dark buff hairs, abdomen dark buff. Legs brown suffused with dark buff. Forewings uniformly fuscous; fringe concolour with a basal white line. Hind wings suffused with fuscous more heavily in costa, apex and termen areas; fringe dark buff with a basal white line. Underside of forewings and hind wings uniformly suffused with fuscous, more heavily in costa and apex areas, fringe concolour. Forewings length: male 19.0 mm ($N=1$).

**Male genitalia** (Figure 10c, n). Tegumen with flat drooping peniculi; vinculum with a small saccus, u-shaped at the bottom margin, flat at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, costal spine large, internal side convex in the middle, less sclerotized than the external side, apex ampulla-like, rounded, slightly triangular upwardly, markedly triangular downwardly; sacculus broad, well sclerotized with a strong narrowing below a slightly flared apex; cucullus narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a small, robust and thick, laterally compressed mediadorsal projection, slightly dentated at apex; uncus stout and short, curved at middle, blunt at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.

**Etymology**

Named after Babessi, the name of the village where the species has been collected; treated as a noun in apposition.

**Bionomics**

Biology unknown. The moths were caught with a light trap in a grassland inhabited with various Poales species belonging to the following genera: *Andropogon, Cymbopogon, Hyparrhenia, Megathyrsus, Panicum* and *Sporobolus*.

**Distribution**

Cameroon. The recorded locality is from Guineo-Congolian lowland rain forest and secondary grassland mosaic (mosaic #11a) vegetation mosaic (White 1983) (Figure 11).

**Sesamia fuscifrontia** Hampson, 1914

(Figures 9e–j, 10d, e, 11a, 12)

*Sesamia fuscifrontia* Hampson 1914: 163; Poole 1989: 907 (catalogue).

**Type material**

**Holotype.** ♀, [Kenya], Brit. E. Africa, N. Kavirondo, Maramas Dist., Ilala, [1372 m asl], 18.VI.1911, A.A. Neave, 1912-92, Agrotidae genitalia slide N° 2272 (NHM).

**Additional material**

**Uganda.** 1♂, Western, Kalinzu Forest, T.H.E. Jackson, Agrotidae genitalia slide N° 2250 (NHM).

**Zambia.** 1♀, North Eastern Province, Keundwe, 13°06′25″S, 25°21′25″E, 1225 m asl, III.2012, ex light trap, gen. prep. LERU Bruno/G121 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *fuscifrontia* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: vinculum with a small saccus, u-shaped at the bottom margin, flat at the top margin without indentation; costal spine convex inwards, apex with two pointed teeth at the tip; sacculus with a strong narrowing below a narrow apex; cucullus narrow, lying at a flatter angle on the sacculus, apex rounded; uncus pointed at apex; posterior margin of ostium bursae convex, sclerotized on each side, anterior margin bilobate in the middle, each lobe bean-shaped with a curved pointed end, strongly sclerotized, sides curved, slightly sclerotized; ductus bursae very short, slightly sclerotized; corpus bursae very short; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with a pronounced indentation.

**Redescription**

Figure 9e–j. The species was originally described succinctly from the male holotype by Hampson (1914). This species is redescribed based on the additional male collected in Uganda and the female collected in Zambia. Antennae pale...
ochraceous suffused with fuscous, shortly serrate, flagellum adorned dorsally with fuscous scales; palpus fuscous; eyes brown. Head and thorax covered with long pale ochraceous hairs, abdomen pale buff suffused with fuscous. Legs fuscous suffused with brown. Wing pattern similar in both sexes. Forewings pale buff suffused with ochraceous slightly irrorated with fuscous; no transverse markings, veins streaked with white; a series of more or less visible brown markings below the cell, orbicular and reniform spots and indistinct, one postmedial brown marking; a longitudinal dark ochraceous fascia between lower and upper margins of cell, from base of cell to the termen; fringe fuscous with a basal buff line. Hind wings white suffused with ochraceous and fuscous, fringe concolour with a basal buff line. Underside of hind wings white, suffused with ochraceous and fuscous in costa, apex and termen areas, fringe white at base, otherwise pale buff. Forewings length: males 21.0 mm (min–max 20–22 mm, N=2); females 20.0 mm (N=1).

**Male genitalia (Figure 10d, e).** Tegumen with flat drooping peniculi; vinculum with a small saccus, u-shaped at the bottom margin, flat at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, costal spine large, convex inwards, apex with two pointed teeth at the tip; sacculus broad, well sclerotized with a strong narrow- ing below a narrow apex; cucullus narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex rounded, not sclerotized, with scattered and papillated hairs; juxta not seen; uncus stout and short, curved at middle, pointed at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.

**Figure 11.** Female genitalia of the Sesamia fuscifrontia species subgroup. a, S. fuscifrontia; b, S. geyri; c, S. mabira; d, S. rungwa; e, S. simillima; f, S. taveta; g, S. ulaukae. Scale bars: 1 mm.
**Female genitalia** (Figure 11a). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin convex, sclerotized on each side, anterior margin bilobate in the middle, each lobe bean-shaped with a curved pointed end, strongly sclerotized, sides curved, slightly sclerotized; ductus bursae very short, slightly sclerotized; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with a pronounced indentation, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Bionomics**

Biology unknown. The female was 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* L., 1753, *Echinocloa*, *Hyparrhenia* and *Sporobolus*.

**Distribution**

Kenya, Uganda and Zambia. Recorded from three localities: wetter Zambezian miombo woodland (dominated by *Brachystegia* Benth., 1865, *Isoberlinia* and *Julbernardia* Pellegr., 1943) (mosaic #25), East African evergreen bushland and secondary *Acacia* wooded grassland (mosaic #45) vegetation mosaics (White 1983) (Figure 12).

**Remarks**

Without molecular data for the two male specimens preserved in the NHM it is not possible to determine whether the female from Keundwe belongs to *S. fuscifrontia* species; however, the wing pattern and the ecological characteristics suggests it could be the female. The specimen from Keundwe could have been described as a new species, but in a conservative way it was decided to consider that this specimen belongs to *S. fuscifrontia*.

**Sesamia geyri** (Strand, 1915)  
(Figures 9k–p, 10f, o, 11b, 12)

*Nonagria geyri* Strand 1915: 98.  
*Sesamia geyri* (Strand); Poole 1989: 907 (recombination, catalogue).

**Type material**

*Holotype.* ♂, Sudan, Meschra Zeraf (Bahr el Abiad), 23.II.1913, O. Le Roi & H. von Geyr (Koenig Museum, Bonn, Germany). Not examined.

**Additional material**

*Uganda.* ♂, 1191, Kidetok, Serere [1°29′N, 33°24′E, 1080 m asl], 16.VII.1956, W.R. Ingram, ex [*Megathyrsus maximus*] *P. maximus*, Agrotidae genitalia slide N° 1451, compared a mate here with type. (P.I.O.), Det. I.W.B. Nye, 1958 (NHM); 1♀, Kidetok, Serere [1°29′N, 33°24′E, 1080 m asl], 27.VII.1956, W.R. Ingram, ex *E. pyramidalis*, 1192, Agrotidae genitalia slide N° 1452, Det. I.W.B. Nye, 1958 (NHM).

**Diagnosis**

See also the identification key to species of the *fuscifrontia* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: vinculum narrow with a small saccus, v-shaped at the bottom margin, flat at the top margin without indentation; costal spine large, strongly curved inwards, apex anvil-shaped with a sharp tooth at the tip; sacculus with a strong narrowing below a flared apex; cucullus small, narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex rounded; uncus blunt at apex; anterior margin of ostium bursae bilobate in the middle, each lobe bean-shaped with a curved blunt end, strongly sclerotized; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with a pronounced indentation.

**Redescription**

Figure 9k–p. The species was originally described from the male holotype by Strand (1915). This species is redescribed based on the additional male and female specimens collected in Uganda. The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae ochraceous, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff; eyes brown. Head covered with long ochraceous hairs, thorax covered with long pale buff hairs, abdomen pale buff slightly suffused with fuscous. Legs pale buff suffused with fuscous. Wing pattern similar in both sexes, but male darker. Forewings buff suffused with fuscous; a dark brown marking below the cell, two brown markings along the upper margin of the cell; orbicular spot and reniform indistinct; a longitudinal ochre brown fascia, between lower and upper margins of cell, from base of cell to the termen; one postmedial and one subterminal series of brown markings, more or less visible, on the veins; outer margin adorned with brown spots between the veins; fringe ochre brown. Hind wings white slightly suffused with fuscous, four elongated fuscous markings on the veins, outer margin adorned...
with brown spots between the veins, fringe white slightly suffused with fuscous. Underside of forewings ochre brown around the cell in male, otherwise pale buff suffused with fuscous, reniform spot visible, outer margin adorned with brown spots between the veins, fringe ochre brown. Underside of hind wings pale buff suffused with dark...
fuscous around the cell up to the apex and termen in male, white slightly suffused with fuscous in costa and apex areas in female, outer margin adorned with brown spots between the veins, fringe white slightly suffused with fuscous in female, pale buff suffused more markedly with fuscous in male. Forewings length: male 27.0 mm ($N = 1$); male 28.0 mm ($N = 1$).

**Male genitalia (Figure 10f, o).** Tegumen with flat drooping peniculi; vinculum narrow with a small saccus, v-shaped at the bottom margin, flat at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, costal spine large strongly curved inwards, apex anvil-shaped with a sharp tooth at the tip; sacculus broad, well sclerotized with a strong narrowing below a flared apex; cucullus small, narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex rounded, not sclerotized, with scattered and papillated hairs; juxta not observed; uncus stout and short, curved at middle, blunt at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.

**Female genitalia (Figure 11b).** The genitalia preparation is of poor quality, as all the parts could not be observed. Ostium bursae large, posterior margin not seen, anterior margin bilobate in the middle, each lobe bean-shaped with a curved blunt end, strongly sclerotized; ductus bursae and corpus bursae not seen; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with a pronounced indentation, dorsal surface bearing short and stout setae.

**Bionomics**

The larvae were collected in stems of *Echinochloa pyramidalis* and *Megathyrsus maximus*.

**Distribution**

Republic of the Sudan and Uganda. Recorded from two localities only from Guineo-Congolian lowland rain forest and secondary grassland and shrubland northern Sahel (mosaic #11a) and semi-desert grassland and shrubland northern Sahel (mosaic #54a) vegetation mosaics (White 1983) (Figure 12).

**Remarks**

Surprisingly the two recorded host plants have quite different ecologies: *Megathyrsus maximus* (commonly known as Guinea grass) is an invasive grass mostly found along roads in rather dry habitats whereas *Echinochloa pyramidalis* (commonly known as antelope grass) is typical of flooded regions and frequently found floating on the surface of water beside lakes.

**Sesamia mabira Le Ru n. sp.**

(Figures 10g, p, 11c, 12, 13a–d)

**Type material**

**Holotype.** ♂, Uganda, Central Province, Mityana, Kuru-ngube, 0°26′46″N, 31°50′56″E, 1285 m asl, IV.2004, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G33 (B. Le Ru, leg.) (MNHN).

**Paratypes.** Kenya. 5♀, four ♀, Rift Valley Region, Molo, Londiani, 0°10′30″S, 35°37′11″E, 2341 m asl, VI.2005, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN). Uganda. 1♀, same locality and date as holotype, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G34 (B. Le Ru, leg.) (MNHN); 1♀, Western Province, Omugenyi, 0°57′23″S, 30°12′33″E, 1359 m asl, III.2006, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G438 (B. Le Ru, leg.) (MNHN); 3♀, 7♂, Jinja, Buikwe district, Mabira forest, 0°44′05″S, 33°17′14″E, 1194 m asl, I.2004, ex larvae in stems of *E. pyramidalis*, male gen. prep. LERU Bruno/G836 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *fuscifrontia* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: vinculum with a small saccus, u-shaped at the bottom margin, flat at the top margin without indentation; internal side of the costal spine convex in the middle, apex ampulla-like, slightly triangular upwardly, produced downwardly into a large and sharp triangular process, strongly sclerotized; sacculus with a slightly flared apex; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, apex rounded; juxta trapezoidal, with a small, robust and thick, laterally compressed mediodorsal projection, slightly dented at apex; uncus pointed at apex; posterior margin of ostium bursae like a domed bead, more sclerotized on each side, anterior margin villi like, x-shaped, slightly sclerotized, slightly flared on external side; ductus bursae short; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with an indentation.

**Description**

(Figure 13a–d). The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae ochraceous, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff. Head covered with long ochraceous hairs, thorax with pale ochraceous hairs, abdomen pale buff suffused with fuscous. Forelegs brown, otherwise pale buff suffused with fuscous. Wing pattern similar in both sexes, but markings...
more pronounced in the male. Forewings pale buff suffused with fuscous; a dark brown marking below the cell at base; orbicular spot indistinct, reniform spot visible; a longitudinal fuscous fascia between lower and upper margins of cell, from base of cell to the termen; one postmedial and one subterminal series of brown markings, more or less visible, on the veins; outer margin adorned with small brown spots between the veins; fringe pale buff suffused with fuscous.

Hind wings white slightly suffused with fuscous in costa, apex and termen areas, four elongated fuscous markings on the veins, outer margin adorned with more or less visible brown spots between the veins, fringe white slightly suffused with buff. Underside of forewings buff suffused with fuscous around the cell in male, buff suffused with ochraceous and fuscous along the costa in female, outer margin adorned with brown spots between the veins, fringe pale buff suffused with fuscous. Underside of hind wings white suffused with fuscous, four elongated fuscous markings on the veins in male, discal spot visible in male, outer margin adorned with brown spots between the veins, fringe white slightly suffused with buff. Forewings length: males 24.1 mm (min–max 22–26 mm, N= 7); females 27.3 mm (min–max 26–30 mm, N= 11).

**Male genitalia (Figure 10g, p).** Tegumen with flat drooping peniculi; vinculum with a small saccus, u-shaped at the bottom margin, flat at the top margin without indentation. Valve with saccus and cucullus fused; costa short, costal spine large, internal side convex in the middle, apex ampulla-like, slightly triangular upwardly, produced downwardly into a large and sharp triangular process, strongly sclerotized; sacculus broad, well sclerotized with a strong narrowing below a slightly flared apex; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, apex rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a small, robust and thick, laterally compressed mediiodorsal projection, slightly dentated at apex; uncus stout and short, curved at middle, slightly pointed at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.  

**Female genitalia (Figure 11c).** Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a domed bead, more sclerotized on each side, anterior margin villi like, x-shaped, slightly sclerotized, slightly flared on external side; ductus bursae short, slightly sclerotized; corpus bursae very short, ovoid, without sigilla; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with an indentation, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Etymology**  
Named after Mabira Forest, the forest where this species was collected for the first time; treated as a noun in apposition.

**Bionomics**  
Larvae were collected on young stems and shoots of *Echinochloa pyramidalis* growing in wetland inhabited with various Poales species belonging to the following genera: *Cyperus, Eriochloa, Typha* L., 1753 and *Urochloa* P. Beauv. 1812.

**Distribution**  
Kenya and Uganda. The recorded localities are from Guineo-Congolian lowland rain forest and secondary grassland (mosaic #11a) and Afromontane undifferentiated montane vegetation (mosaic #19a) vegetation mosaics (White 1983) (Figure 12).

**Sesamia nangaensis Le Ru n. sp.**  
(Figures 10h, q, 12, 13e, f)

**Type material**  
**Holotype.** ♂, Republic of Congo, Kouilou Department, 4°56′06″S, 11°56′43″E, 2 m asl, III.2013, ex light trap, gen. prep. LERU Bruno/G535 (B. Le Ru, leg.) (MNHN).

**Paratypes.** Cameroon. 1♂, South Province, Sanaga River, 4°22′23″N, 11°15′10″E, 388 m asl, III.2013, ex light trap (B. Le Ru, leg.) (MNHN). Republic of Congo. 7♂, same locality and date as holotype, ex light trap (B. Le Ru, leg.) (MNHN).

**Diagnosis**  
See also the identification key to species of the *fuscifrontia* subgroup below. This species can be distinguished from all other known species of the subgroup by the following combination of characters of the male genitalia: vinculum with a small saccus, v-shaped at the bottom margin, w-shaped at the top margin with an indentation; internal side of costal spine slightly concave with a bulge at the base, apex ampulla-like upwards with some kind of tooth in the middle, flattened triangle shape downwards; sacculus with a strong narrowing below a flared apex; cucullus small, broadly rounded, lying at a flatter angle on the sacculus; juxta trapezoidal, with a small laterally compressed mediiodorsal projection, dentated at apex; uncus tapering near apex to a fine curved point.

**Description**  
Figure 13e, f. Antennae dark ochraceous, shortly serrate, flagellum adorned dorsally with fuscous scales; palpus fuscous; eyes brown. Head and thorax covered with long fuscous hairs, abdomen pale buff suffused with fuscous. Forelegs fuscous, otherwise pale buff. Forewings dark ochraceous suffused with fuscous in costa, apex and
termen areas, irrorated with brown along the outer margin; no transverse markings; orbicular spot and reniform not visible; a longitudinal fuscous fascia, between lower and upper margins of cell, from base of cell to the termen; fringe brown. Hind wings pale buff suffused with fuscous, irrorated with dark ochraceous along outer margin, veins streaked with dark ochraceous, fringe conco-lour with a basal pale buff line. Underside of forewings buff suffused with fuscous, irrorated with brown along outer margin, fringe brown. Underside of hind wings pale buff, suffused with fuscous, fringe pale buff suffused with fuscous, a basal pale buff line. Forewings length: males 17.5 mm (min–max 16–19 mm, N = 9).

**Male genitalia** (Figure 10g, q). Tegumen with small flat peniculi; vinculum small with a small saccus, v-shaped at the bottom margin, w-shaped at the top margin with an indentation; valve with saccus and cucullos fusced; costa short, costal spine large, internal side slightly concave with a bulge at the base, apex ampulla-like upwards with some kind of tooth in the middle, weakly sclerotized, flattened triangle shape downwards, strongly sclerotized; saccus broad, well sclerotized with a strong narrowing below a flared apex, a weak and only outlined harpe; cucullos small, not sclerotized, broadly rounded, lying at a flatter angle on the saccus, with scattered and papillated hairs; juxta trapezoidal, with a small laterally compressed medial projection, dentated at apex; uncus angled and stout at base, narrowing in distal part, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.

**Figure 13.** Adults of the *Sesamia fuscifrontia* species subgroup. a–d, *S. mabira*: a, b, male (a, upper side; b, underside); c, d, female (c, upper side; d, underside); e, f, *S. nangaensis*, male: e, upper side; f, underside; g, h, *S. rungwa*, female: g, upper side; h, underside; i–l, *S. simillima*: i, j, male (i, upper side; j, underside); k, l, female (k, upper side; l, underside); m–p, *S. taveta*: m, n, male (m, upper side; n, underside); o, p, female (o, upper side; p, underside); q–t, *S. ulaukae*: q, r, male (q, upper side; r, underside); s, t, female (s, upper side; t, underside). Scale bars: 8 mm.
Etymology
Named after Lake Nanga, the lake shore where this species was collected for the first time; specific epithet treated as an adjective.

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, Echinochloa, Hyparrhenia, Megathyrsus, Sporobolus and Typha.

Distribution
Cameroon and Republic of Congo. The two recorded localities are from Guineo-Congolian lowland rain forest and secondary grassland (mosaic #11a) vegetation mosaic (White 1983) (Figure 12).

Sesamia rungwa Le Ru n. sp. (Figures 11d, 12, 13g, h)

Type material
Holotype. ♀, Tanzania, Singida Region, Rungwa, 6°56′42″S, 33°31′01″E, 1280 m asl, III.2012, light trap, gen. prep. LERU Bruno/G141 (B. Le Ru, leg.) (MNHN).

Diagnosis
See also the identification key to species of the fuscifrontia subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the female genitalia: ostium bursae large, posterior margin like a domed bead, slightly sclerotized, anterior margin bilobate, each lobe in the shape of a large curved ribbon slightly flared towards the median part bead-shaped, slightly sclerotized; ductus bursae short, slightly sclerotized; corpus bursae very short, ovoid; ovipositor lobes short and curved, 2.0 times longer than wide.

Description
Figure 13g, h. Antennae pinkish-buff suffused with fuscous, filiform, flagellum adorned dorsally with pinkish-buff scales; palpus light ochraceous; eyes brown. Head and thorax covered with long pinkish-buff hairs, abdomen pinkish-buff suffused with fuscous. Legs light ochraceous suffused with fuscous. Forewings pinkish-buff suffused with fuscous; no transverse markings, a dark brown marking below the cell at base; orbicular and reniform spots not visible; one postmedial and one subterminal series of brown markings on the veins; outer margin adorned with brown spots between the veins; fringe fuscous with a basal buff line. Hind wings white, four elongated light fuscous markings on the veins, fringe white, with a basal pinkish-buff line. Underside of forewings buff suffused with fuscous, apex of the cell with two fuscous areas, outer margin adorned with brown spots between the veins; fringe fuscous. Underside of hind wings white, suffused with fuscous in costa and apex areas, four barely visible elongated light fuscous markings on the veins, fringe white. Forewings length: female 20.0 mm (N= 1).

Female genitalia (Figure 11d). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a domed bead, slightly sclerotized, anterior margin bilobate, each lobe in the shape of a large curved ribbon slightly flared towards the median part bead-shaped, slightly sclerotized; ductus bursae short, slightly sclerotized; corpus bursae very short, ovoid, without striae; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

Etymology
Named after Rungwa, a village on the main road between Singida and Mbeya, in Singida Region; treated as a noun in apposition.

Bionomics
Biology unknown. The only known specimen was caught with a light trap in grasslands surrounding banks of wetlands inhabited with various Poales species belonging to the following genera: Cymbopogon, Cyperus, Echinochloa, Hyparrhenia and Sporobolus.

Distribution
Tanzania. The recorded locality is from drier Zambezian miombo woodland (dominated by Brachystegia and Julbernardia) (mosaic #26) vegetation mosaic (White 1983) (Figure 12).

Sesamia simillima Le Ru n. sp. (Figures 4c, 10i, j, 11e, 12, 13i–l)

Type material
Holotype. ♂, Cameroon, Central Region, Yaounde, Msah, 3°48′22″N, 11°30′34″E, 696 m asl, XI.2013, ex larvae in...
stems of *E. pyramidalis*, gen. prep. LERU Bruno/G609 (B. Le Ru, leg.) (MNHN).

**Paratypes.** Benin. 1♂, 1♀, Atakora Department, Tangué, Nanébou, 10°40′26″S, 1°20′39″E, 237 m asl, VII.2009, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN); 5♂, 4♀, Ouémé Department, Cotonou Port, 6°20′51″N, 2°24′21″E, 11 m asl, VII.2009, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN); 9♂, Aukland, 0°05′14″N, 39°26′54″E, 227 m asl, VII.2009, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN); 5♂, 4♀, Ouémé Department, Cotonou Port, 6°20′51″N, 2°24′21″E, 11 m asl, VII.2009, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *fuscifrontia* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: vinculum with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation; internal side of costal spine w-shaped, apex ampulla-like, rounded upwardly, with a sharp triangular process downwardly and a small tooth on the top; cucullus narrow, lying at a flatter angle on the sacculus, base bead-shaped, apex rounded, not sclerotized; juxta trapezoidal, with a small, robust and thick, laterally compressed mediiodorsal projection, slightly dentated at apex; uncus truncate at apex; posterior margin of ostium bursae like a domed bead, more sclerotized on each side, anterior margin villi like, shaped like two opposing triangles with rounded angles, base of triangle shorter than height, slightly sclerotized; ovipositor lobes 2.0 times longer than wider.

**Description**

Figure 13i–l. The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae ochraceous, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus fuscous; eyes brown. Head and thorax covered with long ochraceous or pale buff hairs, abdomen pale buff suffused with fuscous. Legs fuscous suffused with brown. Wing pattern similar in both sexes. Forewings buff more or less suffused with ochraceous and fuscous; a dark brown marking below the cell; orbicular and reniform spots visible; a longitudinal ochraceous fascia between lower and upper margins of cell, from base of cell to the termen; one postmedial and one subterminal series of brown markings on the veins; outer margin adorned with brown spots between the veins; fringe fuscous with a basal buff line. Hind wings white suffused with fuscous in costa and apex areas, four elongated fuscous markings on the veins, outer margin adorned with brown spots between the veins, fringe white suffused with fuscous, with a basal white line. Underside of forewings pale buff suffused with dark fuscous around the cell up to the apex and termen in male, pale buff slightly suffused with fuscous in costa, apex and termen areas in female, orbicular spot more or less visible, outer margin adorned with brown spots between the veins, fringe fuscous. Underside of hind wings white, suffused with
fuscos in costa, apex and termen areas, four elongated fuscos in costa, apex and termen areas, four elongated fuscous markings on the veins, discal spot visible, outer fuscos markings on the veins, discal spot visible, outer margin adorned with brown spots between the veins, fringe white suffused with pale buff or fuscos. Forewings length: males 23.6 mm (min–max 20–26 mm, N = 12); females 27.3 mm (min–max 23–30 mm, N = 12).

**Male genitalia** (Figure 10i, j, r). Tegumen with flat drooping peniculi; vinculum with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation. Valve with saccus and cucullus fused; costa short, costal spine large, internal side w-shaped less sclerotized than the external side, apex ampulla-like, rounded upwardly, with a sharp triangular process downwardly and a small tooth on the top; sacculus broad, well sclerotized with a strong narrowing below a flared apex, inner side with a weak and only outlined harpe, 4.5 times longer than wide; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, apex rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a small, robust and thick, laterally compressed mediadorsal projection, slightly dentated at apex; uncus stout and short, curved at middle, truncate at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.

**Female genitalia** (Figure 11e). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a domed bead, more sclerotized on each side, anterior margin villi like, shaped like two opposing triangles with rounded angles, base of triangle shorter than height, slightly sclerotized; ductus bursae very short, slightly sclerotized; corpus bursae very short, ovoid, without stigma; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Larvae – L5 instar** (Figure 4c). Length, 30–35 mm, width, 4.0 mm; head smooth, brown, prothoracic shield light brown; body with ground colour salmon pink suffused with dark pink, pinnacula and caudal plate brown. Young larvae are very similar in appearance to mature ones.

**Etymology**

Named *simillima*, nominative feminine singular of *simillimus*, because it was first expected to be the same species as *Sesamia echinochloa*; treated as an adjective.

**Bionomics**

Larvae were collected on young stems of *Echinochloa pyramidalis*. *Sesamia simillima n. sp.* is a markedly hygrophilous species found in lakesides, river banks and wetlands, inhabited by various Poales species belonging to the following genera: *Cyperus, Eriochloa, Miscanthus* Andersson, 1855, *Typha* and *Vossia* Wall. & Griff., 1836.

**Distribution**

Benin, Cameroon, Kenya and Uganda. The recorded localities are from Guineo-Congolian lowland rain forest wetter types (mosaic #1a), Guineo-Congolian lowland rain forest and secondary grassland (mosaic #11a), Sudanian woodland with abundant *Isoberlinia* (mosaic #27) and East African evergreen bushland and secondary *Acacia* wooded grassland (mosaic #45) vegetation mosaics (White 1983) (Figure 12).

*Sesamia taveta* Le Ru n. sp.

( Figures 10k, s, 11f, 12, 13m–p)

**Type material**

*Holotype*. ♂, Kenya, Eastern Province, Taveta, Taveta Swamp, 3°26′02″S, 37°41′06″E, 812 m asl, I.2005, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G738 (B. Le Ru, leg.) (MNHN).

*Paratypes*. Kenya. 4♀, 4♂, same locality as holotype, III.2004, I.2005, ex larvae in stems of *E. pyramidalis*, male gen. prep. LERU Bruno/G841, females gen. prep. LERU Bruno/G739-842 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *fuscifrons* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: vinculum with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation; internal side of costal spine swollen at the base, apex ampulla-like, rounded upwardly, with a sharp triangular process downwardly without tooth at the base; cucullus narrow, lying at a flatter angle on the sacculus, apex rounded, not sclerotized; juxta trapezoidal, with a small, robust and thick, laterally compressed mediadorsal projection, slightly dentated at apex; uncus stout and short; posterior margin of ostium bursae like a domed bead, more sclerotized on each side, anterior margin villi like, shaped like two opposing triangles, base of triangle longer than height, slightly sclerotized; ovipositor lobes short and curved, 2.0 times longer than wide.

**Description**

(Figure 13m–p). The general shape of the female’s forewings is more elongated at the apex than those of the
male. Antennae pale buff, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff. Head and thorax covered with long pale ochraceous hairs, abdomen pale buff suffused with fuscous. Forelegs fuscous, otherwise pale buff suffused with fuscous. Wing pattern similar in both sexes, but male darker. Forewings buff, heavily suffused with fuscous and ochraceous in male, slightly suffused with fuscous and ochraceous in female; a brown marking below the cell at base; orbicular spot indistinct, reniform spot visible; a longitudinal fuscous fascia between lower and upper margins of cell, from base of cell to the termen; one postmedial and one subterminal series of brown markings, on the veins, the markings of the postmedial series are connected by a diffuse zigzagging fuscous line; outer margin adorned with brown spots between the veins; fringe fuscous. Hind wings white slightly suffused with fuscous. Forewings pale buff suffused with dark fuscous around veins; outer margin adorned with brown elongated spots between the veins, fringe white slightly suffused with fuscous. Underside of forewings pale buff suffused with dark fuscous around the cell up to the apex and termen in male, pale buff slightly suffused with fuscous in costa, apex and termen areas in female, outer margin adorned with brown spots between the veins, fringe fuscous. Hind wings white slightly suffused with fuscous in costa, apex and termen areas, four elongated fuscous markings on the veins, outer margin adorned with brown elongated spots between the veins, fringe white slightly suffused with fuscous. Underside of forewings pale buff suffused with dark fuscous around the cell up to the apex and termen in male, pale buff slightly suffused with fuscous in costa, apex and termen areas in female, outer margin adorned with brown spots between the veins, fringe fuscous.

**Male genitalia** (Figure 10k, s). Tegumen with flat drooping peniculi; vinculum with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, costal spine large, internal side swollen at the base, less sclerotized than the external side, apex ampulla-like, rounded upwardly, with a sharp triangular process downwardly, heavily sclerotized; sacculus broad, well sclerotized with a strong narrowing below a slightly flared apex; cucullus narrow, lying at a flatter angle on the sacculus, apex rounded, not sclerotized, with scattered and papillated hairs; juxta trapezoidal, with a small, robust and thick, laterally compressed mediadorsal projection, slightly dentated at apex; uncus stout and short, curved at middle, slightly pointed at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose.

**Female genitalia** (Figure 11f). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a domed bead, more sclerotized on each side, anterior margin villi like, shaped like two opposing triangles, base of triangle longer than height, slightly sclerotized; ductus bursae very short, slightly sclerotized; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Etymology**

Named after Taveta town in Eastern Region in Kenya, close to the Tanzanian border, at the bottom of Mount Kilimanjaro; treated as a noun in apposition.

**Bionomics**

Larvae were collected on young stems of *Echinochloa pyramidalis*. *Sesamia taveta* n. sp. is a markedly hygrophilous species found in wetlands inhabited by various Poales species belonging to the following genera: *Cyperus*, *Eriochoa* and *Typha*.

**Distribution**

Kenya. The recorded locality is from Somalia-Masai Acacia-Commiphora deciduous bushland and thicket (mosaic #42) vegetation mosaic (White 1983) (Figure 12).

**Remarks**

The female genitalia of *S. taveta* n. sp. look very similar to those of *S. simillima* n. sp.; the main difference is the height of the two opposing triangles of the anterior margin of the anteostial pad, which is shorter in *S. taveta* n. sp.

*Sesamia ulaukae* Le Ru n. sp.

(Figures 10l, t, 11g, 12, 13q–t)

**Type material**

**Holotype.** ♂, Ethiopia, Oromia Province, Jimma, Ula Ukae, 7°34′03″S, 36°39′52″E, 1908 m asl, IX.2015, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G1035 (B. Le Ru, leg.) (MNHN).

**Paratypes.** Ethiopia, 2♂, same locality and date as holotype, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G929 (B. Le Ru, leg.) (MNHN); 1♀, Oromia Province, Jimma, Kofe, 7°39′13″S, 36°49′13″E, 1721 m asl, IX.2015, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G887 (B. Le Ru, leg.) (MNHN).
**Diagnosis**

See also the identification key to species of the *fuscifronitia* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: internal side of costal spine w-shaped, apex ampulla-like, rounded upwardly; with a sharp triangular process downwardly and a small tooth on the top, heavily sclerotized; sacculus broad, well sclerotized with a strong narrowing below a flared apex, inner side with a weak and only outlined harpe, 5.0 times longer than wide; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, apex ovoid, not sclerotized; carina crest with two lateral lobes with shorter and robust cornuti in ventral position; posterior margin of ostium bursae like a domed bead, anterior margin villi like, shaped like two opposing funnels, slightly sclerotized.

**Description**

*Figure 13q–t.* The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae ochraceous, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus fuscous; eyes brown. Head and thorax covered with long ochraceous hairs, abdomen pale buff suffused with fuscous. Forelegs fuscous, otherwise pale buff suffused with fuscous. Wing pattern similar in both sexes but female darker. Forewings buff in male, ochraceous in female suffused with fuscous, another one in the cell; a dark brown marking below the cell; orbicular not visible reniform spots visible; a longitudinal more or less visible ochraceous fascia, between lower and upper margins of cell, from base of cell to the termen; one postmedial and one subterminal series of brown markings, more or less visible, on the veins; outer margin adorned with brown spots between the veins; fringe fuscous. Hind wings white suffused with fuscous in costa, apex and termen areas, four elongated fuscous markings on the veins in male, outer margin adorned with brown spots between the veins, fringe white suffused with buff, with a basal white line. Underside of forewings pale buff suffused with dark fuscous around the cell up to the apex and termen in male, pale buff slightly suffused with fuscous in costa, apex and termen areas in female, outer margin adorned with brown spots between the veins, fringe fuscous. Hind wings white suffused with fuscous in costa, apex and termen areas in female, outer margin adorned with brown spots between the veins, fringe fuscous. Underside of hind wings white, suffused with fuscous in costa, apex and termen areas, four elongated fuscous markings on the veins in male, outer margin adorned with brown spots between the veins, fringe white suffused with pale buff or fuscous. Forewings length: males 25.5 mm (min–max 25–26 mm, $N=2$); female 30.0 mm ($N=1$).

**Male genitalia** *(Figure 10l, t).* Tegumen with flat drooping peniculi; vinculum with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, costal spine large, internal side w-shaped, less sclerotized than the external side, apex ampulla-like, rounded upwardly, with a sharp triangular process downwardly and a small tooth on the top, heavily sclerotized; sacculus broad, well sclerotized with a strong narrowing below a flared apex, inner side with a weak and only outlined harpe, 5.0 times longer than wide; cucullus narrow lying at a flatter angle on the sacculus, base bead-shaped, apex ovoid, not sclerotized; carina crest with two lateral lobes strongly spinose, two of them with shorter and robust cornuti in ventral position.

**Female genitalia** *(Figure 11g).* Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a domed bead, anterior margin villi like, shaped like two opposing funnels, slightly sclerotized; ductus bursae very short, slightly sclerotized; corpus bursae very short, ovoid, without siga; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Etymology**

Named after Ula Ukae a village close to Jimma in Oromia Region in Ethiopia; treated as a noun in apposition.

**Bionomics**

Larvae were collected on young stems of *Echinochloa pyramidalis*. *Sesamia ultaukae n. sp.* is a markedly hygrophilous species found in wetlands inhabited with various Poales species belonging to the following genera: *Cyperus, Eriochloa* and *Typha*.

**Distribution**

Ethiopia. The two recorded localities are from Afromontane undifferentiated montane (mosaic #19) vegetation mosaic (White 1983) *(Figure 12).*

**Identification key to species of Sesamia fuscifronitia subgroup**

Key based on internal morphology of the adult male (A) and female (B) genitalia.

**(A)**

1. Apex of costa with two teeth *(Figure 10a, d, e)* or anvil-shaped *(Figure 10f)*.
Anterior margin shaped like two opposing triangles (Figure 10c, g, h, i, l) .................. 4
2. Apex of costa anvil-shaped (Figure 10f) .................. S. geyri
   – Apex of costa with two teeth (Figure 10a, d, e) .................. 3
3. Apex of costa with two large teeth (Figure 10a) .......................................................... S. babati
   – Apex of costa with two small teeth (Figure 10d, e) .......................................................... S. fuscifrontia
4. Internal side of costa straight (Figure 10h) .......................................................... S. nangaensis
   – Internal side of costa curved (Figure 10c, g, i, k, l) .................. 5
5. Apex of costa rounded or spoon-shaped (Figure 10c, k) .......................................................... S. babessi
   – Apex of costa shaped like a bird’s beak (Figure 10g, i, l) .......................................................... S. iulaukea
6. Apex of costa rounded (Figure 10c) .................. S. babessi
   – Apex of costa spoon-shaped (Figure 10k) .................. S. taveta
7. Apex of costa with a small tooth on the top of the sharp process (Figure 10i, l) .......................................................... S. mabira
   – Apex of the costa without a small tooth on the top of the sharp process (Figure 10g) .......................................................... S. mabira
8. Sharp process as long as it is wide (Figure 10i) .......................................................... S. simillima
   – Sharp process wider than long (Figure 10l) .......................................................... S. ulaukea

(B)

1. Anterior margin of ostium bursae bilobate (Figure 11a, b, d) .......................................................... S. salama
   – Anterior margin of ostium bursae villi like (Figure 11c, e, f, g) .......................................................... S. salama
2. Each lobe kidney-shaped (Figure 11a, b) .......................................................... S. fuscifrontia
   – Each lobe ribbon-shaped (Figure 11d) .......................................................... S. fuscifrontia
3. Each lobe with a curved pointed end (Figure 11a) .......................................................... S. fuscifrontia
   – Each lobe with a curved blunt end (Figure 11b) .......................................................... S. fuscifrontia
4. Anterior margin x-shaped (Figure 11c) .......................................................... S. geyri
   – Anterior margin shaped like two opposing triangles (Figure 11e, f) or funnels (Figure 10g) .......................................................... S. ulaukea
5. Anterior margin shaped like two opposing funnels (Figure 11g) .......................................................... S. ulaukea
   – Anterior margin shaped like two opposing triangles (Figure 11e, f, k) .......................................................... S. ulaukea
6. Base of triangle shorter than height (Figure 11e) .......................................................... S. simillima
   – Base of triangle longer than height (Figure 11f) .......................................................... S. taveta

Sesamia salama subgroup

The Sesamia salama subgroup consists of S. salama n. sp. The results of molecular phylogenetic analyses (see below) also indicate that this subgroup includes another new species (referred to as Sesamia “n. sp. 35”) that cannot be described in the absence of genitalia.

It is characterized by the following combination of characters: (i) tegumen with small drooping peniculi, vinculum with a very small saccus; (ii) valve with sacculus and cucullus fused; costa short, costal spine broad, ending with a thick shoulder without inner point, sacculus broad, well sclerotized, with a strong narrowing below a slightly flared apex; cucullus small, as an extension of the sacculus, ovoid at apex; (iii) juxta very large, trapezoidal, without medial projection; (iv) aedeagus short and stout, manica with two elongated lobes strongly spinose at apex, vesica with two large and flat beak-shaped cornuti; (vi) ostium bursae large, posterior margin convex in the middle, barely sclerotized, spoon-shaped on each side with a pointed apex, heavily sclerotized, anterior margin cup-shaped, slightly sclerotized; ductus bursae long.

Sesamia salama Le Ru n. sp.
( Figures 14a–g, 15)

Type material
Holotype. ♂, Kenya, Eastern Province, Salama, Kima Ranch, Salama, Eastern, 1°53′15″S, 37°14′36″E, 1423 m asl, I.2011, light trap, gen. prep. LERU Bruno/G281 (B. Le Ru, leg.) (MNHN).
Paratypes. Kenya. 1♀, Eastern Province, Machakos, Kapiti Plain, 1°38′15″S, 37°08′52″E, 1795 m asl, XII.2011, light trap, male gen. prep. LERU Bruno/G85 (B. Le Ru, leg.) (MNHN); 1♀, same locality and date as holotype, light trap (B. Le Ru, leg.) (MNHN); 2♀, Central Province, Ruiru-Oakland, Karimu Dam, 1°05′04″S, 36°55′37″E, 1595 m asl, VI.2011, light trap (B. Le Ru, leg.) (MNHN); 2♀, Nyanza Province, Ruma Park gate, 0°39′04″S, 34°19′15″E, 1247 m asl, XI.2012, light trap (B. Le Ru, leg.) (MNHN); 2♀, Nyanza Province, Ruma Sindo, 0°36′18″S, 34°16′03″E, 1221 m asl, XI.2012, light trap (B. Le Ru, leg.) (MNHN); 6♀, Nyanza Province, Ruma Sindo, 0°36′17″S, 34°16′03″E, 1221 m asl, XI.2012, light trap (B. Le Ru, leg.) (MNHN).

Additional material
Kenya. 1♀, Kitale, 4.V.1932, G.W. Jeffery (NHM).

Diagnosis
This species can be distinguished from other known species of the S. cretica and S. fuscifrontia subgroups by the following combination of characters of the male and female genitalia: vinculum narrow with a small saccus, u-shaped at the bottom margin, u-shaped at the top margin with a pronounced indentation; valve with sacculus and cucullus fused; internal side of costal spine concave, apex with a thick shoulder without inner point; cucullus as an extension of the sacculus, ovoid at apex; juxta very
large and trapezoidal, the base concave, the sides slightly pointed, the distal part convex; uncus tapering near apex to a fine curved point; manica with two elongated lobes strongly spinose at apex, vestica with two large beak-shaped cornuti; posterior margin of ostium bursae convex in the middle, barely sclerotized, spoon-shaped heavily sclerotized on each side with a pointed apex, anterior margin cup-shaped, slightly sclerotized; ductus bursae long; ovipositor lobes curved, 2.7 times longer than wide, ventral surface with a pronounced indentation.

**Description**

Figure 14a–d. The two known males are much lighter than the 14 known females; it is not possible to determine whether it is a gender difference, part of the colour range of the species or because the forewings are slightly rubbed. The general shape of the forewings is similar in both sexes. Antennae pale buff and shortly serrate in the male, ochraceous and filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff. Head and thorax covered with long pale buff to pale ochraceous hairs, abdomen pale buff heavily suffused with fuscous. Forelegs fuscous, otherwise pale buff suffused with fuscous. Wing pattern similar in both sexes. Forewings buff suffused with fuscous and brown; a dark brown marking below the cell at base; orbicular spot not visible, reniform clearly visible; a longitudinal fuscous fascia, between lower and upper margins of cell, from base of cell to the termen; one postmedial series of brown fuscous markings, one subterminal series of brown fuscous markings on the veins; veins streaked with white; tornus and dorsum adorned with a brown fuscous fascia; outer margin adorned with large brown spots between the veins; fringe with alternating brown and fuscous areas. Hind wings white; outer margin adorned with brown fuscous spots between the veins; fringe white slightly suffused with fuscous. Underside of forewings pale buff suffused with fuscous in costa, apex and termen areas; reniform visible, outer margin adorned with brown fuscous spots between the veins; fringe with alternating brown and fuscous areas. Underside of hind wings white, slightly suffused with fuscous in costa, apex and termen areas; discal spot visible; outer margin adorned with brown fuscous spots between the veins; fringe white slightly suffused with fuscous. Forewings length: male 22.0 mm (N = 1); females 22.6 mm (min–max 20–26 mm, N = 14).

**Male genitalia** (Figure 14e, f). Tegumen with small flat penicilli; vinculum narrow with a small saccus, u-shaped at the bottom margin, u-shaped at the top margin with a pronounced indentation; valve with sacculus and cucullus fused; costa short, costal spine large, internal side concave, apex with a thick shoulder; sacculus broad, well sclerotized, with a strong narrowing below a slightly flared apex, inner side with a weak and only outlined harpe, heavily sclerotized; cucullus not sclerotized, as an extension of the sacculus, ovoid at apex, with scattered and papillated hairs; juxta very large and trapezoidal, the base concave, the sides slightly pointed, the distal part convex; uncus angled and stout at base, narrowing in distal part, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with two elongated lobes strongly spinose at apex, vesica with two large and flat beak-shaped cornuti.

**Female genitalia** (Figure 14g). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin convex in the middle, barely sclerotized, spoon-shaped on each side with a pointed apex, heavily sclerotized, anterior margin cup-shaped, slightly sclerotized; ductus bursae long, slightly sclerotized on the ostium side; corpus bursae ovoid, without signa; ovipositor lobes curved, 2.7 times longer than wide, dorsal surface bearing short and stout setae, ventral surface with a pronounced indentation; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Etymology**

Named after Salama, the name of the town where this species was collected for the first time; treated as a noun in apposition.

**Bionomics**

Biology unknown. The moths were caught with light traps in grasslands inhabited with various Poales species belonging to the following genera: *Andropogon*, *Cymbopogon*, *Hyparrhenia*, *Megathyrsus*, *Panicum* and *Sporobolus*.

**Distribution**

Kenya. The recorded localities are from East African evergreen bushland and secondary *Acacia* wooded grassland (mosaic #45) vegetation mosaic (White 1983) (Figure 15).

**Remarks**

The SD analyses (see below) suggest that *S. salama n. sp.* specimens from western and eastern Kenya, on both sides of the Gregory Rift Valley, should belong to different species; however, examination of the corresponding specimens did not yield any robust morphological evidence to support the description of an additional taxa. The *S. salama* subgroup is also probably more diverse than it seems; indeed, the Pretoria museum is home to at least five undescribed *Sesamia* species which probably belong to this subgroup.
Figure 14. *Sesamia* spp. **a–g**, *Sesamia salama*: **a–d**, Adults, habitus, scale bars = 10 mm (**a**, male upper side; **b**, male underside; **c**, female upper side; **d**, female underside); **e–g**, genitalia (**e**, male genitalia, scale bar = 1 mm; **f**, male aedeagus, scale bar = 0.5 mm; **g**, female genitalia, scale bar = 1 mm). **h–q**, *S. viettei*: **h–l**, adults, scale bars = 10 mm (**h**, male upper side; **i**, male underside; **j**, original labels, type from MNHN; **k**, female upper side; **l**, female underside; **m**, original labels, from MNHN); **n–q**, genitalia (**n**, male genitalia, scale bar = 1 mm, from Rungs 1954); **o**, male aedeagus, scale bar = 0.5 mm, from Rungs 1954; **p**, male genitalia, scale bar = 1 mm, from Viette 1967; **q**, female genitalia, scale bar = 1 mm. The male genitalia preparation Ch. Rungs M.P. 35 could not be found in MNHN, the available illustrations found in Rungs (1954) and Viette (1967) are presented.
**Sesamia viettei subgroup**

Our subset of interest (hereby referred to as the S. viettei subgroup) only consists of Sesamia viettei. It is characterized by the following combination of characters: (i) tegumen with small drooping peniculi, vinculum with a small saccus; (ii) valve with saccus and cucullus fused; costa short, costal spine broad, the internal side less sclerotized than the external side, rounded upwardly, produced downwardly into a sharp process; saccus broad, well sclerotized, with a large clasper with two strong sharp teeth; cucullus small, not sclerotized, broadly rounded, in the extension of the saccus with scattered and papillated hairs; (iii) juxta large and trapezoidal, with a very small mediodorsal projection; (iv) uncus stout, angled at base, apex tapering to a fine point, tufted with long hair on upper side; (v) aedeagus short and stout; manica with a carina crest spinose; (vi) ostium bursae large, posterior margin with two lateral small rounded areas clearly punctuated, anterior margin in the form of a wavy bead, slightly sclerotized.

**Sesamia viettei** Rungs, 1954 (Figures 14h–q, 15)

*Sesamia viettei* Rungs 1954: 166. Viette 1967: 710; Poole 1989: 908 (catalogue).

**Type material**

**Holotype.** ♂, Madagascar, [genitalia prep.] Ch. Rungs M. P. 35 (MNHN).

**Additional material**

Madagascar. 1♀, Madagascar Est, env. de Périnet, forêt d’Analamazaotra, alt. 910 m, 12.III.1955, P. Viette, génitalia prép. N° 4381 P. Viette (MNHN).

**Diagnosis**

This species can be distinguished from other known species of the cretica group by the following combination of characters of the male and female genitalia: internal side of costal spine strongly concave, apex ampulla-like, serrated upwardly, very sharply triangular downwardly, heavily sclerotized; inner side of the saccus with a large clasper with two strong sharp teeth at right angle; cucullus lying at a flatter angle on the saccus, base bead-shaped, apex ovoid, not sclerotized; juxta trapezoidal, with a very small mediodorsal projection, the distal part with a short wide neck, with pointed ends; uncus pointed at apex; ostium bursae large, posterior margin with two lateral small rounded areas clearly punctuated, anterior margin in the form of a wavy bead, slightly sclerotized.

**Description**

Figure 14h–m. The species was originally described from the male holotype by Rungs (1954). It has been redescribed by Viette (1967) with an additional female specimen. The general shape of the female’s forewings is similar to that of the male. Forewings length: male 34 mm (N = 1); female 36.0 mm (N = 1).

**Male genitalia** (Figure 14n–p). The preparation of the genitalia could not be observed; our description is thus based on Rungs’s pictures (1954) and Viette’s drawing (1967). Tegumen with flat drooping peniculi; vinculum with a small saccus, u-shaped at the bottom margin, u-shaped at the top margin without indentation. Valve with saccus and cucullus fused; costa short, costal spine large, internal side strongly concave, apex ampulla-like, serrated upwardly, very sharply triangular downwardly, heavily sclerotized; saccus broad, well sclerotized with a weak narrowing below a flared apex, inner side with a large clasper with two strong sharp teeth at right angle; cucullus lying at a flatter angle on the saccus, base bead-shaped, apex ovoid, not sclerotized, with scattered and papillated hairs; juxta large and trapezoidal, with a very small mediodorsal projection, the base pointed, the sides rounded, the distal part with a short wide neck, with pointed ends; uncus stout and short, curved at middle, pointed at apex, tufted with long hair on upper side; aedeagus short and stout, curved in the middle, manica with a carina crest spinose.

**Female genitalia** (Figure 14q). Apophyses anteriores with spatulate tips; lateral plates of ostial segment large, slightly sclerotized; ostium bursae large, posterior margin with two lateral small rounded areas clearly punctuated, anterior margin in the form of a wavy bead, villi like, slightly sclerotized; ductus bursae short, slightly sclerotized; corpus bursae short, subspheric, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Bionomics**

Biology unknown.

**Distribution**

Madagascar. The recorded localities are from a Malagasy moist montane forest (mosaic #5) vegetation mosaic (White 1983) (Figure 15).

**Sesamia wiltshirei subgroup**

The Sesamia wiltshirei subgroup consists of S. djenoensis n. sp., S. echinochloa n. sp., S. inexpectata n. sp., S. lefini n. sp., S. rindini n. sp., and S. wiltshirei; it is characterized
by the following combination of characters: (i) tegumen with small drooping peniculi, vinculum with a small saccus; (ii) valve with sacculus and cucullus fused; costa short, sclerotized, without costal spine; clasper kidney-shaped parallel to the internal side of the valve, strongly toothed at the apex; sacculus broad, well sclerotized,
with a strong narrowing below a more or less flared apex, ending with a narrow thickening or globular extension, toothed; cucullus small, sclerotized like a finger curved at apex with scattered and papillated hairs; juxta heart-shaped or trapezoidal, with a small laterally compressed medial projection; uncus stout and short, curved at middle, pointed at the tip in the shape of a bird’s head, with scattered and papillated hairs; juxta trapezoidal, with a small, robust and thick, laterally compressed medio-dorsal projection, slightly dentated at apex; carina crest produced into paired lateral lobes strongly spinose, two of them with shorter and robust cornuti in ventral position; ostium bursae large, posterior margin like a bell-shaped bead, not sclerotized, the anterior part 2.4 times wider than the posterior part, sides flared, slightly sclerotized; ovipositor lobes short and curved, 2.0 times longer than wide.

Sesamia djenoensis Le Ru n. sp. (Figures 15, 16a–d, 17a, b, i, n)

Type material
Holotype. ♂, Republic of Congo, Kouilou Department, Djeno, 4°53′28″S, 11°55′26″E, 6 m asl, IV.2013, ex larva, in stem of E. pyramidalis, gen. prep. LERU Bruno/G736 (B. Le Ru leg.) (MNHN).
Paratypes. Republic of Congo. 2♀, 2♂, same locality, date and host plant as holotype, male gen. prep. LERU Bruno/G561, male gen. prep. BARBUT Jérôme JB 585, female gen. prep. LERU Bruno/G571 (B. Le Ru leg.) (MNHN).

Diagnosis
See also the identification key to species of the wiltshirei subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: costa with a marked bulge; clasper 1.5 times longer than wide; sacculus ending with a narrow thickening toothed; cucullus strongly curved at apex, in the shape of a bird’s head; juxta trapezoidal, with a small, robust and thick, laterally compressed medio-dorsal projection, slightly dentated at apex; uncus stout and short, curved at middle, pointed at apex, tufted with long hair on upper side; aedeagus short and stout; manica with a carina crest produced into paired lateral lobes strongly spinose, two of them with shorter and robust cornuti in ventral position; ostium bursae large, posterior margin bilobate in the middle, each lobe kidney-shaped, with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a bell-shaped bead, not sclerotized, anterior margin bilobate in the middle, each lobe kidney-shaped, strongly sclerotized, the anterior part 2.4 times wider than the posterior part, sides flared, slightly sclerotized; ovipositor lobes short and curved, 2.0 times longer than wide.

Description
Figure 16a–d. The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae pale buff, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff; eyes brown. Head and thorax covered with long pale buff hairs, abdomen pale buff slightly suffused with fuscous. Legs pale buff slightly suffused with fuscous. Wing pattern similar in both sexes, but male darker. Forewings buff suffused with fuscous; a dark brown marking below the cell at base; orbicular and reniform spots indistinct; a longitudinal ochraceous fascia, between lower and upper margins of cell, from base of cell to the termen; one subterminal series of brown fuscous markings on the veins; outer margin adorned with barely visible brown spots between the veins; fringe dark buff with a basal pale buff line. Hind wings pale buff slightly pinkish, suffused with fuscous in costa and apex areas; fringe white with a basal buff line. Underside of forewings pale buff slightly suffused with fuscous in both sexes, areas around the cell up to the apex and termen fuscous in male; fringe dark buff. Underside of hind wings pale buff, slightly pinkish, suffused with fuscous in costa and apex areas; fringe white with a basal buff line. Forewings length: males 23.5 mm (min–max 23–24 mm, N = 2); female 25.0 mm (N = 2).

Male genitalia (Figure 17a, b, i). Tegumen with flat drooping peniculi; vinculum narrow with a small saccus, u-shaped at the bottom margin, flat at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, sclerotized, with a marked bulge, without costal spine; clasper kidney-shaped parallel to the internal side of the valve, 1.5 times longer than wide, strongly toothed at the apex; sacculus with a strong narrowing below a flared apex ending with a narrow thickening toothed; cucullus small, like a short and thick finger curved at the tip in the shape of a bird’s head, with scattered and papillated hairs; juxta trapezoidal, with a small, robust and thick, laterally compressed medio-dorsal projection, slightly dentated at apex; uncus stout and short, curved at middle, pointed at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two of them with shorter and robust cornuti in ventral position.

Female genitalia (Figure 17n). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a bell-shaped bead, not sclerotized, anterior margin bilobate in the middle, each lobe kidney-shaped, strongly sclerotized, the anterior part 2.4 times wider than the posterior part, sides flared, slightly sclerotized; ductus bursae very short, slightly sclerotized on ostium side; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.
Etymology
Epithet from the name of Djeno village in Kouilou department in Republic of Congo where this species was discovered; the specific epithet treated as an adjective.

Bionomics
Sesamia djenoensis n. sp. is a markedly hygrophilous species inhabiting lakesides. Larvae were collected on young stems of Echinochloa pyramidalis; typically,
Figure 17. Male and female genitalia of the *Sesamia wiltshirei* species subgroup. a, b, i, n, *S. djenoensis*: a, b, male genitalia; i, male aedeagus; n, female genitalia; c, j, o, *S. echinochloa*: c, male genitalia; j, male aedeagus; o, female genitalia; d, e, k, p, *S. inexpectata*: d, e, male genitalia; k, male aedeagus; p, female genitalia; q, *S. lefini*, female genitalia; f, l, r, *S. rindini*: f, male genitalia; l, male aedeagus; r, female genitalia; g, h, m, s, *S. wiltshirei*: g, h, male genitalia; m, male aedeagus; s, female genitalia. Scale bars: male genitalia, 1 mm for valves and 0.5 mm for aedeagus; female genitalia, 1 mm.
stems exhibiting signs of infestation by *S. djenoensis n. sp.* larvae have dry leaves and shoots (dead hearts). The lakesides were inhabited with various Poales species belonging to the following genera: *Cyperus, Juncus L.*, 1753 and *Typha*.

**Distribution**

Republic of Congo. The only recorded locality is Guineo-Congolian lowland rain forest and secondary grassland (mosaic #11a) vegetation mosaic (White 1983) (Figure 15).

*Sesamia echinochloa Le Ru n. sp.*

(Figures 4d, 15, 16e–h, 17c, j, o) *Sesamia perplexa* (Janz 1939) (nomen nudum).

**Type material**

**Holotype**: ♂, South Africa, KwaZulu Natal Province, St Lucia, Duku Duku 4, 28°28′03″S, 32°12′10″E, 14 m asl, XI.2014, ex larvae in stems of *Echinochloa hapoloclada* Stapf., gen. prep. LERU Bruno/G757 (B. Le Ru, leg.) (MNHN).

**Paratypes.** Botswana. 2♂, 5♀, Chobe District, Kasane, 17°47′38″S, 25°09′10″E, 929 m asl, III.2016, ex larvae in stems of *E. hapoloclada*, male gen. prep. LERU Bruno/G1090, female gen. prep. LERU Bruno/G813-1089 (B. Le Ru, leg.) (MNHN); 1♀, Chobe District, Satara, 18°09′47″S, 24°43′49″E, 932 m asl, III.2016, ex light trap, female gen. prep. LERU Bruno/G1052 (B. Le Ru, leg.) (MNHN); 2♂, 2♀, Chobe District, Mabele, 18°17′00″S, 26°41′00″E, 943 m asl, III.2016, ex larvae in stems of *Vossia cuspidata*, male gen. prep. LERU Bruno/G1087, female gen. prep. LERU Bruno/G1084-1088 (B. Le Ru, leg.) (MNHN). Kenya. 2♀, Coast Province, Malindi, 3°08′03″S, 40°08′06″E, 33 m asl, X.2004, ex larvae in stems of *Eriochloa fimbriens* (Hochst. 1 Steud.) Clayton (B. Le Ru, leg.) (MNHN); 7♂, 2♀, Coast Region, Ukunda, Muhaka, 4°18′48″S, 39°32′10″E, 35 m asl, VI–IX.2006, ex larvae in stems of *E. haploclada*, male gen. prep. LERU Bruno/G702-703 (B. Le Ru, leg.) (MNHN); 1♀, Central Region, Nairobi, Ruiri Aukland, 1°05′04″S, 36°55′37″E, 1595 m asl, VI.2011, ex light trap, female gen. prep. LERU Bruno/G260 (B. Le Ru, leg.) (MNHN). Mozambique. 5♂, five ♂, Cabo Delgado Province, Pemba, Mieze, 13°05′56″S, 40°26′43″E, 22 m asl, III.2010, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN); 2♂, 1♀, Maputo Province, Maputo, Mataline, 25°56′03″S, 32°01′09″E, 547 m asl, III.2005, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN); 12♂, 9♀, Nampula Province, Milela River, 15°44′45″S, 37°38′11″E, 480 m asl, III.2010, ex larvae in stems of *E. pyramidalis*, males gen. prep. LERU Bruno/G253-704, females gen. prep. LERU Bruno/G254-740 (B. Le Ru, leg.) (MNHN); 12♂, 9♀, Maputo Province, Umbeluzi, 26°01′55″S, 32°23′17″E, 15 m asl, III.2005, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN). South Africa. 14♂, 15♀, same locality and date as holotype, ex larvae in stems of *E. hapoloclada*, female gen. prep. LERU Bruno/G764 (B. Le Ru, leg.) (MNHN); 1♀, KwaZulu Natal Province, St Lucia, Duku Duku 2, 28°26′46″S, 32°17′26″E, 27 m asl, XI.2014, ex light trap, female gen. prep. LERU Bruno/G758 (B. Le Ru, leg.) (MNHN); 4♂, 4♀, KwaZulu Natal Province, St Lucia, Duku Duku 3, 28°26′31″S, 32°15′55″E, 11 m asl, XI.2014, ex larvae in stems of *Phragmites australis* Trin. Ex Steud. (B. Le Ru, leg.) (MNHN); 9♂, 1♀, Limpopo Province, Merensky Dam, 23°45′01″S, 30°06′24″E, 794 m asl, I.2007, ex larvae in stems of *E. pyramidalis*, male gen. prep. LERU Bruno/G701, female gen. prep. LERU Bruno/G700 (B. Le Ru, leg.) (MNHN). Tanzania. 9♂, 12♀, Morogoro Region, Chiombola, Ruaha, 8°54′03″S, 36°43′21″E, 410 m asl, II.2010, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN); 8♂, 2♀, Lindi Region, Chibonola, Bwenkuru, 9°45′20″S, 39°33′14″E, 147 m asl, III.2007, ex larvae in stems of *E. pyramidalis*, male gen. prep. LERU Bruno/G705 (B. Le Ru, leg.) (MNHN); 1♀, Morogoro Region, Chiombola, Chiombola, Sali, 8°55′30″S, 36°43′35″E, 410 m asl, II.2010, ex larvae in stems of *E. pyramidalis*, female gen. prep. LERU Bruno/G706 (B. Le Ru, leg.) (MNHN); 1♂, 1♀, Dar es Salam Region, Ruvu, 6°42′03″S, 38°42′31″E, 211 m asl, VI.2004, ex larvae in stems of *E. pyramidalis* (B. Le Ru, leg.) (MNHN). Zambia. 1♀, Central Province, Kabwe, Khaembu, 14°33′06″S, 28°19′18″E, 1191 m asl, III.2012, ex light trap, female gen. prep. LERU Bruno/G140 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *wilshirei* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: internal side of costa almost flat; clasper kidney-shaped, 2.0 times longer than wide, sacculus ending with a globular extension toothed; cucullus dagger-shaped; juxta small and flat, trapezoidal; anterior margin of ostium bursae bilobate in the middle, each lobe bean-shaped almost triangular with the posterior part wider than the anterior part, strongly sclerotized, sides flared, less sclerotized; ovipositor lobes short and curved, 2.0 times longer than wide.

**Description**

Figure 16e–h. The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae pale buff and shortly serrate in the
male, ochraceous and filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff; eyes brown. Head and thorax covered with long pale ochraceous hairs, abdomen pale buff slightly suffused with fuscous. Legs pale buff slightly suffused with fuscous in male, ochraceous suffused with fuscous in female. Wing pattern similar in both sexes, but female darker. Forewings buff suffused with fuscous in male, buff suffused with ochraceous in female; a dark brown marking below the cell at base; orbiculot spot not visible, reniform clearly visible; a longitudinal grey fuscous fascia, between lower and upper margins of cell, from base of cell to the termen; two postmedial brown markings more or less visible, one subterminal series of brown fuscous markings on the veins; outer margin adorned with brown spots between the veins; fringe fuscous with a basal pale buff line. Hind wings white slightly suffused with fuscous in costa, apex and termen areas; fringe white slightly suffused with fuscous, a basal pale buff line. Underside of forewings pale buff slightly suffused with ochraceous in male, ochraceous in fuscous, a basal pale buff line. Underside of hind wings white, suffused with fuscous in costa, apex and termen areas, suffusion is more intense in male, fringe white suffused with fuscous, a basal buff line. Forewings length: males 21.9 mm (min – max 18–24 mm, N = 12); females 25.7 mm (min – max 22–29 mm, N = 12).

**Male genitalia** (Figure 17c, j). Tegumen with flat drooping peniculi; vinculum small with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, sclerotized, internal side almost flat, without costal spine; clasper kidney-shaped parallel to the internal side of the valve, 2.0 times longer than wide, strongly toothed at apex; sacculus with a strong narrowing below a globular apex, toothed; cucullus dagger-shaped with scattered and papillated hairs; juxta small and flat trapezoidal, slightly sclerotized; uncus stout and short, curved at middle, blunt at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two of them with shorter and robust cornuti in ventral position.

**Female genitalia** (Figure 17o). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a bell-shaped bead not sclerotized, anterior margin bilobate in the middle, each lobe bean-shaped, almost triangular with the posterior part wider than the anterior part, strongly sclerotized, sides flared, less sclerotized; ductus bursae very short, slightly sclerotized on ostium side; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Larvae** – L5 instar (Figure 4d). Length, 30–35 mm, width, 4.0 mm; head smooth, orange brown, prothoracic shield salmon beige; body with ground colour salmon pink, pinnacula and caudal plate brown. Young larvae are very similar in appearance to mature ones.

**Etymology**

Named after *Echinochloa*, the genus name of its main host plant species; treated as a noun in apposition.

**Bionomics**

Larvae were collected on young stems and shoots of *Echinochloa pyramidalis*, *Echinochloa haploclada*, *Eriochloa fatemensis*, *Eriochloa meyeriana*, *Phragmites australis* and *Vossia cuspidata* growing in wetland inhabited with various Poales species belonging to the following genera: *Cyperus*, *Eriochloa*, *Juncus*, *Phragmites*, *Typha* and *Vossia*. Even if collected on six distinct host plants belonging to four genera, most of the collected larvae (547 among 760 in total) were found on *Echinochloa* species.

**Distribution**

Botswana, Kenya, Mozambique, Tanzania, South Africa and Zambia. The recorded localities are from the following vegetation mosaics: Zanzibar-Inhambane East African coastal mosaic (mosaic #16a), Tongaland-Pondoland East African coastal mosaic (mosaic #16c), wetter Zambezian miombo woodland (dominated by *Brachystegia*, *Julbernardia* and *Isoperlinea*) (mosaic #25), drier Zambezian miombo woodland (dominated by *Brachystegia* and *Julbernardia*) (mosaic #26), *Colophospermum mopane* woodland and scrub woodland (mosaic #28), and East African evergreen bushland and secondary *Acacia* wooded grassland (mosaic #45) vegetation mosaic (White 1983) (Figure 15).

**Remarks**

This species was already treated by Janse (1939) with the *nomen nudum* of *Sesamia perplexa*, though no text at all was related to *S. perplexa* in Janse (1939). Since Tams & Bowden (1953) already described a *Sesamia* species with the name *jansei* it was not possible to describe this species as *S. jansei*.
**Sesamia inexpectata Le Ru n. sp.**
(Figures 4e, 15, 16i–l, 17d, e, k, p)

**Type material**

**Holotype.** ♂. South Africa, North-West Province, Bloemhof Dam, 29°38′10″S, 25°40′03″E, 1243 m asl, II.2009, ex larvae in stems of *E. pyramidalis*, gen. prep. LERU Bruno/G282 (B. Le Ru, leg.) (MNHN).

**Paratypes.** South Africa. 2♂, 2♀, same locality and date as holotype, ex larvae in stems of *E. pyramidalis*, males gen. prep. LERU Bruno/G28-698, females gen. prep. LERU Bruno/G27-699 (B. Le Ru, leg.) (MNHN); 2♀, North-West Province, Potchefstroom, Bird Sanctuary, 27°06′14″S, 26°44′10″E, 1339 m asl, I.2014, ex light trap, female gen. prep. LERU Bruno/G629 (B. Le Ru, leg.) (MNHN); 1♀, North-West Province, Potchefstroom, Bar Baraka, 26°49′43″S, 27°22′01″E, 1365 m asl, II.2014, ex light trap, female gen. prep. LERU Bruno/G630 (B. Le Ru, leg.) (MNHN). Zambia. 1♂, Luapula Province, Ngwenya, 12°58′32″S, 28°27′19″E, 1243 m asl, III.2012, ex larvae in stems of *E. pyramidalis*, male gen. prep. LERU Bruno/G142 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *wiltsirei* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: costa of the female abdomen: like a short and thick sacculus ending with a narrow thickening toothed; cucullus small, like a short and thick finger curved at apex in the shape of a bird's head; anterior margin of the ostium bursae bilobate in the middle, each lobe kidney-shaped with the posterior part as wide as the anterior part, strongly sclerotized, sides flared, slightly sclerotized; ovipositor lobes short and curved, 2.0 times longer than wide.

**Description**

**Figure 16i–l.** The general shape of the female's forewings is more elongated at the apex than those of the male. Antennae ochraceous, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff. Head and thorax covered with long pale buff hairs in male, long ochraceous hairs in female, abdomen pale buff slightly suffused with fuscous. Forelegs brown, otherwise pale buff suffused with fuscous. Wing pattern similar in both sexes, but female darker. Forewings buff, slightly suffused with fuscous in male, buff heavily suffused with fuscous and ochraceous in female; a dark brown marking below the cell at base; orbicular spot indistinct, reniform spot visible; a longitudinal fuscous fascia, between lower and upper margins of cell, from base of cell to the termen; one postmedial and one subterminal series of brown markings, more or less visible, on the veins; outer margin adorned with brown spots between the veins; fringe fuscous in male, dark ochraceous in female. Hind wings white slightly suffused with fuscous in costa, apex and termen areas, fringe white slightly suffused with buff. Underside of forewings buff suffused with fuscous around the cell in male, buff suffused with ochraceous and fuscous in female, outer margin adorned with brown spots between the veins, fringe fuscous in male, ochraceous in female. Underside of hind wings white suffused with fuscous in costa, apex and termen areas, fringe white slightly suffused with buff. Forewings length: males 22.7 mm (min–max 22–23 mm, N=4); females 23.4 mm (min–max 21–26 mm, N=5).

**Male genitalia** (Figure 17d, e, k). Tegumen with flat drooping peniculi; vinculum narrow with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, sclerotized, with a slight bulge, without costal spine; clasper kidney-shaped parallel to the internal side of the valve, 2.3 times longer than wide, strongly toothed at the apex; sacculus with a strong narrowing below a slightly flared apex ending with a narrow thickening toothed; cucullus small, like a short and thick finger curved at the tip, in the shape of a bird’s head; juxta trapezoidal with a small, robust and thick, laterally compressed mediodorsal projection; uncus stout and short, curved at middle, pointed at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two of them with shorter and robust cornuti in ventral position.

**Female genitalia** (Figure 17p). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a bell-shaped bead not sclerotized, anterior margin bilobate in the middle, each lobe kidney-shaped with the posterior part as wide as the anterior part, strongly sclerotized, sides flared, slightly sclerotized; ductus bursae very short, slightly sclerotized on ostium side; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Larvae – 5th instar** (Figure 4e). Length, 30–35 mm, width, 4.0 mm; head smooth, dark brown, prothoracic shield salmon beige; body with ground colour salmon pink, pinnacula and caudal plate pale brown. Young larvae are very similar in appearance to mature ones.

**Etymology**

Named *inexpectata*, because at first, before preparing the genitalia, it was thought to be *Sesamia echinochloa*; specific epithet treated as an adjective.
**Bionomics**

Larvae were collected on young stems and shoots of *Echinochloa pyramidalis* growing in wetland inhabited with various Poales species belonging to the following genera: *Cyperus, Eriochloa* Kunth, 1815, *Juncus, Phragmites Adans, 1763* and *Typha*.

**Distribution**

South Africa and Zambia. The recorded localities are wetter Zambezian miombo woodland (dominated by *Brachystegia, Julbernardia* and *Isoberlinia*) (mosaic #25), montane Karoo grassy shrubland (mosaic #57) and high-veld grassland (mosaic #58) vegetation mosaics (White 1983) (Figure 15).

*Sesamia lefini* Le Ru n. sp. (Figures 15, 16m, n, 17q)

**Type material**

Holotype. ♀, Republic of Congo, Plateaux Region, Lefini River, 02°54′30″S, 15°37′46″E, 329 m asl, IV.2013, ex light trap, gen. prep. LERU Bruno/G735 (B. Le Ru, leg.) (MNHN).

**Diagnosis**

See also the identification key to species of the *wiltshirei* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the female genitalia: anterior margin of the ostium bursae bilobate in the middle, each lobe pea-shaped almost spherical, strongly sclerotized, sides slightly flared, less sclerotized; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with a pronounced indentation.

**Description**

Figure 16m, n. Antennae ochraceous filiform, flagellum adorned dorsally with pale buff scales; palpus pale buff; eyes brown. Head and thorax covered with long pale ochraceous hairs, abdomen pale buff. Legs pale ochraceous. Forewings pale buff, heavily suffused with ochraceous, slightly irrorated with fuscous; no transverse markings; two brown markings below the cell, reniform spot visible; longitudinal fascia indistinct; one subterminal series of brown markings on the veins; outer margin adorned with brown elongated spots between the veins; fringe ochraceous suffused with fuscous, a basal buff line. Hind wings white, fringe concolour with a basal pale buff line. Underside of hind wings white, fringe white with a basal pale buff line. Forewings length: females 22.0 mm ($N = 1$).

**Female genitalia** (Figure 17q). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin like a domed bead, not sclerotized, anterior margin bilobate in the middle, each lobe pea-shaped almost spherical, strongly sclerotized, sides slightly flared, less sclerotized; ductus bursae short, slightly sclerotized; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.0 times longer than wide, ventral surface with a pronounced indentation, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Etymology**

Named after Lefini river, on whose banks this species was collected; treated as a noun in apposition.

**Bionomics**

Biology unknown. The moth was caught with a light trap in grasslands surrounding Lefini riverside inhabited with various Poales species belonging to the following genera: *Cyperus, Echinochloa, Eriochloa, Hyparrhenia, Sporobolus, Typha and Vossia*.

**Distribution**

Republic of Congo. The recorded locality is from Guineo-Congolian lowland rain forest and secondary grassland (mosaic #11a) vegetation mosaic (White 1983) (Figure 15).

*Sesamia rindini* Le Ru n. sp. (Figures 4f, 15, 16o–r, 17f, l, r)

**Type material**

Holotype. ♂, Tanzania, Singida Region, Itigi, Manyoni, Rindini, 5°36′47″S, 34°40′03″E, 1389 m asl, II.2013, ex larvae in stems of *Sporobolus consimilis* Fresen., gen. prep. LERU Bruno/G737 (B. Le Ru, leg.) (MNHN).

Paratypes. Tanzania. 3♂, 2♀, same locality and date as holotype, ex larvae in stems of *S. consimilis*, gen. prep. LERU Bruno/G534-835 (B. Le Ru, leg.) (MNHN); 2♀, Singida Region, Itigi, Ibiti, 5°49′40″S, 34°19′27″E, 1400 m asl, IV.2014, ex light trap, gen. prep. LERU Bruno/G683-684 (B. Le Ru, leg.) (MNHN).
**Diagnosis**

See also the identification key to species of the *wiltshirei* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: internal side of costa convex; clasper 1.6 times longer than wide; sacculus ending with a narrow thickening toothed; cucullus like a short and very thick finger curved at the tip, in the shape of a bird’s head; carina crest with two lateral lobes with shorter and robust cornuti in ventral position; anterior margin of ostium bursae bilobate in the middle, each lobe kidney-shaped, strongly sclerotized, the anterior part two times wider than the posterior part, sides flared, slightly sclerotized; ovipositor lobes short and curved, 2.4 times longer than wide.

**Description**

**Figure 16o–r.** The general shape of the female’s forewings is more elongated at the apex than those of the male. Antennae pale buff, shortly serrate in the male, filiform in the female, flagellum adorned dorsally with pale buff scales; palpus pale buff; eyes brown. Head and thorax covered with long pale ochraceous hairs, abdomen pale buff slightly suffused with fuscous. Forelegs fuscous, otherwise pale buff slightly suffused with fuscous. Wing pattern similar in both sexes. Forewings buff suffused with ochraceous and fuscous; no transverse markings; a dark brown marking below the cell at base; orbicular spot not visible, reniform visible; a longitudinal ochraceous fascia between lower and upper margins of cell, from base of cell to the termen; outer margin adorned with brown spots between the veins; fringe fuscous with a basal pale buff line. Hind wings white slightly suffused with fuscous in costa and apex areas; fringe white slightly suffused with fuscous, a basal pale buff line. Underside of forewings pale buff suffused with pale ochraceous along costa, areas around the cell up to the apex and termen fuscous in male, outer margin adorned with more or less visible brown spots between the veins, fringe fuscous. Underside of hind wings white, suffused with fuscous in costa and apex areas, fringe white suffused with fuscous, a basal buff line. Forewings length: males 21.0 mm (min–max 19–22 mm, N = 4); females 22.2 mm (min–max 20–24 mm, N = 4).

**Male genitalia (Figure 17f, l).** Tegumen with flat drooping peniculi; vinculum small with a small saccus, u-shaped at the bottom margin, w-shaped at the top margin without indentation. Valve with sacculus and cucullus fused; costa short, sclerotized, internal side slightly convex, clasper curved sausage-shaped parallel to the internal side of the valve, 1.3 times longer than wide, strongly toothed at the apex; sacculus broad, well sclerotized with a strong narrowing below a slightly flared apex ending with a narrow thickening toothed; cucullus small, sclerotized, like a short and very thick finger curved at the tip at the tip, in the shape of a bird’s head, with scattered and papillated hairs; juxta small and flat trapezoidal, with a very small laterally compressed medial projection, slightly sclerotized; uncus stout and short, curved at middle, blunt at apex, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose, two of them with shorter and robust cornuti in ventral position. **Female genitalia (Figure 17r).** Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin domed, the middle part sclerotized, flattened triangle-shaped, the side parts not sclerotized, anterior margin bilobate in the middle, each lobe kidney-shaped, strongly sclerotized, the anterior part two times wider than the posterior part, sides flared, slightly sclerotized; ductus bursae very short, slightly sclerotized on ostium side; corpus bursae very short, ovoid, without signa; ovipositor lobes short and curved, 2.4 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores without spatulate tips.

**Larvae – L5 instar (Figure 4f).** Length, 30–35 mm, width, 4.0 mm; head smooth, orange brown, prothoracic shield salmon beige; body with ground colour salmon pink, pinacula and caudal plate light brown. Young larvae are very similar in appearance to mature ones.

**Etymology**

Named after Rindini, a village near Manyoni in Singida Region; treated as a noun in apposition.

**Bionomics**

Larvae were collected on young stems and shoots of *Sporobolus consimilis* growing in wetland inhabited with various Poales species belonging to the following genera: *Cyperus, Eriochloa, Echinochloa* and *Juncus*.

**Distribution**

Tanzania. The recorded localities are from drier Zambesian miombo woodland (dominated by *Brachystegia* and *Julbernardia*) (mosaic #26) vegetation mosaic (White 1983) (Figure 15).

*Sesamia wiltshirei* Rungs, 1963

*(Figures 15, 16s–x, 17g, h, m, s)*

*Sesamia wiltshirei* Rungs 1963: 70; Poole 1989: 908 (catalogue).
**Type material**

**Holotype.** ♂, [Egypt], R[épublique] A[rabe] U[nie], Ismäilía, [30°35′N, 32°16′E], 21.V.1952, Prep. [genitalia] 613 Wiltshire, E.P. Wiltshire leg. (MNHN). Not examined.

**Additional material**

Egypt. 1♂, Kafr El Sheikh sp. No 4, Pres by Comm Inst Ent B.M. 1983—1, on *Panicum repens* CIE A/5046, Noctuidae Brit. Mus. Slide No 11161 ♂, *Sesamia wiltshirei* Rungs det. J.D. Holloway, 1983 (NHM); 1♀, Kafr El Sheikh sp. No 4, Pres by Comm Inst Ent B.M. 1983—1, on *Panicum repens* CIE A/5046, Noctuidae Brit. Mus. Slide No 11162 ♀, *Sesamia wiltshirei* Rungs det. J.D. Holloway, 1983 (NHM).

**Diagnosis**

See also the identification key to species of the *wiltshirei* subgroup below. This species can be distinguished from other known species of the subgroup by the following combination of characters of the male and female genitalia: tegumen with rounded peniculi; vinculum with a saccus u-shaped at the bottom margin; valve very wide, costa short, slightly swollen, without costal spine; clasper narrow kidney-shaped, three times longer than wide, parallel to the internal side of the valve, strongly toothed at apex; sacculus very broad with a strong narrowing below a slightly flared apex ending with a narrow thickening toothed; cucullus small, sclerotized, like a short and very thick finger curved at the tip in the shape of a bird head, with scattered and papillated hairs; juxta not seen; uncus thin, curved at middle, tapering near apex to a fine curved point, tufted with long hair on upper side; aedeagus short and stout, manica with a carina crest strongly spinose, vesica with a tongue-shaped cornutus adorned with longitudinal villi like close to the tip; cucullus small, sclerotized, like a short and very thick finger curved at the tip in the shape of a bird head, with scattered and papillated hairs; aedeagus short and stout, manica with a carina crest produced into paired lateral lobes strongly spinose.

**Female genitalia** (Figure 17s). Apophyses anteriores with spatulate tips; lateral plates of ostial segment small, slightly sclerotized; ostium bursae large, posterior margin flattened heart-shaped, strongly sclerotized, convex on the posterior side, pointed base towards the ductus bursae, anterior margin strongly sclerotized, cup-shaped with sharp curved ends on each side; ductus bursae very short, slightly sclerotized on ostium side; corpus bursae very short, ovoid, without signa; ovipositor lobes very short and sharp, 1.3 times longer than wide, dorsal surface bearing short and stout setae; apophyses posteriores slenderer and longer than apophyses anteriores.

**Bionomics**

Larvae were collected in stems of *Panicum repens*.

**Distribution**

Egypt. The recorded localities are from regs, hamadas, wadis (mosaic #71) vegetation mosaic (White 1983) (Figure 15).

**Remarks**

Rungs (1963) noticed that, although this small species looks very similar in size and wing pattern to *S. coniota*, its genitalia morphology brings it closer to *S. albivena*; our study clearly shows it belongs to the *Sesamia cretica* group.

**Identification key to species of Sesamia wiltshirei subgroup**

Key based on internal morphology of the adult male (A) and female (B) genitalia.

(A)

1. Cucullus like a long and thick finger slightly curved at the tip (Figure 17e)......................... *S. echinochloa*
Cucullus like a short and very thick
all

2. Clasper narrow kidney-shaped, three times longer than wide (Figure 17a, d, f) ......................... S. wiltshirei

3. Internal side of costa strongly swollen (Figure 17a) .................................................. S. djenoensis

4. Each lobe almost triangular (Figure 17q) .......................................................... S. echinochloa

5. Posterior part 2.4 times wider than the anterior part (Figure 17n) ........................................ S. rindini

Phylogenetic analyses

The best-scoring tree from the ML analyses of the concatenated dataset (Figure 18) has a likelihood score of −19,631.447. Overall 66% and 72% of the interspecies nodes are supported by SH-aLRT ≥ 80% and uBV ≥ 95%, respectively (Figure 18; see also Appendix S4.1 for details). In the corresponding topology, the S. cretica group is recovered paraphyletic (with five distinct lineages), due to the placement of the representatives of S. coniota (plus S. grisescens) and of S. nonagrioides species groups. The S. nonagrioides group itself is inferred sister to a well-supported clade (SH-aLRT and uBV of 100%) grouping representative of the S. fuscifrontia and S. wiltshirei subgroups. The two sampled representatives of the S. coniota group (plus S. grisescens) are recovered sister to a clade consisting of the S. nonagrioides species group and the S. fuscifrontia + S. wiltshirei subgroups. The support for the placement of S. grisescens is moderate to high (SH-aLRT of 82.1% and uBV of 84%). Except for the S. fuscifrontia subgroup which is found paraphyletic, all S. cretica subgroups (S. albivena, S. cretica, S. salama and S. wiltshirei subgroups) are recovered monophyletic with high supports (SH-aLRT values comprised between 83.7 and 100% and uBV ≥ 99%). Within these subgroups, all species are also recovered monophyletic with high support (SH-aLRT values between 90.5 and 100% and uBV between 92 and 100%).

The results of the separate gene tree analyses to be further used by several SD approaches are presented in Appendices S4.2–S4.7. The best-scoring tree from the ML analyses of the concatenated nuclear dataset (Appendix S4.8) has a likelihood score of −5019.321. Overall, the phylogeny is not well supported (mean SH-aLRT of 28% and mean uBV of 42%) and shows hard polytomies. Except for the S. cretica subgroup which is found paraphyletic, all S. cretica subgroups (S. albivena, S. fuscifrontia, S. salama and S. wiltshirei subgroups) are recovered monophyletic with high supports (SH-aLRT and uBV of 100%).

Species delimitation analyses

Depending on the methods and loci analysed between 13 and 33 putative species are inferred by the SD analyses (Figure 18). The sampled species from the S. cretica group are recovered by at least 60% of the SD analyses, with about one-half recovered by all SD analyses. Noticeably, fewer putative species are found by distance-based methods (19–24 putative species) and when examining the clades inferred in the concatenated nuclear phylogeny (13 putative species), whereas more putative species are found by tree-based methods (23–33 putative species). Based on the mCtax values obtained with LIMES, four SD analyses are considered as equally or more likely than the morphospecies (in mCtax order: Cytb.ASAP-W, Concat.GMYCs, Concat.PTP and Cytb.GMYCs). The three SD analyses considered as more likely (Cytb.ASAP-W, Concat.GMYCs, and Concat.PTP) however fit well with the morphology (Ctax > 0.94) except for S. salama, S. kafulo, S. babati, which are oversplitted (respectively by all three analyses, Concat.GMYCs and Concat.PTP), and the fourth SD analysis (Cytb.GMYCs) fully matches with morphology (Ctax = 1).

Discussion

Morphology, taxonomy and systematics

Except for Sesamia taenioleuca whose forewings are purplish-pink, the remaining 30 Sesamia species revised here constitute a morphologically homogeneous group when only considering wing patterns and colours. However, as underlined by the results of the molecular phylogenetics analyses, the S. cretica group is not monophyletic and instead consists of five distinct lineages. When taking
Figure 18. Maximum likelihood tree resulting from the analysis of the concatenated dataset, complemented by the results of molecular species delimitation analyses. The tree is shown on the left along with information on clade support for major nodes (S = supported; NS = not supported). Results of molecular analyses are displayed on the right, ranked depending on the $mCtax$ value. The bars are coloured in green, yellow or red, depending on whether a given analysis matches the number of described species, split them or merge them, respectively. Analysis type, $mCtax$, $Ctax$ (between morphology and a given analysis) and number of species found (Nb species) are summarized in the table at the bottom left.
into account male and female genitalic characters it is feasible to assign all the species revised here to six homogeneous subgroups, which mirror the clades evidenced by the molecular analyses: the S. albivena subgroup, the S. cretica subgroup, the S. fuscifrontia subgroup, the S. salama subgroup, the S. viettei subgroup and the S. wiltshirei subgroup. Specimens can be easily assigned to these distinct subgroups. For male specimens, the characters of the costa and the juxta allow for a clear assignment. For female specimens, the characters of the posterior and anterior margins of the antennostial pad are the most relevant for an easy identification of the subgroup. The identification key 1 presented above allows one to determine to which subgroup of the S. cretica group a species belongs.

Four of these subgroups strictly correspond to four of the five clades recovered by the molecular analyses; the last two (S. fuscifrontia and S. wiltshirei subgroups) belong to the same clade, whereas the S. fuscifrontia subgroup is found to be paraphyletic due to the placement of representatives of the S. wiltshirei subgroup. The latter indicates that the combination of genitalic characters retained to define the S. fuscifrontia subgroup likely includes homoplasic characters; it is also the case when considering the S. cretica group as a whole, as underlined by the fact that it consists of five distinct evolutionary lineages.

Further morphological and molecular studies are likely required to increase our understanding of the diversity of the S. cretica group as currently defined, as it will likely be expanded to include other species yet to be described. For instance, Hermann Hacker’s personal collection hosts several potential new species belonging to the group: two males from Iringa in Tanzania (genitalia N° 24915 and N° 25004) belong to a new species of the S. albivena subgroup; one male from Ethiopia (genitalia N° 25082) belongs to the S. wiltshirei subgroup, and correspond to a new species closely related to S. rindini n. sp.; one male from Tanzania (genitalia N° 24985) belong to a new species from the S. cretica subgroup and close to S. rufescens. In the Middle East, two species described in 2002 also belong to the S. cretica group. Sesamia ilonae Hacker, 2001 (Hacker 2001) from Israel is a member of the S. fuscifrontia subgroup and S. vanharteni Hacker & Fibiger, 2002 (Hacker et al. 2002) from Yemen is almost indistinguishable from S. cretica to the point that it would be interesting to do a molecular study to clarify its status. In addition, regarding S. cretica it is worth highlighting that specimens from this widespread species (distributed in Africa, Asia and Europe) present some geographical variation in the costal spine apex more or less rounded or triangular, which could indicate a potential species complex. In Asia, three species (Acrapex exsanguis Lower, 1902, Sesamia sp. from Australia and S. rungsi Boursin, 1957 from Afghanistan) also belong to the S. cretica group, and most likely to the S. fuscifrontia subgroup.

Molecular species delimitations

In this study, the results of SD approaches generally provide a good support for the newly described species. The five analyses with the highest mCtax values (see Figure 18) were followed to provide the new species descriptions. Among them, only three species (S. babati, S. kafulo and S. salama) are sometimes split when the morphology does not show any difference. For these species, in an iterative manner, morphological studies were further carried out but no notable differences among specimens from the same species were found. Here it can be postulated that these suggested splits are likely artefactual, possibly resulting from the low number of specimens sequenced and potential biases in branch length estimation (due to uneven gene coverage among some specimens), which could have affected the tree-based SD methods. Finally, the results of our SD analyses are also consistent with a general trend reported by other authors (Miralles & Vences 2013; Talavera et al. 2013; Hamilton et al. 2014; Lecoq et al. 2015; Dellicour & Flot 2018; Luo et al. 2018), which is that tree-based approaches (such as GMYC and PTP) generally yield higher numbers of putative species whereas distance-based methods (such as ABGD and ASAP) generate lower numbers of putative species. The latter underlines the importance of using a wide array of methods and settings to critically interpret and reassess the results of SD analyses, while avoiding biases that could result from the reliance on a limited number of approaches.

Ecology, distribution and diversity

Among the 24 collected species belonging to the different S. cretica subgroups, members of the clade grouping the S. fuscifrontia and S. wiltshirei subgroups are generally hygrophilous species inhabiting wetlands; by contrast, species from the S. albivena, S. cretica and S. salama subgroups are rather mesophilous and even xerophilous (especially S. cretica), inhabiting mostly woodland and secondary grasslands. This phylogenetic conservatism in habitat preference echoes the results of Kergoat et al. (2018), who found a similar trend among Sesamiina as a whole when contrasting the preferences for dry or wet environments. With regards to vegetation mosaics, marked preferences within S. cretica subgroups are also revealed. Members of the clade grouping the S. fuscifrontia and S. wiltshirei subgroup are equally found in Guineo-Congolian rain forest and secondary grassland mosaics, or woodland (Miombo, East African Costal, East African evergreen bushland, Sudanian woodland, Somalia-Masai bushland) mosaics. Species from the S. albivena, S. cretica and S. salama subgroups are mostly found in woodland (Miombo, East African coastal, East African evergreen bushland, Sudanian woodland, Somalia-Masai bushland) mosaics, and more seldom in

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Guineo-Congolian rain forest and secondary grassland mosaics. Two thirds of species (68%) are also recorded from altitudes between 500 and 1500 m asl; four species (13%) are recorded below 500 m asl and six species (19%) are recorded above 1500 m asl (mostly below 2000 m), and only *S. mabira* is recorded up to 2343 m asl.

Regarding host plants, for the clade grouping the *S. fuscifron* and *S. wiltshirei* subgroups, new host records are provided for 11 of the 17 known species. Interestingly, nine of them are found on *Echinochloa pyramidalis*. The predominance of this particular host plant can be likely accounted for by its ecological characteristics. It is a tall semi-aquatic perennial grass, native to tropical and subtropical Africa, which is present everywhere in seasonally inundated grasslands, swamps and banks of river and lakes. Although this plant is geographically widespread it has a very fragmented distribution as well: typically, *Echinochloa pyramidalis* habitats are frequently separated by several tens of kilometres. Here it can be hypothesized that the fragmented distribution of this host plant could have spurred population structuration (and possibly allopatric speciation) in *Sesamia* species belonging to the *S. fuscifron* and *S. wiltshirei* subgroups. For the *S. cretica* subgroup, two species were reared from *Rottboellia cochinchinensis* (Andropogoneae). For the *S. albivena* and *S. salama* subgroups, all specimens were collected with light traps, as no larvae from these groups were found on their hosts despite dozens of thousands of Sesamiina larvae collected during the field surveys. A possible explanation for this pattern is the fact that the damage caused by Sesamiina larvae is much less visible on some plants (noticeably *Andropogon* spp., *Cymbopogon* spp. and *Hyparrhenia* spp.) than others such as *Echinochloa* spp., *Imperata* cylindrica (L.) P. Beauv., 1812, *Panicum* spp., *Pennisetum* spp. and *Rottboellia cochinchinensis*. Considering that all species of the *S. albivena* and *S. salama* subgroups were caught in grasslands inhabited mainly by Andropogoneae (*Andropogon* spp., *Cymbopogon* spp., *Hyparrhenia* spp., *Imperata cylindrica* and *Rottboellia cochinchinensis*), it can be hypothesized that most species of these subgroups are likely to be associated with Andropogoneae species belonging to the third genera for which it is harder to spot larval damage.

In terms of geographic distribution, like most Sesamiina species already studied (Le Ru et al. 2014; Kergoat et al. 2015; Le Ru et al. 2017a, 2017b, 2017c, 2019, 2020a, 2020b, 2020c) our results show that most species in the *S. cretica* group have restricted areas of distribution. When looking at the bioregions defined by Linder et al. (2012), in sub-Saharan Africa, 24 of the 31 studied species are only recorded from one bioregion, and 11 of them are only found in one or two localities. That said, the hypothesis that the sampling method (short sampling time in few localities) is partially responsible for this distribution pattern cannot be ruled out. In sub-Saharan Africa, almost half of the known species from the *S. cretica* group (15 species) are distributed in the Zambezian bioregion. The second region with the highest level of diversity is the Congolian bioregion (eight species), followed by the Southern African bioregion (six species), the Ethiopian bioregion (four species), the Sudanian bioregion (three species), and Madagascar (one species).

Until the early 2000s, only eight species of the *S. cretica* group species were known in sub-Saharan Africa, from several African bioregions; however, at the time only one species was recorded from the Zambezian bioregion, and none from the Congolian bioregion. Different reasons can be put forward to explain the significant increase in species diversity reported in these two bioregions. First, species discovery benefited from a high sampling effort since the early 2000s (Le Ru et al. 2006a, 2006b; Ndemah et al. 2007; Matama-Kauma et al. 2008; Moolman et al. 2014; Ong’ambo et al. 2014; Kankonda et al. 2017; Goftishu et al. 2018; Moeng et al. 2018; Ong’ambo et al. 2018), using both light trapping and the collection of visually damaged grasses. In addition, the development and implementation of integrative taxonomy and systematics allowed us to clarify and disentangle at a higher pace the systematics and species boundaries of several species complexes. Such is the case for example of the *S. albivena* specimens preserved in the MCSN and NHM, which have been shown to actually belong to four different species.

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