

A revision of Afrotropical *Thrinchostoma* de Saussure (Hymenoptera Apoidea Halictidae)

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By

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Summary. The African species of *Thrinchostoma* de Saussure 1890 are revised. Keys, photographic illustrations, detailed data and distribution maps are provided for all species. Two new species are described : *Thrinchostoma uluguruensis* and *T. upembae*. New synonymies are established : *T. guineense* Blüthgen 1930 (syn. of *T. lettowvorbecki* Blüthgen 1930) ; *T. wellmanni* Cockerell 1908 and *T. malelanum* Cockerell 1937 (both syn. of *T. torridum* (Smith 1879)) ; *T. telekii* Blüthgen 1930 and *T. undulatum* Cockerell 1936 (both syn. of *T. emini* Blüthgen 1930) ; *T. wissmanni* Blüthgen 1930 and *T. rubrocinctum* Benoits 1957 (both syn. of *T. petersi* Blüthgen 1930) ; *Halictus bibundicus* Strand 1910, *T. tessmanni* Strand 1912, *T. bequaerti* Blüthgen 1930, *T. bequaerti* var. *ochropus* Blüthgen 1930, *T. vachali* Blüthgen 1930 and *T. lualiensis* Cockerell 1939 (all syn. of *T. productum* (Smith 1853)) ; *Diagonozus sjoestedti* var. *rufescens* Friese 1909, *T. millari* Cockerell 1916, *T. mwangai* Blüthgen 1930, *T. ugandae* Blüthgen 1930 and *T. umtaliense* Cockerell 1936 (all syn. of *T. sjoestedti* Friese 1909). *Halictus patricius* Strand 1911 (female holotype) is not a *Thrinchostoma* as mentioned by Blüthgen 1930 but a species of *Zonalictus* Michener.

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Introduction

Thrinchostoma de Saussure 1890 is a peculiar genus of relatively large bees (length 8-16 mm). The clypeus is strongly produced downward and the malar area is distinct but variable. It is as long as the eye in the subgenus *Diagonozus* Enderlein 1903, in other subgenera it is not exceeding one quarter of the length of the eye. The genus has also an extremely long proboscis, especially in *Diagonozus*. Males of the subgenus *Thrinchostoma* sensu stricto have a peculiar spot of setae along the second submarginal crossvein.

The genus is paleotropical and occurs in Africa (14 species), Madagascar (12 species) and South-East Asia (11 species). The species of Madagascar have been revised by Blüthgen (1933) and by Pauly (2001). Keys for the Asiatic species have been published by Blüthgen (1926,1928) and by Michener & Engel (2010). Blüthgen (1930) has revised the African species. After this revision, Cockerell (1933, 1936, 1937, 1939) and Benoist (1957) published descriptions of some new species but all are synonymy.

Thrinchostoma is a more common group in forests of Madagascar than in forests of Africa or Asia. On this great island, there is even a cleptoparasitic and endemic genus,

Parathrinchostoma Blüthgen, 1933.

We have examined the types of all the African species and we propose here a revision with many new synonyms. Two new species are described. Species from Madagascar have been excluded of this paper as they have been revised in Pauly et al. (2001). Each species is illustrated here with pictures and a simplified key is proposed for identification of the males. Females of *Thrinchostoma* sensu stricto are often difficult or impossible to identify and we prefer to publish only diagnoses. New species should never be described on basis of the female only. Perhaps to propose a key for females will be possible when more material will be available to study variability.

At the time of Blüthgen (1930), the specimens of African *Thrinchostoma* were very rare in collections. We currently have more specimens, although they are still rare, which allowed us to study intraspecific variation in males. Thus we have seen that colour of legs can be very variable in a series of specimens collected in the same locality, from light brown to dark brown. Colour of metasoma is also very variable, some specimens have terga completely dark brown, others have terga largely red.

The number of notches on antennal segments is important to distinguish some species such as *T. toridum* and *T. silvaticum*. In other cases, however, use this character to differentiate two species known only by their type, seems to have been biased by artifacts. The curvature of the last segment of the antennae of the males is significant in the keys to separate the species into two groups, but the variation of the curvature to distinguish two species has sometimes been overestimated. An extraordinary feature of one species is that the male antennae have 12 instead of 13 segments.

Other good characters to separate the species are the shape of the apical tibial lobe, as well as the curvature and pilosity of the fifth sterna of the male. Genitalia of the male have been poorly studied for not damaging the few specimens but they seem not to be a useful character to separate the species, other features being already well characterized.

Because of their particularly elongated head, biology of *Thrinchostoma* is certainly interesting to study, in particular their relationships with flowers. In fact, flowering plants visited by *Thrinchostoma* seem diverse. In Madagascar however we have met large concentrations of these bees foraging on *Impatiens*, a plant not visited by other bees. In Sumatra, *T. asianum* Sakagami Kato & Ino 1991, has been also observed on *Impatiens* together with Anthophorine bees. This long tongued bees collect nectar in the long spurs of these flowers. In Africa, the subgenus *Diagonozus* has been collected on *Costus* but nothing more is known on floral relationships for this subgenus with remarkable elongate malar area and glossa. In Madagascar and Africa, females of *Thrinchostoma* have often been observed on flowers of Melastomataceae. On these flowers, they collect pollen by buzzing and the characteristic sound is audible a few meters away. In Africa, specimens have also more frequently been collected on *Asystasia gangetica* (Acanthaceae).

Material and methods

Most terminology for the description of species and keys is based on Michener (2007). Puncture density is expressed as the relationship between puncture diameter (d) and the space between them (i), such as $i = 1.5 d$ or $i < d$. Two abbreviations were used for morphological structures (T = metasomal tergum; S = metasomal sternum). Body length was measured from the vertex to the apex of the body. The malar area is the space between the eye and the mandible, measured relatively to the length of the eye (fig.). The calcar is equivalent to the inner hind tibial spur (Michener, 2007) in females (fig.). The apical lobe of the hind tibiae is the broad yellowish enlargement carrying the tibial spurs of the males (fig.). The antennal

segments bearing notches are counted from the scape (= first segment) (fig.).

The pictures of *Thrinchostoma* in the field have been taken by Nicolas Vereecken (ULB), the pictures of the types of *T. sjostedti* preserved in Stockholm by Hege Vardal (NHRS), the pictures of all types preserved in Berlin by the second author (C.E.) and the pictures of other species by the first author (A.P.). Specimens from South Africa have been identified by C.E. while those from other countries have been identified by A.P. Maps were produced using the software DFF (Barbier et al. 2000) and the website “Atlas Hymenoptera”.

Acronyms for collections from which specimens were borrowed or deposited, are as follows:

AMNH : American Museum of Natural History, New York, USA.

BMNH : Natural History Museum, London, UK [formerly British Museum (Natural History)].

CAS : California Academy of Sciences, San Francisco, USA.

CUIC: Cornell University Insect Collection, Ithaca, USA.

DMSA : Durban Natural Science Museum, Durban, South Africa.

FSAG : Gembloux Agrobiotech, Entomologie Fonctionnelle et Evolutive , Gembloux, Belgium (formerly Faculté Universitaire des Sciences Agronomiques de Gembloux)

INECN : Institut National pour l’Environnement et la Conservation de la Nature, Gitega, Burundi.

IITA : Institut International d’Agronomie Tropicale, Cotonou, Benin.

LACM : Los Angeles County Museum of Natural History, Los Angeles, California, USA.

MCZ : Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA.

MNHNP : Museum National d’Histoire Naturelle, Paris, France.

MNHUB : Museum für Naturkunde an der Humboldt Universität zu Berlin, Germany.

MWNH : Museum Wiesbaden, Department of Natural Sciences, Wiesbaden, Germany.

NHRS : Naturhistoriska Riksmuseet, Stockholm, Sweden.

OOL : Oberösterreichs Landesmuseum, Linz, Austria.

RBINS : Royal Belgian Institute of Natural Sciences, Brussels, Belgium.

RMCA : Royal Museum for Central Africa, Tervuren, Belgium.

RMNH : Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands

RU : Reading University, Reading, UK.

SANC : South African National Collections of Insects, Plant Protection Research Institute, Pretoria, South Africa.

ULB : Université Libre de Bruxelles, Belgium.

ZML : Zoological Museum, University of Lund, Sweden.

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Danielsson (ZML).

Key to the subgenera

(1) Very elongated head, especially very long malar area, equal to three quarters of the length of the eye (fig.) ... Subgenus *Diagonozus*

- Head and malar area shorter, not exceeding one quarter of the length of the eye (fig.)...

Fig. 1

(2) Male: submarginal cells of forewings without tuft of setae (fig.). Female: calcar of the hind tibia with many small teeth of similar size (fig.) ...Subgenus *Eothrincostoma*.

- Male: wings with a tuft of setae characteristic on the crossvein between the second and third submarginal cell (fig.). Female: calcar of the hind tibiae with the first tooth well-developed and laminated (fig.) ...Subgenus *Thrinchostoma*

Fig. 2

Subgenus *Diagonozus*

Males only:

1) Segments 6 to 11 of the antennae with notches; shorter antennae with more curved segments (fig. a) ...*T. bicometes*

- Segments 8 to 11 of the antennae with notches; longer antennae with less curved segments (fig. b) ... *T. lettowvorbecki*

Fig. 3

Subgenus *Eothrincostoma*

1) Female : notches on segments 7 to 12 of the antennae (fig. a). Male : notches on segments 9 to 13 of the antennae (fig. b); apical lobe of hind tibia as in fig. () ... *T. torridum*

- Female : notches on segments 7 to 12 of the antennae (fig. c). Male : notches on segments 6 to 13 of the antennae (fig. d) ; apical lobe of hind tibia of male as in fig. () ...*T. silvaticum*

Fig. 4

Subgenus *Thrinchostoma*

Males only:

(1) Antennae composed of only 12 segments (fig.) ...*T. emini*

- Antennae composed of 13 segments (fig.) ... (2)

Fig. 5

(2) Last segment of the antennae bent at right angles or nearly so (fig.) ... (3)

- Last segment of the antennae straight (fig.) ... (6)

Fig. 6

- (3) Apical margin of S5 with setae (fig.) ... (4)
- Apical margin of S5 glabrous (fig.) ... (5)

Fig. 7

- (4) Hind femora swollen (fig.) ... *T. nachtigali*
- Hind femora thinner (fig.) ... *T. sjoestedti*

Fig. 8

- (5) Apical lobe of hind tibia short (fig.); apical margin of S5 slightly curved (fig.) ; terga always black ... *T. kandti*
- Apical lobe of hind tibiae longer (fig.); apical margin of S5 more deeply curved (fig.) ; terga often partly red, rarely totally brown black ... *T. petersi*

Fig. 9

- (6) Hind tibiae very broad and covered with a dense tomentum (fig.) ; apical margin of S5 with long and very rich setae (fig.) ... *T. orchidarum*
- Hind tibiae of different shape and without dense tomentum ; apical margin of S5 without setae or with less rich setae ... (7)

Fig. 10

- (7) Punctuation of scutum very spaced (fig.) ... (8)
- Punctuation of scutum dense (fig.) ... (9)

Fig. 11

- (8) Metasoma and legs orange ; hind femora more swollen ; apical lobe of hind tibiae sharper and regularly rounded (fig.) ... *T. amanicum*
- Metasoma and legs dark brown ; hind femora more slender; apical lobe of hind tibiae truncated at the end (fig.) ... *T. uluguruensis* sp. nov.

Fig. 12

- (9) S5 without apical setae ; apical lobe of hind tibiae triangular (fig.); posterior basitarsi thin (fig.) ; antennal segments long ... *T. productum*
- S5 with apical setae ; apical lobe of hind tibiae truncated at the end (fig.); hind basitarsi very wide (fig.); antennal segments short ... *T. upembae* sp. nov.

Fig. 13

Genus *Thrinchostoma* de Saussure 1890

Thrinchostoma de Saussure, 1890: 52. Type species: *Thrinchostoma renitantely* de Saussure, 1891, by monotypy; Blüthgen 1930: 495–542; Michener 1978: 507, 520, 521–525, 537–538; Michener 1997: 58; Pauly 1999: 142, 154–155; Pauly In: Pauly et al. 2001: 82–101.

Trichostoma [!] de Saussure: Dalla Torre 1896: 381, unjustified emendation of *Thrinchostoma* Saussure, 1891; Friese 1909: 150.

Thricostoma [!] de Saussure: Dalla Torre 1896: 641, unjustified emendation of *Thrinchostoma* Saussure, 1891; Blüthgen 1928: 1930.

Trinchostoma [!] de Saussure: Ashmead 1899: 91, lapsus for *Thrinchostoma* de Saussure, 1891.

Thrinchostoma (*Thrinchostoma*) Blüthgen: Michener 1978: 523–524; Pauly 1984: 144–145; Michener 2000: 374; Pauly In: Pauly et al. 2001: 82–101.

Nesothrinchostoma Blüthgen, 1933: 364. Type species: *Thrinchostoma serricorne* Blüthgen, 1933, by monotypy; Michener 1997: 41. syn.

Diagonozus Enderlein, 1903: 35. Type species: *Diagonozus bicometes* Enderlein, 1903, by monotypy; Michener 1997: 20.

Thrinchostoma (*Diagonozus*) Enderlein: Michener 1978: 525; Michener 2000: 374.

Thrinchostoma (*Eothrinchostoma*) Blüthgen, 1930: 496, 501. Type species: *Halictus torridus* Smith, 1879, designated by Sandhouse, 1943; Michener 1978: 523; Michener 1997: 22; Michener 2000: 374.

Diagnose. The genus *Thrinchostoma* differs from other African Halictine bees by the long malar area in both sexes. The male has the hind tibiae with an apical enlargement (« apical lobe »). Setae on apical margins of terga oriented laterally.

Subgenus *Diagonozus* Enderlein 1903

Thrinchostoma (*Diagonozus*) *bicometes* Enderlein 1903

Diagonozus bicometes Enderlein, 1903: 37, three male syntypes. Male lectotype : Cameroun, Johann-Albrechts-Höhe, 27.X.1895, leg. Conradt (MNHUB). Friese 1909: 124.

Halictus (*Thrinchostoma*) [!] *bicometes* (Enderlein): Schulz 1906: 239; Friese 1909: 128, 150–152.

Halictus (*Diagonozus*) *bicometes* (Enderlein): Strand 1911: 141, 144.

Thrinchostoma (*Diagonozus*) *bicometes* (Enderlein): Cockerell 1908: 343; Michener 1978: 525; Medler 1980: 481; Pauly 1999: 155, 172.

Thrinchostoma [!] (*Diagonozus*) *bicometes* (Enderlein): Blüthgen 1930: 495–496, 499–501, 503, 521, 536

Thrinchostoma bicometes (Enderlein): Cockerell 1910: 506; Strand 1912: 271; Cockerell 1933: 24.

Note: The species is only known by three specimens from the type locality : Johann-Albrechtshöhe. It is a former German station located in the volcanic region of NW Cameroon near Lake Barombi (4°40'N 9°24'E).

Diagnose. The male differs from the second species of the subgenus by segments 6 to 11 of the antennae with notches, the segments shorter and more curved (fig.). Female unknown.

***Thrincostoma (Diagonozus) lettowvorbecki* Blüthgen 1930**

Thrincostoma [!] (*Diagonozus*) *lettow-vorbecki* Blüthgen, 1930: 497, 499, 503, 522, 536, ♂, ♀. Male holotype : R.D. Congo, Barumbu, 12.XI.1913, sur fleurs de *Costus* n°1169, leg. Dr. Bequaert (RMCA).

Thrincostoma (Diagonozus) lettow-vorbecki Blüthgen: Michener 1978: 525.

Thrincostoma lettow-vorbecki Blüthgen: Cockerell 1933: 24.

Thrincostoma (Diagonozus) lettowvorbecki (Blüthgen): Pauly 1999: 156, 174.

Thrincostoma [!] (*Diagonozus*) *guineense* Blüthgen 1930: 536, ♂. Male holotype : Equatorial Guinea «("Spanish Guinea")», Uelleburg, Benitogebiet, 1-14.II.1907, leg. Tessmann (MNHUB). **Syn. nov.**

Thrincostoma (Diagonozus) guineensis Blüthgen : Michener 1978 : 525 ; Pauly, 1999 : 156, 173.

Thrincostoma (Diagonozus) ghesquieri Cockerell, 1933: 24, ♂. Male holotype: R.D. Congo, Yangambi, I.1925, leg. Lt. J. Ghesquière (RMCA). Michener 1978: 525; Pauly 1999: 156, 173, syn.; Michener 2000: 374.

Note: According to Blüthgen, *T. guineensis* may be simply a variety of *T. lettowvorbecki* so we preferred to consider it as a synonym because the differences are minimal.

Diagnose. The male differs from *T. bicometes* by only segments 8 to 11 of the antennae with notches and by longer antennae with less curved segments. The female differs from all other *Thrincostoma* by it's long malar area (fig.).

Material.

IVORY COAST. Guiglo, Park National de Tai, 12 km E. of Pauleoula, 20.VIII.1983, 1♀, leg. R.T.A. Schouten & J.R.M. Buijsen (ITZA).

D.R. CONGO. Barumbu, 12.XI.1913, sur fleurs de *Costus* n°1169, 1♀ (paratype), leg. Dr. Bequet (RMCA). – Eala, 7.VIII.1935, 1♂, leg. J. Ghesquière (RMCA).

CONGO-BRAZZAVILLE. Odzala, Bordure de route près cases abandonnées, 8.II.1977, 1♂, leg. S. Kelner Pillault (MNHNP).

Subgenus *Eothrincostoma* Blüthgen 1930

***Thrincostoma (Eothrincostoma) silvaticum* Blüthgen 1930**

Thrincostoma [!] (*Eothrincostoma*) *silvaticum* Blüthgen, 1930: 499, 520, 530, 533, 538, ♀. Female holotype: Uganda, Tero-Walde, VII.1912, leg. C.C. Gowdey (BMNH).

Thrincostoma silvaticum Blüthgen: Cockerell 1936: 9.

Thrincostoma (Eothrincostoma) silvaticum Blüthgen: Michener 1978: 523; Pauly 1999: 155, 176.

Diagnosis. Both sexes differs from *T. torridum* by the number of notches on the latest segments of antennae (8 in males, 6 in females). The male is new and resembles that of *T. torridum* except number of notches on flagellum. The apical lobe of hind tibiae is also a bit more curved (fig.).

Material.

UGANDA. Bugoma Forest, Unyoro, 3700ft, 1-5.XII.1911, 1♀, leg. S.A. Neave (BMNH) (Blüthgen 1930).

KENYA. Kakamega District, Kakamega forest, Isecheno, 0.02°N 34.97°E, 1800m, 18.X.1999, equatorial rainforest, 1♀, leg. R.R. Snelling (LACM). – Kakamega district, Isecheno, Isecheno Forest reserve, 0.24° 34.86°E, 1600m, 21-28.II.2002, Malaise trap in clearing Equatorial Rainforest, 1♀, 18.III.2002, on flowers of *Vernonia* sp. (Asteraceae), 1♂, leg. R.R. Snelling (LACM). – Kakamega district, Isecheno, Isecheno Forest Reserve, 0.24°N 34.86°E, 1600m, 1-10.VII.2001, 1♀, Malaise trap in equatorial rainforest, leg. W. Okeka (LACM). – Kakamega District, Yala R. Forest reserve, 1450m, 0.20°N 34.88°E, 1-10.III.2002, 1♀, Malaise trap, leg. R.R. Snelling (LACM).

Thrinchostoma (Eothrinchostoma) torridum (Smith 1879)

Halictus torridus Smith, 1879: 32, ♀. Female holotype : South Africa (BMNH). Friese 1911: 651; Blüthgen 1928: 164.

Thrinchostoma torridum (Smith): Cockerell 1916: 205–206; Cockerell 1920: 304–305, syn. *nomiaeformis*; Cockerell 1933: 23–24; Cockerell 1936: 9; Cockerell 1937: 11; Cockerell 1937: 96; Cockerell 1941: 510; Michener 1969: 490; Pesenko 1997: 479; Danforth et al. 2008: 95.

Thrinchostoma [!] *torridum* (Smith): Blüthgen 1930: 496–497, 499–500, 516, 519–520, 531–532, 537–538, 542;

Thrinchostoma (Eothrinchostoma) torridum (Smith): Michener 1978: 523; Medler 1980: 481; Pauly 1999: 155–156, 177.

Nomia producta Smith, 1875: 66, 70–71, ♂ [not *Nomia producta* Smith, 1953]. Male holotype : South Africa, Natal, Transvaal, Zeerust (BMNH). Cockerell 1908: 145; Friese 1909: 153, 160, 161; Blüthgen 1928: 164; Blüthgen 1930: 496.

Thrinchostoma (Eothrinchostoma) producta (Smith): Blüthgen 1930: 537, syn.; Michener 1978: 521–522, 524; Pauly 1999: 156, 175, syn.

Nomia (Thrinchostoma) producta Smith: Friese 1941: 99.

Thrinchostoma (Thrinchostoma) productum (Smith): Michener 1978b: 524 [incorrectly placed].

Thrinchostoma (Eothrinchostoma) productum (Strand): Michener 2000: 370.

Thrinchostoma producta (Strand): Roubik 1989: 414.

Thrinchostoma nomiaeformis Cockerell, 1908: 145 [unnecessary replacement name for *Nomia producta* Smith, 1875]; Cockerell 1920: 304–305; Blüthgen 1930: 537, syn.; Pesenko 1997: 479, 502.

Thrinchostoma (Eothrinchostoma) nomiaeformis Cockerell: Pauly 1999a: 156, 175.

Thrinchostoma wellmanni Cockerell, 1908: 84–85, ♀. Female holotype : Angola, Benguella (BMNH); Cockerell 1908: 343; Cockerell 1937: 10. **Syn. nov.**

Halictus (Thrinchostoma) wellmanni (Cockerell): Friese 1909: 128, 152.

Thrinchostoma (Eothrinchostoma) wellmanni (Cockerell): Cockerell 1933: 23; Michener 1978: 523; Pauly 1999: 155, 177.

Thrinchostoma [!] (*Eothrinchostoma*) *wellmanni* (Cockerell): Blüthgen 1930: 496, 499, 541.

Thrinchostoma (Eothrinchostoma) manyemae Cockerell, 1933: 23, ♂. Male holotype : D.R. Congo, Manyema, leg. Mayné (RMCA). Michener 1978: 523; Pauly 1999: 156, 174, syn.

Thrinchostoma malelanum Cockerell, 1937: 10–11, ♀. Female holotype : D.R. Congo, Pangula near Malela, Chief Kasende, 5°40'S 23°45'E, leg. J. Bequaert (AMNH). **Syn. nov.**

Thrinchostoma (Eothrinchostoma) malelanum Cockerell: Michener 1978: 523; Pauly 1999: 155, 174.

Remark (species excluded from the synonymy of *T. torridum* in Pauly 1999):

Halictus patricius Strand 1911: 141, ♀. Holotype ♀: without locality (MNHUB). The female holotype is actually a *Zonalictus* ! This species is therefore excluded from the genus *Thrinchostoma* where it has been placed by Blüthgen (1930 : 519, 520, 531, 538), on basis of the male « allo-holotype » (= *T. torridum*).

Diagnosis. *T. torridum* is a relatively large species. The male can be distinguished from all other *Thrinchostoma*, except *T. silvaticum*, by the absence of a spot of setae on forewing. From *T. silvaticum* it differs by the number of notches on antennal segments (fig.). The female differs from all other *Thrinchostoma*, except *T. silvaticum*, by the sculpture of the calcar (fig.). From *T. silvaticum*, it differs by the number of notches on antennal segments (fig.).

Variations. Some females from Congo, Cameroon and Gabon have a black metasoma with black setae in the middle of last terga. They represent a variety or perhaps a distinct subspecies. The type of *T. malelanum* has malar area and clypeus a little longer. It could be a distinct species, one that Blüthgen had wrongly identified as *T. patricium*.

Material.

LIBERIA. Brakatown, X.1926, 1♀, leg. Dr. Bequaert (RMCA)

GABON. WOLEU-NTEM: Médouneu, 22.XII.1985, 1♂ (FSAG) (Pauly 1998, dt sp.3) (black var.).

CONGO-BRAZZAVILLE. Kouilou, Kakamoeka, 4°07'S 12°04'E, IX.2007, 1♀, Darwin Project (RU).

D.R. CONGO. Walikale, 7.I.1915, 1♂, leg. Dr. Bequaert (RMCA) (dt *T. patricium* allotype by Blüthgen). – Maniema, Kindu, 1917, 1♀, leg. L. Burgeon (MNHNP). – Kibombo, 1.II.1910, 1♀, leg. Dr. Bequaert (RMCA). – Manyema, 1♀, leg. R. Mayné (RMCA). – Kapanga, XI.1932, 1♀, leg. G.F. Overlaet (RMCA). – Bambesa, 15.IX.1933, 1♀, leg. H.J. Brédo (RMCA). – Jadotville, 1951, 1♀, leg. Rév. Mère Sabine (RMCA). – Libengé, 9.XII.1931, 1♀, leg. H.J. Brédo (RMCA). – Bomboma, 21.VII.1935, 2♀, leg. A. Bal (RMCA). – Eala, XI.1931, 1♂, leg. H.J. Brédo, VI.1932, 1♀, VI.1935, 2♂, leg. J. Ghesquière, leg. A. Corbisier, VII.1935, 1♀, leg. J. Ghesquière (RMCA). – Stanleyville, 10-13.IX.1928, 2♀, leg. A. Collart (RMCA). – Rutshuru, IX-X.1936, 1♀, leg. Dr. Delville (RMCA). – Bomboma, 21.VII.1935, 6♂ (RMCA). – Lubumbashi, 21.VIII.1951, 1♂, leg. Ch. Seydel (RMCA). – Elisabethville, 2.V.1933, 1♂, 28.V.1933, 2♂, leg. Dr. M. Bequaert (RMCA). – P.N.G. (= Parc National de la Garamba), Inimvua, n°3488, 20.V.1952, 1♂, leg. H. De Saeger (RMCA). – P.N.U. (= Parc National de l'Upemba), Mbuye Bala, 1750m, 25-31.III.1948, 1♂, leg. G.F. de Witte n°1456a (RMCA). – P.N.U., Gorges de la Pelenge, 1150m, 10-14.VI.1947, 1♂, leg. G.F. de Witte n°471a (RMCA). – P.N.U., Ganza, près rivière Kamandula, affluent droit Lukoka, 860m, 27.VI-6.VII.1949, 1♂, leg. G.F. de Witte (RMCA). – Rutshuru, XII.1937, 1♂, leg. J. Ghesquière (RMCA). – P.N.A. (= Parc National des Virungas), Escarpment de Kabasha, 1500m, 12.XII.1934, 1♂, leg. G.F. de Witte n°901 (RMCA). – “Buvumo” VI.1929, leg. G.D.H. Carpenter (BMNH) (Cockerell 1941: 510; non examiné). – Kasaji 12 mi N, 31.I.1958, 1♀, leg. E.S. Ross & R.E. Leach (CAS).

ETHIOPIA. OROMIA. W. Haraghe, Mechara, 8°36'N 40°19'E, 30.X-13.XI.2010, *Justicia ladanoides*, 3♂, 5-19.XII.2010, *Trichodesma zeylanicum*, 2♂, 16.I.2011, *Trichodesma zeylanicum*, 1♂, leg. Degefa Weyessa, GTI Project (RBINS). – Abijata Shala National Park, 7°31'N 38°39'E, 1630m, 15.IX.2012, 1♀, leg. A. Pauly (RBINS). SOUTHERN. W. Konso, 5°24'N 37°11'E, 1387m, 22.IX.2012, *Lamiaceae*, 3♂, leg. A. Pauly (RBINS). – Arba-Minch, Lake Chamo, 5°55'N 37°32'E, 1138m, 19.IX.2012, 2♀, leg. A. Pauly (RBINS). – Road to Tebela, 6°38'N 37°49'E, 1386m, 18.IX.2012, *Plectranthus* sp., 1♂, leg. A. Pauly (RBINS). – Near Mago National Park, 5°45'N 36°22'E, 491m, 23.IX.2012, 3♀, leg. J.-L. Boevé et A. Pauly (RBINS).

BURUNDI. Réserve Naturelle de Rumonge, 04.59552°S 029.28214°E, 14.IV.2011, piège savon dans *Persea americana*, 1♀, leg. Ndayikeza L. (INECN).

KENYA. « Blue Pot Hot », Chema Riv., 4000ft, 1♂, leg. F.X. Williams (MCZ). – Kakamega District Kalunya Glade, Isecheno Nature Reserve, 0.24°N 34.87°E, 1800m, 6.V.2001, 2FF, leg. R.R. Snelling (LACM). – Kakamega District, Kalunya Glade, Kakamega Forest, 0.25°N 34.86°E, 1550m, 20.IV.2003, on flowers of *Justicia* sp. (Acanthaceae), 1♀, 20.IV.2003, on flowers of *Asystasia gangetica*, 1♀, 29.IV.2003, on flowers of *Asystasia gangetica* (Acanthaceae), 1♀, 30.IV.2003, on flowers of *Orthosiphon rubicundus* (Labiatae), 2♀,

2.V.2003, on flowers of *Platystoma africanum* (Labiatae), 2♀, leg. R.R. Snelling (LACM). – Kakamega district, Isecheno, Isecheno Forest reserve, 0.24° 34.86°E, 1600m, 5.V.2003, 1♂, leg. R.R. Snelling (LACM). – Kakamega District, Kalunya Glade, Kakamega Forest, 0.24°N 34.85°E, 1800ft, 13.V.2001, on flowers of *Aspilia pluriseta*, 1♀, 6.V.2001, *Aspilia pluriseta*, 1♀, 26.IV.2001, *Aspilia pluriseta*, 2♂, 29.IV.2001, *Aspilia pluriseta*, 2♂, 6.V.2001, *Aspilia pluriseta*, 1♂, 13.V.2001, *Aspilia pluriseta*, 1♂, leg. R.R. Snelling (LACM). – Nairobi, Athi River city env., 20.XI.1999, 1♀, leg. M. Snizek (OOL).

ZIMBABWE. Matopo Hills, 17-30.IV.1932, 1♂, leg. A. Mackie (RMCA). – (N) Mavhuradonha Saf. A., 15km SE Muzarabani, 17.XII.1998, 2♀, leg. M. Halada (OOL). – (E), 40 km S. Chipinge, Mt Selinda, 13.XII.1998, 1♀, leg. J. Halada (OOL). – 30 km W. Harare, 22.XII.1998, 2♀, leg. J. Halada (OOL).

TANZANIE. Mts Uluguru, Kiroka, forêt heliophile, 725m, 27-31.V.1971, 3♂, leg. L. Berger, N. Leleup & J. Debecker (RMCA).

MOZAMBIQUE. Inhambane pr., 15km SE Seve, 27.XII.2003, 1♂, leg. J. Halada (OOL).

REPUBLIC OF SOUTH AFRICA. TRANSVAAL. Chuniespoort, 24°13'S 29°30'E, 2.XII.1981, 1♂, leg. G.L. Prinsloo (SANC). – Crocodile Bridge, 28.V.1969, 1♀ 1♂, 2.VI.1969, 1♀, leg. L.C. Starke (SANC). – Duiwelskloof, 23°42'S 30°06'E, 15.XII.1985, 1♂, leg. J.S. Donaldson (SANC). – Entabeni Forest Reserve, 23°00'S 30°16'E, 7-11.I.1987, 1♂, leg. C.D. Eardley (SANC). – Happy Rest Nature Reserve, 22°59'S 29°46'E, 10.III.1990, 1♂, leg. C.D. Eardley (SANC). – Honingklip, 26°01'S 27.47°08'E, 18.IX.2005, 1♀, leg. M. Forsyth (SANC). – Ingwe Motel, N. Louis Trichardt, 22°58'S 29°56'E, 6.I.2004, 1♀, leg. C. Eardley (SANC). – Komatipoort, 23.V.1969, 2♀, 6♂, 27.V.1969, 1♂, leg. L.C. Starke (SANC). – Kruger National Park, Pafuri, 22°26'S 31°12'E, 9-24.IV.1986, 1♂, L.E.O. Braack (SANC). – Magoebaskloof, 23°54'S 30°00'E, 5.III.1986, 1♀, leg. C.D. Eardley (SANC). – Mogol Nature Reserve, Ellisras district, 23°58'S 27°45'E, 25-26.I.1982, 1♂, leg. C.D. Eardley (SANC). – Nylsvley, X.1978, 2♀, XI.1978, 1♀, leg. C.D. Eardley (SANC). – Nylsvley Nature Reserve, 24°39'S 28°42'E, 18.II.1982, 1♀, leg. R.G. Oberprieler (SANC). – Nylsvley Nature Reserve, 24°39'S 28°42'E, 10-11.XII.1979, 2♀, leg. C.D. Eardley (SANC). – Onder Sabie, 2.VI.1969, 2♂, 1♀, leg. L.C. Stark (SANC). – Presidentsrus, Witbank, 25°41'S 29°22'E, 20.III.1986, 1♂, leg. B. Grobbelaar & V.M. Uys (SANC). – Retiefskloof Nature Reserve, 13.IV.1960, 1♂, leg. H.N. Empey (SANC). – River Lodge near Strydom Tunnel, 24°22'S 30°41'E, 22-23.XII.1985, 1♂, 1♀, leg. C.D. Eardley (SANC). – Sabie Hoek, 8.V.1966, 1♂, 1♀, leg. H. Braack (SANC). – Thabazimbi 42 km E, 24°29'S 27°43'E, 10.I.2004, 1♀, leg. C.D. Eardley (SANC). – Vivo 20,5 km E, 962m, 23°05'S 29°26'E, 12.I.2004, 4♀, leg. C.D. Eardley (SANC). – Waterpoort 20 km E, 22°52'S 29°47'E, 6.I.2004, 1♀, leg. C.D. Eardley (SANC). – Weltevreden, 25°34'S 31°10'E, 24.I.1990, 1♀, leg. G.L. Prinsloo (SANC). MPUMALANGA. 20 km NE Barbeton, 20-30.XI.2003, 1♀, leg. J. Halada (OOL). KWAZULU-NATAL. Blue Lagoon, Durban, 18.III.1963, 1♀, leg. H.N. Empey (SANC). – Burman Bush, Durban, 8.III.1963, 1♀, leg. H.N. Empey (SANC). – Cathedral Peak forestry area, 28°55'S 29°14'E, 10.XI.1981, 1♀, leg. S.J. v. Tonder & C. Kok (SANC). – False Bay, 27.95852S 32.35919E, sandforest, 15.I.2005, 1♀ (SANC). – Kloof, 20.XII.1959, 1♀, 26.XII.1960, 1♂, leg. H.N. Empey (SANC). – Kosi Bay, 10-11.II.1990, 1♂, 2♀, leg. C.D. Eardley (SANC). – Kuleni Farm, Hulhulwe, 27°54'S 32°22'E, 14.II.1990, 1♀, leg. C.D. Eardley (SANC). – Pietermaritzburg, 10.II.1917, 1♂, leg. C. Akerman (SANC). – Scottburgh, 15.III.1963, 1♀, 16.VIII.1968, 1♀, leg. H.N. Empey (SANC). – Lake Sibaya, E. shore, 27°22'S 32°43'E, 19-20.I.1981, 1♀, leg. I.M. Millar (SANC). – Stanger, 14.III.1963, 2♂, leg. H.N. Empey (SANC). – Umtentwini, 20.IV.1973, 1♂, leg. H.N. Empey (SANC). – Vernon Crookes Nature Reserve, Umzinto, 30°17'S 30°37'E, 443m, 25-26.III.1985, 3♂, leg. C.D. Eardley (SANC). – Bergville 20 km S., 5.II.2001, 1♂, leg. M. Snizek (OOL).

Subgenus *Thrinchostoma* de Saussure 1890

Thrinchostoma amanicum (Strand 1910)

Halictus (Thrinchostoma) amanicus Strand, 1910: 42–43, ♂. Male holotype : Tanzania, Amani, 22.III.2007, leg. S.G. Vosseler (MNHUB).

Thrinchostoma [!](Thrinchostoma [!]) amanicum (Strand): Blüthgen 1930: 496, 498–499, 504–506, 536.

Thrinchostoma (Thrinchostoma) amanicum (Strand): Michener 1978: 524; Pauly 1999: 155, 171, ? syn.

Note: contrary to the opinion of Pauly 1999 ("?" Synonymy) based on description, *T. amanicum* is very different from *T. productum* (Smith 1853).

Diagnosis. Male. Last segment of the antennae straight; scutum with very spaced punctuation; metasoma and legs orange, hind tibiae broad (fig.). Female unknown.

Thrinchostoma emini Blüthgen 1930

Thrinchostoma [!](Thrinchostoma [!]) emini Blüthgen, 1930: 498–499, 510, 514–515, 524, 533, ♂ ♀. Male holotype : D.R. Congo, Albertville („am Westufer des Tanganijka”), leg. R. Mayné, XII.1918 (RMCA).

Thrinchostoma [!] emini Blüthgen: Blüthgen 1933: 375;

Thrinchostoma emini Blüthgen: Cockerell 1933: 25.

Thrinchostoma (Thrinchostoma) emini (Blüthgen): Michener 1978: 524; Pauly 1999: 155, 173.

Thrinchostoma [!] telekii Blüthgen, 1930: 498, 499, 509–511, 534, ♂. Male holotype : Kenya, Westside des Aberdare Gebirge, Landschaft Leikipia, 8300ft, 1.III.1911, leg. T.J. Anderson (BMNH). **Syn. nov.**

Thrinchostoma telekii Blüthgen: Cockerell 1933: 25; Cockerell 1936: 7–9.

Thrinchostoma (Thrinchostoma) telekii Blüthgen: Michener 1978: 525; Pauly 1999: 155, 176.

Thrinchostoma michaelis Cockerell, 1933: 25, ♂. Male holotype : Elisabethville, 1.XII.1929, leg. Dr. M. Bequaert (RMCA). Pauly 1999: 155, 173, syn.

Thrinchostoma (Thrinchostoma) michaelis Cockerell: Michener 1978: 524.

Thrinchostoma undulatum Cockerell, 1936: 7–8, ♂. Male holotype : D.R. Congo, Katanga, Tenke, 30.VII-9.VIII.1931, leg. Miss A. Mackie (AMNH). **Syn. nov.**

Thrinchostoma (Thrinchostoma) undulatum Cockerell: Pauly 1999: 155, 177.

Diagnosis. The male differs from all other *Thrinchostoma* by it's with antennae with only 12 segments. The form of the last segment of the antennae in this species is more or less straight or flattened depending of the specimens. Then *T. telekii* falls within variations of *T. emini*.

The female differs from other species by the scutum completely covered with a dense beige tomentum.

Matériel.

D.R. CONGO. Kalembelembe – Baraka, VII.1918, 1♀, leg. R. Mayné (RMCA) (allotype *T. emini*). – Katanga, Lubumbashi, 27.V.1920, leg. M. Bequaert (RMCA) (paratype *T. emini*). – P.N.G., II/fd/17, n°2468, 24.IX.1951, 1♂, leg. H. De Saeger (RMCA). – P.N.G. (= Parc National de la Garamba), Inimvua, 16.V.1952, 1♂, leg. H. De Saeger (RMCA). – P.N.U. (= Parc National de l'Upemba), Mbuye Bala, 1750m, 1-7.IV.1948, 1♂, leg. G.F. de Witte (RMCA). – P.N.U., Katongo, 1750m, I-IV.1948, 1♂, leg. G.F. de Witte (RMCA). – P.N.U., Kiamokoto – Kiwakishi, 1070m, 4-16.X.1948, 1♂, leg. G.F. de Witte (RMCA). – P.N.U., Lusinga, près Mukana, 1.VI.1945, 1♂, leg. G.F. de Witte (RMCA). – P.N.A., Tshamagussa, Bweza, 2250m, zone bambous, 10.VIII.1934, 2♂, leg. G.F. de Witte (RMCA). – P.N.A. (= Parc National des Virungas), Massif Ruwenzori, Kyandolire, Camp des gardes, 1700m, 7-15.X.1952, 1♂, leg. P. Vanschuytbroeck & J. Kekenbosch (RMCA). – P.N.A., Massif Ruwenzori, rivière Lume (moyenne), 1800m, 18.XII.1957, 1♂, leg. P. Vanschuytbroeck (RMCA). – Kivu, P.N.A., Kalondo, 6-9.VIII.1935, 1♂, leg. Dr. H. Damas (RMCA). – N. Kivu, Lacs Mokoto, 30.VIII.1937, 1♂, leg. J. Ghesquière (RMCA). – Haut Uélé, Moto, X-XI.1923, 1♂, leg. L. Burgeon (RMCA).

RWANDA. Mt Bude, S. du Lac Luhondo, 2000m, 29.I.1958, 1♂, leg. P. Basilewsky (RMCA).

BURUNDI. Kibira, 4.XI.2010, flowers of “Umusogisogi”, 1♂, 1♀ (INECN). – Réserve Naturelle de Rumonge, 899m, 3.II.2011, Malaise trap dans champs haricot, 1♂, leg. Ndayik Longin (INECN).

KENYA. Kakamega District, Isecheno Forest Reserve, 0.24°N 34.86°E, 1600m, 1-10.VIII.2001, Malaise trap in Equatorial rainforest, leg. W. Okeka, 2♂; 1800m, 19.X.1999, 1♂, 1♀, 7.V.2001, 1♀, 10.V.2001, 1♂, 11.V.2001, 1♂, 12.V.2001, 1♀, leg. R.R. Snelling; 1-10.III.2002, Malaise trap, leg. R.R. Snelling, 1♂; 0.24°N 34.87°E, 1800m, 19-31.IV.2001, Malaise trap N°1 in clearing in degraded equatorial rainforest, 1♀, Malaise trap n°3 in degraded equatorial rainforest, closed canopy, 1♀, leg. R.R. Snelling, 1♀ (LACM). – Kakamega District, Kalunya Glade, Kakamega Forest, 0.25°N 34.86°E, 1550m, 18.IV.2003, leg. R.R. Snelling (LACM).

Thrincostoma kandti Blüthgen 1930

Thrincostoma [!] (*Thrincostoma* [!]) *kandti* Blüthgen, 1930: 499, 512–513, 525, 534, ♂ ♀. Male holotype : Uganda, Kampala, 29.VIII.1915, leg. C.C. Gowdey (BMNH).

Thrincostoma [!] *kandti* Blüthgen: Blüthgen 1933: 382–383, 385;

Thrincostoma kandti Blüthgen: Cockerell 1936: 8–9.

Thrincostoma (*Thrincostoma*) *kandti* Blüthgen: Michener 1978: 524; Pauly 1999: 155, 174.

Thrincostoma (*Eothrincostoma*) *kandti* Blüthgen: Danforth et al. 2008: 95.

Diagnosis. Male. This species is well characterized by the apical lobe of hind tibiae distinctly shorter than that of the other species. Last segment of antennae bent. Apical margin of S5 glabrous and slightly curved in the middle. Metasoma black with grey setae. Some black specimens of *T. petersi* (var *wissmanni*) may be confused with *T. kandti* but they differs by the shape of the apical lobe of the tibiae and the S5 (fig.).

Female always black with grey pubescence (fig.), difficult to separate from *T. productum*.

Variations. Male metabasitarsus apically black and basally pale yellow (type *T. kandti* and most specimens), or totally black (Kikombo).

Matériel.

CAMEROON. Fundong, 6°18'N 10°18'E, 21.VII.1987, *Stachytarpheta angustifolia*, 1♂, leg. A. Pauly (RBINS).

UGANDA. Kampala, 4.XII.1918-12.I.1919, 1♂ (BMNH). – Entebbe, 15.III.1913, 1♀ (allotype) (BMNH).

CONGO. Kalembelembe – Baraka, VII.1918, 1♀, leg. R. Mayné (RMCA) (paratype). – Kivu, N'Gwese, leg. Carlier (col. P. Blüthgen, MNHUB). – Equateur, Bokuma, II.1952, 1♂, leg. R.P. Lootens (RMCA). – Eala, I.1935, 1♂, leg. J. Ghesquière (RMCA). – Eala, IV.1933, 1♂, leg. A. Corbisier (RMCA). – Haut Uélé, Mauda, III.1925, 1♂, leg. H. Schouteden (RMCA). – Kalembelembe, Baraka, VII.1918, 1♂, leg. R. Mayné (RMCA). – Basoko, II.1948, 1♂, I.1949, 1♂, leg. P.L.G. Benoit (RMCA). – P.N.G. (Parc National de la Garamba), II/g/10, 25.I.1951, 2♂, Mission. H. De Saeger, leg. J. Verschuren n°1157 (RMCA). – P.N.G., PpK 8/d/8, 8.II.1952, 1♂, leg. H. De Saeger n°3101 (RMCA). – P.N.G., PpK/60/d/8, 18.XII.1951, 1♂, H. De Saeger n° 2924 (RMCA). – P.N.U. (Parc National de l'Upemba), Mabwe, Lac Upemba, 585m, 4.IX.1947, 1♂ (RMCA). – P.N.A. (Parc National des Virungas), Kikombo, 5.X.1935, 1♂, leg. Dr. H. Damas (RMCA). – P.N.A., Massif Ruwenzori, riv.

Lume (moyenne), 1800m, 13.XII.1957, 1♂, leg. P. Vanschuytbroeck (RMCA). – « Belgian Congo », Kabinda, 6°8S 24°21'E, 2♀, at flowers of *Vernonia* N°50, 1♂, leg. J. Bequaert (MCZ). – Kisantu, 17.III.2009, *Cuphea hyssopifolia*, 1♂, leg. N.J. Vereecken (ULB).

RWANDA. Mt Bude, S. du Lac Luhondo, 2000m, 29.I.1953, 2♂, leg. P. Basilewsky (RMCA).

KENYA. Kakamega district, Kalunya Glade, Isecheno Nature Reserve, 0°24'N 34°87'E, 1800m, 6.V.2001, 1♂, 23.IV.2001, *Aspilia plurisetata*, 1♀, 0.25°N 34.86°E, 29.III.2003, 1550m, 1♀, leg. R.R. Snelling (LACM).

Thrinchostoma nachtigali Blüthgen 1930

Thrinchostoma [!]*(Thrinchostoma [!]) nachtigali* Blüthgen, 1930: 528, 535, 538, ♀. Female holotype : Cameroon (“Neu-Kamerun”), leg. Tessmann (MNHUB).

Thrinchostoma (Thrinchostoma) nachtigali Blüthgen: Michener 1978: 524; Pauly 1999: 155, 174.

Diagnosis. Male. Last segment of the antennae bent ; hind femora thick, varying from orange to black to brown in the same locality; hind tibiae broad, the calcar well developed, the colour always testaceous to orange (fig.).

Female: metasoma partly orange ; basal half of scape orange ; edge of scutum with beige tomentum.

Material :

CAMEROON. Nkolbisson, 4.XI.1970, 1♀, 31.X.1970, 1♂, leg. L. Matile (MNHNP). – Région de Dchang, plateau volcanique, 1400m, VI-IX.1924, 1♂, leg. Dr. Gromier (MNHNP).

GABON. Makokou, XI.1973, 1♂, Mission Balachowsky – Menier (MNHNP). ESTUAIRE. Ntoun, 12.II.1984, 7h30, *Asystasia gangetica*, 1♀, 9.III.1984, 9h, *Cassia obtusifolia*, 1♀, X.1984, bord étang ombragé, PM, 1♀, XI.1984, lisière pâturage, PM, 1♀, 11.V.1985, *Calopogonium mucunoides*, 1♀. HAUT-OGOOUE. Atanga, 31.I.1987, *Harungana madagascariensis*, 1♀. – MOYEN-OGOOUE. Lambaréné 9 km S., 29.XII.1985, *Borreria* 188, 1♀♀. – Ndjolé, 17.XI.1985, *Mimosa pudica*, 1♀♀. – 38 km W. Ayem, 25.XII.1985, lisière forêt, *Sauvagesia erecta*, 1♀. – NGOUNIE. Bembodié, 30.XII.1985, forêt primaire, *Floscopa* 192, 1♀, *Borreria* 188, 1♂. WOLEU-NTEM. Abangayo, 19.III.1987, *Dissotis multiflora*, 1♀ (all leg and col. A. Pauly ; Pauly 1998).

CONGO-BRAZZAVILLE. Mayumbe, Dimonika, I.1964, 1♂, Mission A. Descarpentries & A. Villers (MNHNP).

D.R. CONGO. – Kinshasa, « UniKin », 15.III.2010, 2♂, 21.III.2010, 1♂, 30.III.2010, 1♂, leg. Lokoko (University of Kinshasa and RBINS). – Kisantu, 17.III.2009, *Turnera subulata*, 1♀, leg. N.J. Vereecken (ULB). – Congo da Lemba, III.1913, 1♂, leg. R. Mayné (RMCA). – Bambesa, 15.X.1933, 1♂, leg. H.J. Bredo (RMCA). – Uélé, Gangala, rivière Uéré, 1959, 2♂, leg. Dr. A.B. Stam (RMCA). – P.N.A. (= Parc National des Virungas), Rivière Ondo, affluent Rutshuru, 30.VII.1935, 1♂, leg. Dr. H. Damas (RMCA). – Kivu, Katana, 1933, 1♂, leg. Dr. De Wulf (RMCA). – Kivu, Rutshuru, rivière Fuku, 1250m, 5.VII.1935, 1♂, leg. G.F. de Witte (RMCA).

Thrinchostoma orchidarum Cockerell 1908

Thrinchostoma orchidarum Cockerell, 1908: 343, ♂. Male holotype: Angola, Benguella, I.1908 (BMNH). Cockerell 1910: 506; Cockerell 1933: 25; Cockerell 1936: 8.

Thrinchostoma [!]*(Thrinchostoma [!]) orchidarum* Cockerell: Blüthgen 1930: 496–497, 499, 504, 536.

Thrinchostoma (Thrinchostoma) orchidarum Cockerell: Michener 1978: 521, 254; Pauly 1999: 155, 17

Diagnosis. Male. Species very distinctive. Antennas of 13 segments, last segment not bent. Hind tibiae very broad and covered with a dense grey tomentum (fig.). Sternite 5 with a thick fringe of apical setae (fig)

Female : unknown.

Material. MALAWI. 100km S. Kasungu, 29.XI.2001, 1♂, leg. J. Halada (OOL).

***Thrinchostoma othonnae* Cockerell 1908**

Thrinchostoma orthonnae [!] Cockerell, 1908: 343–344, ♀. Female holotype: Angola, Benguella hinterland, on *Othonna* sp., leg. Wellmann (BMNH).

Thrinchostoma othonnae Cockerell: Cockerell 1910: 506;

Thrinchostoma [!](*Thrinchostoma* [!]) *othonnae* Cockerell: Blüthgen 1930: 496, 499, 540–541.

Thrinchostoma (Thrinchostoma) othonnae Cockerell: Michener 1978: 524; Pauly 1999: 155, 175.

Diagnosis. The type is a small female (body length 7.5 mm) similar to *T. productum* but the vertex is more shining and less punctuated, T1 less chagrined and with more spaced punctuation.

Male : unknown.

Material. SOUTH AFRICA. NATAL. Kosi Bay, 26°58'S 32°48'E, 10-11.II.1990, 3♀, leg. C.D. Eardley (SANC).

***Thrinchostoma petersi* Blüthgen 1930**

Thrinchostoma [!](*Thrinchostoma* [!]) *petersi* Blüthgen, 1930: 499, 515–516, 535, ♂. Male holotype : Uganda : Kampala, 20.VI.1926, leg. Hancock (BMNH).

Thrinchostoma petersi Blüthgen: Cockerell 1936: 9.

Thrinchostoma (Thrinchostoma) petersi Blüthgen: Michener 1978: 524; Pauly 1999: 155, 175.

Thrinchostoma [!](*Thrinchostoma* [!]) *wissmanni* Blüthgen, 1930: 499, 511–512, 534, ♂. Male lectotype : D.R. Congo, Congo da Lemba, III.1913, leg. R. Mayné (RMCA).

Thrinchostoma (Thrinchostoma) wissmanni Blüthgen: Michener 1978: 525; Pauly 1999: 155, 177. **Syn. nov.**

Thrinchostoma rubrocinctum Benoist, 1957: 879–880, ♂. Male holotype : Senegal, Bignona, V.1946 (MNHNP). **Syn. nov.**

Thrinchostoma (Thrinchostoma) rubrocinctum Benoist: Pauly 1999: 155, 176.

Remarks

T. petersi : Blüthgen report in his original description that the antennae of the holotype are broken. He suppose that this species is close to *T. productum* (= *T. bequaerti*). But our examination of the type shows that this species actually corresponds to that Benoist later described as *T. rubrocinctum*! Indeed, in the holotype of *T. petersi* first two tergites are red and S5 is hairless and shaped as in *T. rubrocinctum*.

T. wissmanni : Superficially similar to *T. kandti* but the apical lobe of the hind tibiae is longer and the S5 is more deeply curved. It seems that the type represent only a colour variety

of *T. petersi*. Following article 24 (a) of the International Code of Zoological Nomenclature (« If more than one name for a single taxon are published simultaneously, their relative priority is determined by the action of the first reviser »), we consider *T. wissmanni* as a synonym of *T. petersi*. Most *T. petersi* specimens have the metasoma red while the type of *T. wissmanni* has it black brown.

Diagnosis. Male. Last segment of the antennae bent at right angles. Apical margin of S5 glabrous. Apical lobe of hind tibiae longer than in *T. kandti*. First two tergites usually red, rarely black (var *wissmanni*). Males with black metasoma can only be separated from *T. kandti* by the longer apical lobe of hind tibia and the S5 more largely curved.

The female is often confused with that of *T. torridum* but it can be easily distinguished by the subgeneric character of hind calcar decorated with a strong laminated tooth in the center. In West and Central Africa, the female can be separated from other species like *T. productum* by its partly red metasoma. From other species with orange metasoma like *T. nachtigali* it can be separated by the black scapes and less punctured T1.

Material.

GAMBIA. 2 km S. Kitty, 7 km SW Brikama Road Junction, at fresh water stream, UTM 28PCK17-61, 27.II.1977, 1♂ (ZML). – At road junction to Situ Sinjang, about 2 km SE Kafuta, loc. N°11, UTM 28PCK41-57, 1.III.1977, 1♂ (ZML). – Outside Abuko Nat. rés., at water works, swept in vegetation at lamin stream, UTM 28PCK215812, loc. 6, 18.XI.1977, 1♂ (ZML).

LIBERIA. Harbel, leg. J. Bequaert, 1♀ (MCZ).

BURKINA FASO. Sources du Kou, 13.X.1979, fl.71 = *Asystasia gangetica*, 1♀, leg. A. Pauly (RBINS). – Rivière Lahissa, S. Koundougou, 5.X.1979, *Aspilia helianthoides*, 1♂, leg. A. Pauly (RBINS).

IVORY COAST. Grand Béréby, 18.XII.1979, piège Malaisie, 2♀, leg. A. Pauly (RBINS). – Lamto, Toumodi, 6°34'N 5°01'W, n°RR02 Fr, 1♀ (MNHNP).

TOGO. Sokodé, XII.1982, piège Malaise, 2♀, leg. A. Pauly (RBINS).

BENIN. Togbin, littoral, V.2005, 1♀, leg. G. Goergen (IITA). – Ina, 17.VIII.2001, 1♀, leg. L. Hautier (FSAG).

CONGO-BRAZZAVILLE. Niari, village Passi-Passi, 4.III.2007, n°39 = *Gossypium* sp., 2♂, leg. N. Boukaka, Darwin Project (RU) (black form *wissmanni*).

D.R. CONGO. Congo da Lemba, III.1913, 1♂ (paralectotype *T. wissmanni*), leg. R. Mayné (RMCA). – P.N.G. (= Parc National de la Garamba), II/cc/9, n°2446, 17.IX.1951, 1♂, leg. H. De Saeger (RMCA). – Lokandu, capt. Marée, I.1939, 1♂ (RMCA). – Equateur, Bokuma, 1953, 1♂, leg. R.P. Lootens (RMCA). – Haut-Zaire, Isiro, VIII.1978, piège Malaise, 1♂, leg. A. Pauly (RBINS). – Equateur: Boketa, piège Malaise, 3.IX.1983, 1♀, 6.IX.1983, 1♀, 13.IX.1983, 1♂, leg. Liongo (FSAG). – Bwamanda, 8.IX.1983, 1♀, leg. Liongo (FSAG).

ETHIOPIA. SOUTHERN. Lake Chamo, 5°55'N 37°32'E, 1138m, 21.IX.2012, 1♂, 1♀, leg. J.-L. Boevé & A. Pauly (RBINS). – Near Mago National Park, 5°45'N 36°22'E, 491m, 23.IX.2012, 1♀, leg. A. Pauly (RBINS).

Thrinchostoma productum (Smith 1853)

Halictus productus Smith, 1853: 55, male [!]. Female holotype: Sierra Leone (BMNH). Schulz 1906: 239; Friese 1909:125, 128; Cockerell 1937: 96.

Halictus (Thrinchostoma)[!] productus Smith: Vachal 1903: 393; Friese 1909: 128, 151–152.

Thrinchostoma productum (Smith): Cockerell 1908: 343–344.

Thrinchostoma productus (Smith): Strand 1912: 271.

Thrinchostoma [!] productum (Smith): Blüthgen 1928: 164; Blüthgen 1930: 496–497, 499, 537–539, 542.

Thrinchostoma (Thrinchostoma) productum (Smith): Medler 1980: 481; Michener 1978: 524; Pauly 1999: 155, 175.

Halictus (Thrinchostoma) bibundicus Strand, 1910: 43–44, ♂. Male holotype: Cameroun, Bibundi, leg. J. Weiler (Mus. Wiesbaden). Strand 1927: 62. **Syn. nov.**

Thrinchostoma (Thrinchostoma) [!] bibundicus (Strand): Blüthgen 1930: 496–497, 499, 511–512, 514, 518, 534.

Thrinchostoma (Thrinchostoma) bibundicum (Strand): Michener 1978: 524; Pauly 1999: 155, 172.

Thrinchostoma tessmanni Strand, 1912: 271–272, ♂. Male lectotype: Equatorial Guinea (« Spanish Guinea »), Benitogebiet, Uelleburg, 1-14.II.1907, leg. Tessmann (MNHUB). Strand 1927: 114. **Syn. nov.**

Thrinchostoma [!] (Thrinchostoma [!]) tessmanni Strand: Blüthgen 1930: 496–497.

Thrinchostoma [!] bibundicum var. *tessmanni* (Strand): Blüthgen 1930: 517–518, 535.

Thrinchostoma (Thrinchostoma) bibundicum tessmanni (Strand): Michener 1978: 524; Pauly 1999: 155, 176.

Thrinchostoma [!] (Thrinchostoma [!]) grisescens Blüthgen, 1930: 529, 536, ♀. Female holotype: Cameroun, Bosum (“Hinterland von Kamerun am Uamfluss), 5.V.1914, leg. Tessmann (MNHUB). Blüthgen 1930: 542, syn.

Thrinchostoma grisescens Blüthgen: Pauly 1999: 155, 173.

Thrinchostoma [!] (Thrinchostoma [!]) bequaerti Blüthgen, 1930: 499, 518, 535, ♂. Male holotype: Liberia, Du River, Camp n03, 27.VII.1926, leg. Bequaert (RMCA). **Syn. nov.**

Thrinchostoma (Thrinchostoma) bequaerti Blüthgen: Michener 1978: 524; Pauly 1999: 155, 172.

Thrinchostoma [!] (Thrinchostoma [!]) bequaerti var. *ochropus* Blüthgen, 1930: 518, 535, ♂. Male holotype: Liberia, Monrovia, 17.VII.1926, leg. M. Bequaert (RMCA). **Syn. nov.**

Thrinchostoma (Thrinchostoma) bequaerti var. *ochropus* Blüthgen: Michener 1978: 524.

Thrinchostoma ochropus Blüthgen: Pauly 1999: 155, 175, syn.

Thrinchostoma [!] (Thrinchostoma [!]) vachali Blüthgen, 1930: 497, 539, ♀. Female lectotype: Gabon, Entre Sam Quito et Ndjolé, 1900, leg. J. Bouysson (MNHNP). **Syn. nov.**

Thrinchostoma (Thrinchostoma) vachali Blüthgen: Michener 1978: 524–525.

Thrinchostoma vachali Blüthgen: Pauly 1998: 45; Pauly 1999: 155, 177, syn.

Thrinchostoma lualiensis Cockerell, 1939: 242, ♂. Male holotype D.R. Congo, Luali, 26.VIII.1913, leg. Dr. Bequaert (RMCA). **Syn. nov.**

Thrinchostoma (Thrinchostoma) lualiensis Cockerell: Michener 1978: 524; Pauly 1999: 155, 174, syn.

Remarks.

T. bibundicum : the type has not been examined, but the colour of the legs is quite variable among males of *Thrinchostoma*, so varieties with dark or orange legs are well conspecific.

T. tessmanni: Blüthgen separates this species according to the number of notches on the antennae. According to a photo of holotype taken at MNHUB, this seems to be an artifact. Marks begin on segment 8 and not 6.

Diagnosis. The male of *T. productum* is gray black, with the last segment of the antennae not bent, the apical margin of sternite 5 glabrous and the antennae with notches on segments 8 to 12.

Female. Gray black. Abdomen black gray, without red spots but sometimes suffused brown. Scape of antennae entirely dark brown. Last terga with mixed clear and black setae. Tergite 1 finely striated with scarce punctures ($i = 3d$). Differs from *T. petersi* and *T. nachtigali* by the fully grey colouration. No good characters have been found to separate it from the grey *T. kandti*.

Material.

LIBERIA. Du River, Camp n03, 27.VII.1926, 1♂, leg. Bequaert (RMCA) (paratype *T. bequaerti*). – Memehtown, 29.VIII.1926, 1♂, leg. Bequaert (paratype *T. bequaerti*). – Harbel, Du River, leg. J. Bequaert (MCZ).

BENIN. Pénésoulou, forest area, I.2004, 1♀, leg. G. Goergen (IITA).

Forêt de Kpinkonzoun, Akpadanou, 6°46'N 2°27'E, 28.II.2007, piège Malaise en lisière, 1♂, projet GTI (RBINS).

CAMEROON. N'Kolbisson, 26.IV.1982, 1♀, leg. J. Carayon (MNHNP). – Nkolbisson, 20.V.2006, 1♂, sur *Cucumeropsis mannii*, 1♂, leg. Azdo Ela (RBINS).

EQUATORIAL GUINEA. Benitogebiet, Uelleburg, 16-31.VIII.1906, 1♂ (paralectotype *T. tessmanni*) leg. Tessmann (MNHUB). – Bata, 25.IX.1897, 1♀, leg. J. Bouyssou (MNHNP) (Vachal 1903). – Nkogo, 1901, 1♀, leg. J. Bouyssou (MNHNP) (Vachal 1903).

GABON. Ogooué, Lambaréné, 1911, 1♀, leg. R. Ellenberger (MNHNP). ESTUAIRE. Ntoun, VIII.1984, bord étang ombragé, PM, 2♀, IX.1984, verger, PM, 1♂, 14.X.1984, lisière forêt, *Manihot esculenta* (pollen), 1♀, 8.I.1985, *Heterotis decumbens*, 1♀, 9.III.1985, 9h, étang ombragé, 1♂ et 1♀ in copula, 1.VI.1985, *Ipomoea asarifolia*, 1♀, 2.IV.1985, *Dacryodes edulis*, 1♂. – route Ntoun-Donguila, 1.XII.1985, *Heterotis decumbens*, 1♀. – Bissobinam, 3.XI.1985, sablière, *Heterotis decumbens*, 1♀. – Kougouleu, 12.XI.1985, chemin forestier, *Dissotis multiflora*, 1♀. HAUT-OGOOUE. Léconi, 29.I.1987, *Dissotis brazzae*, 1♀. MOYEN-OGOOUE. Njolé, 1♀ (J. Bouyssou) (Vachal 1903). – Ngoum-Ngoum, 4.V.1986, 1♀. NGOUNIE. Mandilou II, 31.XII.1985, lisière forêt-savane, *Asystasia*, 1♀. OGOOUE-MARITIME. M'Paga, 12.IV.1986, *Otomeria guineensis*, 1♀. (all leg. and col. A. Pauly ; Pauly 1998).

CONGO-BRAZZAVILLE. M'Touki, col. des Bambas, route de Dimonika à Dolisi, 6.I.1969, 1♀, leg. J.P. Grillot (MNHNP). – Kakamoeka, 4°07'S 12°04'E, IX.2007, 1♂, Darwin Project (RU). – Lessaras-Girard, 27.I.1977, 1♂, leg. Grillot & Morin (MNHNP) (var *ochropus*).

D.R. CONGO. Limbala, 8.VIII.1913, 1♂, leg. Dr. Rodhain (RMCA). – Tshuapa, Bokota, I.1953, 1♂, leg. R.P. Hulstaert (RMCA). – P.N.U. (= Parc National de l'Upemba), Kaswabilenga, 700m, 14.X.1947, 1♂, leg. G.F. de Witte (RMCA). – P.N.U. Lukawe, affluent rive droite Lufira, 700m, 6-9.X.1947, 1♂, leg. G.F. de Witte (RMCA). – Walikale 39 km S, 700m, 25.XII.1957, leg. E.S. Ross & R.E. Leech (CAS). – P.N.G. (Parc National de la Garamba), PpK.56/d/8, 27.II.1952, 1♂, leg. H. De Saeger n°3149 (RMCA) (var *ochropus*).

Thrinchostoma sjoestedti (Friese 1909)

Diagonozus sjoestedti Friese, 1909: 124–125, ♂ ♀. Male lectotype : Tanzania, Kibonoto am Kilimandjaro, 1300-1900m, 1905, leg. Y. Sjoestedt (NHRS, Stockholm, n°NHRS HEVA 000002023), designated here. Rasmussen and Ascher 2008: 100.

Halictus (Trichostoma) [!] *sjoestedti* (Friese): Friese 1909: 128, 152; Strand 1912: 131.

Thrinchostoma sjoestedti (Friese): Cockerell 1910: 506; Cockerell 1937: 106.

Thrinchostoma [!] (*Thrinchostoma [!]*) *sjoestedti* (Friese): Blüthgen 1930: 496, 498–499, 510, 513–514, 524, 533–534.

Thrinchostoma (Thrinchostoma) sjoestedti (Friese): Michener 1978: 521–524; Pauly 1999: 155, 176.

Diagonozus sjoestedti var. *rufescens* Friese, 1909: 125, ♂, ♀. Syntypes : Tanzania, Kibonoto am Kilimandjaro, 1300-1900m, 1905, leg. Y. Sjoestedt, and Meru (NHRS). Rasmussen and Ascher 2008: 92. **Syn. nov.**

Thrinchostoma sjoestedti var. *rufescens* (Friese): Cockerell 1916: 205, ?syn. *T. torridum*.

Thrinchostoma [!] (*Thrinchostoma [!]*) *sjoestedti* var. *rufescens* (Friese): Blüthgen 1929: 29 ; Blüthgen 1930: 496, 513–514, 524, 533.

Thrinchostoma sjoestedti rufescens (Friese): Cockerell 1936: 8.

Thrinchostoma (Thrinchostoma) sjoestedti var. *rufescens* (Friese): Michener 1978: 524; Pauly 1999: 155, 176.

Thrinchostoma millari Cockerell, 1916: 205–206, ♂. Male lectotype: South Africa, Durban, 24.XI.1915, leg. H.M. Millar (DMSA). Cockerell 1917: 45; Cockerell 1920: 304; Cockerell 1933: 25. **Syn. nov.**

Thrinchostoma [!] (*Thrinchostoma [!]*) *millari* Cockerell: Blüthgen 1930: 496, 499, 514, 524, 534.

Thrinchostoma (Thrinchostoma) millari Cockerell: Michener 1978: 524; Pauly 1999: 155.

Thrinchostoma [!] (*Thrinchostoma [!]*) *mwangai* Blüthgen, 1930: 526–527, 535, ♀. Female holotype: Uganda, Entebbe, 22.viii.1911, leg. G.C. Gowdey (BMNH). **Syn. nov.**

Thrinchostoma mwangai Blüthgen: Cockerell 1936: 9.

Thrinchostoma (Thrinchostoma) mwangai Blüthgen: Michener 1978: 524; Pauly 1999: 155, 174.

Thrinchostoma [!] (*Thrinchostoma [!]*) *ugandae* Blüthgen, 1930: 526–527, 536, ♀. Female holotype : Uganda, entre Seziwa River et Kampala, 3500-3750ft, 27-31.VIII.1911, leg. S.A. Neave (BMNH). **Syn. nov.**

Thrinchostoma ugandae Blüthgen: Cockerell 1936: 9.

Thrinchostoma (Thrinchostoma) ugandae Blüthgen: Michener 1978: 525; Pauly 1999: 155, 177.

Thrinchostoma umtaliense Cockerell, 1936: 8, ♂. Male holotype : Zimbabwe, Xmas Pass, Umtali, 20-21.v.1932 (AMNH). **Syn. nov.**

Thrinchostoma (Thrinchostoma) umtaliense Cockerell: Michener 1978: 525; Pauly 1999: 155.

Remarks.

T. sjostedti : the lectotype is designated here on basis of the pictures sent by H. V. from the Museum of Stockholm. Paratypes photographed by one of us (CE) in the Museum of Berlin belong to the same species.

T. sjostedti var *rufescens* : the specimen cannot be found in the Museum of Stockholm. As this species is well known to have black and red forms, the synonymy can be established.

T. mwangai : The type has the scapes orange. Blüthgen reported only a few differences in the key as the more polished supraclypeal area. Tergites are not really red, punctuation of T1 is spaced and the legs are brown. We consider it here as a syn. nov. of *T. sjostedti*.

T. ugandae: The type has the terga red and probably corresponds to the variety *rufescens*. The scutum bears few tomentum and setae on the last terga are pale. We consider it here as a syn. nov. a *T. ugandae*.

T. umtaliellum : this specific name cited in the index of Pauly (1999: 177), followed in the catalog of Urban & Eardley (2010), is a lapsus for *T. umtaliense*.

Diagnose. The males of *T. sjostedti* have the last segment of antenna bent, the apical margin of S5 with setae and the hind femora not inflated as in *T. nachtigali*.

The females can be identified by their widespread geographic range in East and South Africa while *T. petersi*, *T. productum* and *T. nachtigali* are widespread in West and Central Africa. Metasoma is often brown, sometimes suffused with red (var *rufescens*). Edge of scutum with beige tomentum. T1 chagrined and with sparse punctures.

Material.

CAMEROON. W. Cameroun, Fundong, 6°18'N 10°18'E, 21.VII.1987, 1♂, *Stachytarpheta* sp., leg. A. Pauly (RBINS).

ETHIOPIA. OROMIA. Mechara, 8°36'N 40°19'E, 6-25.XII.2010, *Stylosanthes guianensis*, 1♂, 5-19.XII.2010, *Trichodesma zeylanicum*, 1♂, 1♀, 16.I.2011, *Trichodesma zeylanicum*, 1♂, 1♀, leg. Degefa Weyessa, GTI project (RBINS). AMHARA. Hayk, 11°18'N 39°41'E, 17-18.XI.2010, *Hypoestes forskoolii*, 2♂, 4♀, leg. GTI project (RBINS). SOUTHERN. Arba-Minch, Lake Chamo, 5°55'N 37°32'E, 1138m, 19.IX.2012, 3♀, leg. A. Pauly & J.L. Boevé (RBINS).

UGANDA. Westen des Nkole-Landes, 4500-5000 ft, leg. S.A. Neave, 10-14.X.1911, 1♂ (BMNH).

R.D. CONGO. Ituri, Mahagi, Niarembe, 18.II.1929, 1♂, leg. A. Collart (RMCA). – P.N.G. (Parc National de la Garamba), I/o/1, 5.X.1950, 1♂, leg. H. de Saeger (RMCA). – Kivu, Manevu, 8.X.1935, 1♂, leg. H. Damas (RMCA). – P.N.A. (Parc National Albert = PN Virungas), Kanyabayongo, Kabasha, 1760m, 11.XII.1934, 1♂, leg. G.F. de Witte (RMCA).

KENYA. Nanyuki, nr Sportsman's Arms Lodge, along stream, 1950m, 25.VIII.1975, 1♂, leg. R. Silberglied (MCZ). – Nairobi, Int. Center Ins. Physiol. Ecol., IV.1982, leg. M.C. Lubega, 1♂, 3♀ (CIUC). – Ol Punyata, ca 16 mi N. Nakuru, Nakuru District, 5500ft, 6-9.I.1973, 1♀, leg. J.P. Donahue (LACM). – Laragei Springs, 7 mi SW Maralal, Samburu District, 6200ft, 17-22.I.1973, 1♀, leg. J.P. Donahue (RBINS).

TANZANIA. Kibonoto am Kilimandjaro, 1300-1900m, 1905, 4♂, 4♀ (paralectotypes), leg. Y. Sjoestedt (MNHUB, NHRS). – Amani, Usambara, XII.1906, leg. Chr. Schroder (Blüthgen, 1930). – « Afrique Orientale Anglaise », Escarpment, VIII.1906, 1♂, leg. Maurice de Rothschild (MNHNP). – Meru, im Januar (Mus. Stockholm). – Lake Manyara, 28.VII.1958, 1♂, leg. M.&P. Machris (LACM). – Lake Manyara, 1000m, 21.X.1957, 1♂, leg. E.S. Ross & R.E. Leech (CAS). – Iringa, 11.VII.1985, 2♀, leg. G.J. James (RBINS).

MOZAMBIQUE. Lourenco Marques, 30.VIII.1963, 1♀, leg. H.N.Empey (SANC).

MALAWI. Lilongwe 85 km SE, Decza, 17-19.XII.2001, 1♂, leg. J. Halada (OOL).

REPUBLIC OF SOUTH AFRICA. TRANSVAAL. Shilouvane, XII, leg. Junod (MNHUB) (Blüthgen 1930)). – Barberton, XII.1978, 1♂, leg. C.D. Eardley (SANC). – Bergvliet Forest Station, Sabie, 25°05'S 30°54'E, 26-

28.II.1986, 1♂, leg. C.D.Eardley (SANC). – Crocodile Bridge, 20.V.1969, 1♂, L.C. Starke (SANC). – De Hoek, XI.1978, 2♂, leg. G.L.Prinsloo (SANC). – De Kuilen, Lydenburg District, 25°10'S 30°32'E, 12.II.1981, 1♀, leg. C. Moolman, W. Harrop (SANC). – Duiwelskloof, 23°42'S 30°06'E, 15.XII.1985, 2♀, leg. J.S. Donaldson (SANC). – Duiwelskloof, 11.XII.1963, 1♀, leg. P. Paliatseas (SANC). – Fanie Botha Nature Reserve, near Tzaneen, 23°50'S 30°10'E, 2-6.III.1986, 2♂, leg. J.S. Donaldson (SANC). – Fanie Botha Nature Reserve, near Tzaneen, 23°50'S 30°10'E, 2-6.III.1986, 8♂, leg. C.D. Eardley (SANC). – Hans Merensky Nature Reserve, 23°40'S 30°39'E, 27-30.XI.1981, 1♂, leg. R.G.Oberprieler (SANC). – Happy Rest Nature Reserve, 22°59'S 29°46'E, 10.III.1990, 9♂, 4♀, leg. C.D.Eardley (SANC). – Komatipoort, 27.V.1969, 1♀, leg. L.C. Starke (SANC). – Kruger National Park, Skukuza, 24°59'S 31°35'E 292m, I.1985, 6♂, leg. G.L.Prinsloo (SANC). – Kruger National Park, Pretoriuskop, 25°09'S 31°16'E, 591m, 17.I.1985, 1♀, leg. G.L.Prinsloo (SANC). – Lekgalameetse Nature Reserve, 24°10'S 30°14'E, 13.II.1989, 1♂, 1♀, leg. V.M. Uys (SANC). – Lekgalameetse Nature Reserve, 24°10'S 30°14'E, 13.II.1989, 1♂, leg. N. Verheijen (SANC). – Loskop Dam Nature Reserve, 25°25'S 29°20'E, 12-13.XII.1985, 1♂, leg. C.D.Eardley (SANC). – Mac Mac Falls, 10km N Sabie, 25°02'S 30°48'E, 27.II.1986, 1♀, leg. C.D. Eardley (SANC). – Mojadji Nature Reserve, 23°38'S 30°20'E, 13-14.I.1987, 1♂, leg. C.D.Eardley (SANC). – Swadini, Blydepoort Nature Reserve, 24°32'S 30°54'E, 26-29.I.1987, 1♀, leg. B. Grobbelaar (SANC). – Thabaphaswa, near Potgietersrus, 24°03'S 29°02'E, 29-30.III.2006, 1♀, leg. J. du Plessis (SANC). NATAL. Umbilo, 22.XI.1914, 1♂, leg. L. Bevis (paralectotype). – False Bay, 27.95852S 32.35919E, sandforest, 15.I.2005, 1♀ (SANC). – Kloof, 20.III.1963, 1♀, leg. H.N. Empey (SANC). – Kosi Bay, 10-11.II.1990, 15♂, 25♀, leg. C.D. Eardley (SANC). – Kuleni Farm, Hulhulwe, 27°54'S 32°22'E, 14.II.1990, 5♂, 16♀, leg. C.D. Eardley (SANC). – Vernon Crookes Nature Reserve, Umzinto, 30°17'S 30°37'E, 443m, 25-26.III.1985, 1♀, leg. C.D. Eardley (SANC). EASTERN CAPE PROVINCE. Port St. Johns, 19.III.1969, 1♂, leg. L.C. Starke (SANC).

***Thrinchostoma uluguruensis* Pauly & Eardley sp. nov.**

Holotype ♂: TANZANIA, «Tanganyika», territoire Bunduki, Uluguru Mts, moyen Mgeta, 1300m, 30.IV-11.V.1957, leg. P. Basilewsky & N. Leleup (RMCA).

Diagnosis: Male. Very similar to that of *T. amanicum* by the sparse punctuation of the scutum, the last segment of the antennae not curved and S5 with long setae. It differs by the legs and terga dark brown, the apical lobe of hind tibiae truncated, the hind femora thinner and the punctuation of scutum even finer and more spaced. Female unknown.

Description. Male. Black body, length 9 mm. Head : a little longer than wide ($L / W = 1.05$ mm) ; malar area as long as a fifth of the length of the eye ; antennas 13 segmented, the last segment straight ; anterior margin of clypeus pale yellow. Mesosoma : scutum smooth with sparse punctuation ($i = 3d$). Hind leg : apical lobe of the tibia pale yellow and truncated apically, femur not very swollen, basitarsus thin and black. Forewing with a spot of setae. Metasoma. Black above, brownish below ; apical margin of S5 with long setae, bilobed ; T1 chagrined with sparse punctuation. Genitalia illustrated (fig.).

***Thrinchostoma upembae* Pauly & Eardley sp. nov.**

Holotype ♂: D.R. CONGO, Parc National de l'Upemba (PNU), Gorges de la Palenge, 1150m, n°471a, 10-14.VI.1947, leg. G.F. de Witte (RMCA).

Diagnosis. Male. Species well characterized by the apical lobe of the hind tibia truncated and large basitarsi (fig.). Last segment of the antenna not bent, the segments short. S5 with a fringe of setae. Female unknown.

Description. Male. Black body, length 8 mm. Head : longer than wide (L / W = 1.15) ; malar area $\frac{1}{4}$ as long as the length of the eye ; antennae 13 segmented, the last segment straight ; anterior margin of clypeus pale yellow. Mesosoma : scutum with a dense punctuation, the points slightly larger and spaced in the middle part (i = d). Hind leg : femur slightly swollen, apical lobe of the tibia rather long and pale yellow, basitarsus broader than in other species and entirely pale yellow. Forewing with a spot of setae. Metasoma : black ; apical margin of S5 bilobed and with setae.

Table of flowering plants visited by the *Thrinchostoma* species in Africa

Acanthaceae :

Asystasia gangetica (L.) T. Anderson : T. torridum, 2♀, T. nachtigali, 1♀, T. petersi, 1♀, T. productum, 1♀.

Hypoestes forskaolii (Vahl.) Roem & Schult. : T. sjoestedti, 2♂, 4♀.

Justicia sp. : T. torridum, 1♀.

Justicia ladanoides Lam. : T. torridum, 3♂.

Asteraceae :

Aspilia helianthoides (Schumach. & Thonn.) Oliv. & Hiern : T. petersi, 1♂

Aspilia pluriseta Schweinf. : T. torridum, 3♂, 2♀.

Vernonia sp. : T. silvaticum, 1♂.

Boraginaceae :

Trichodesma zeylanicum (Burm.f.) R. Br. : T. torridum, 4♂, T. sjoestedti, 2♂, 2♀.

Burseraceae :

Dacryodes edulis H.J. Lam. : T. productum, 1♂.

Caesalpiniaceae :

Cassia obtusifolia L. : T. nachtigali, 1♀.

Commelinaceae :

Floscopa sp. : T. nachtigali, 1♀.

Convolvulaceae :

Ipomoea asarifolia (Desr.) Roem. & Schult. : T. productum, 1♀.

Costaceae :

Costus sp. : T. (Diagonozus) lettowvorbecki, 1♂, 1♀.

Cucurbitaceae :

Cucumeropsis mannii Naudin : T. productum, 1♂.

Euphorbiaceae :

Manihot esculenta Crantz : T. productum, 1♀ (pollen).

Fabaceae :

Calopogonium mucunoides Desv. : T. nachtigali, 1♀.

Stylosanthes guianensis (Aubl.) Sw. : T. sjoestedti, 1♂.

Hypericaceae :

Harungana madagascariensis Lam. ex Poiret : T. nachtigali, 1♀.

Lamiaceae :

Orthosiphon rubicundus (D. Don) Benth. in Wall : T. torridum, 2♀.

Platystoma africanum P. Beauv. : T. torridum, 2♀.

Plectranthus sp. : T. torridum, 3♂.

Lauraceae :

Persea americana Mill. : T. torridum, 1♀.

Lythraceae :

Cuphea hyssopifolia Kunth. : T. kandti, 1♂.

Malvaceae :

Gossypium sp. : T. petersi, 2♂.

Melastomataceae :

Dissotis multiflora (Sm.) Triana : T. nachtigali, 1♀, T. productum, 1♀.

Dissotis brazzae (Graham) Cogn. : T. productum, 1♀.

Heterotis decumbens (P. Beauv.) Jacq.-Fel. : T. productum, 3♀.

Mimosaceae :

Mimosa pudica L. : T. nachtigali, 1♀.

Ochnaceae :

Sauvagesia erecta L. : T. nachtigali, 1♀.

Orchidaceae :

Genus sp. : T. orchidarum, 1♂.

Rubiaceae :

Borreria sp. : T. nachtigali, 1♂.

Otomeria guineensis Benth. : T. productum, 1♀.

Turneraceae :

Turnera subulata J.E. Smith: T. nachtigali, 1♀.

Verbenaceae :

Stachytarpheta angustifolia (Miller) Vahl : T. kandti, 1♂.

Figures N. VEREECKEN	

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Pauly & Eardley, African *Thrinchostoma*, FIGURES



Fig. 1



Fig. 2



Fig. 3

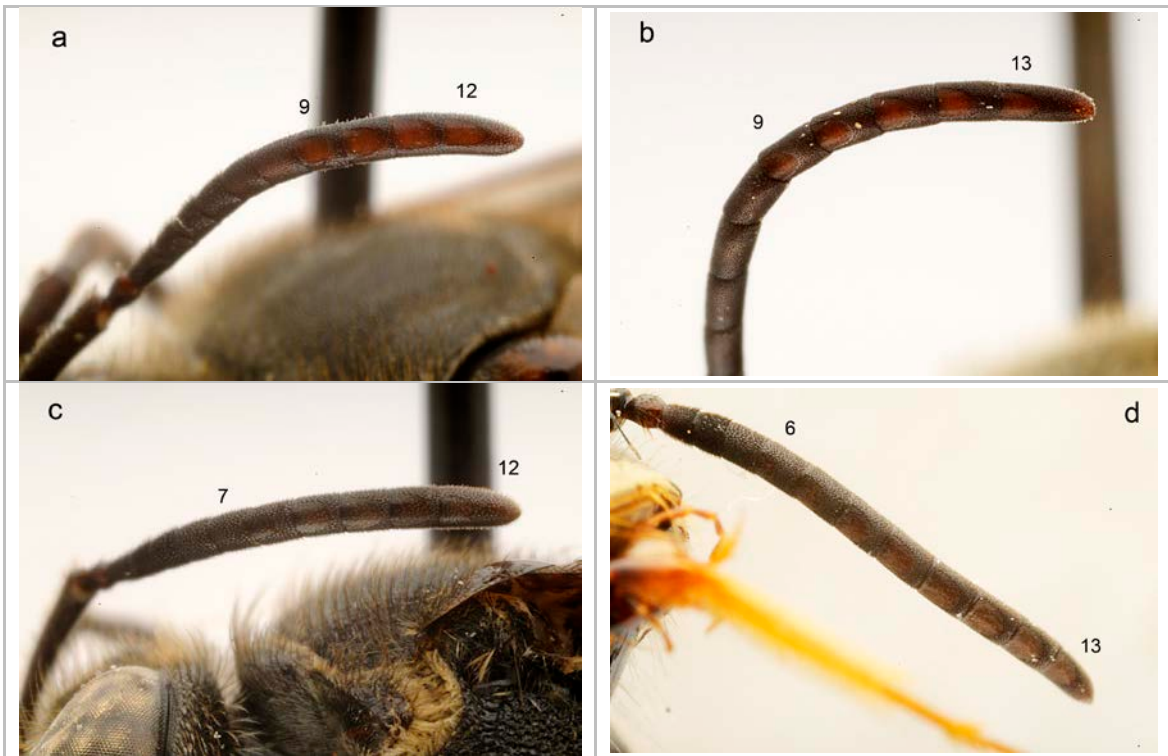


Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9



Fig. 10



Fig. 11



Fig. 12



Fig. 13

AAA



Fig. 14. Syntypes of *Diagonozus bicometes*, and lectotype labels (specimen at the left).



Fig. 15. Male lectotype of *Thrinchostoma (Diagonozus) bicometes*.

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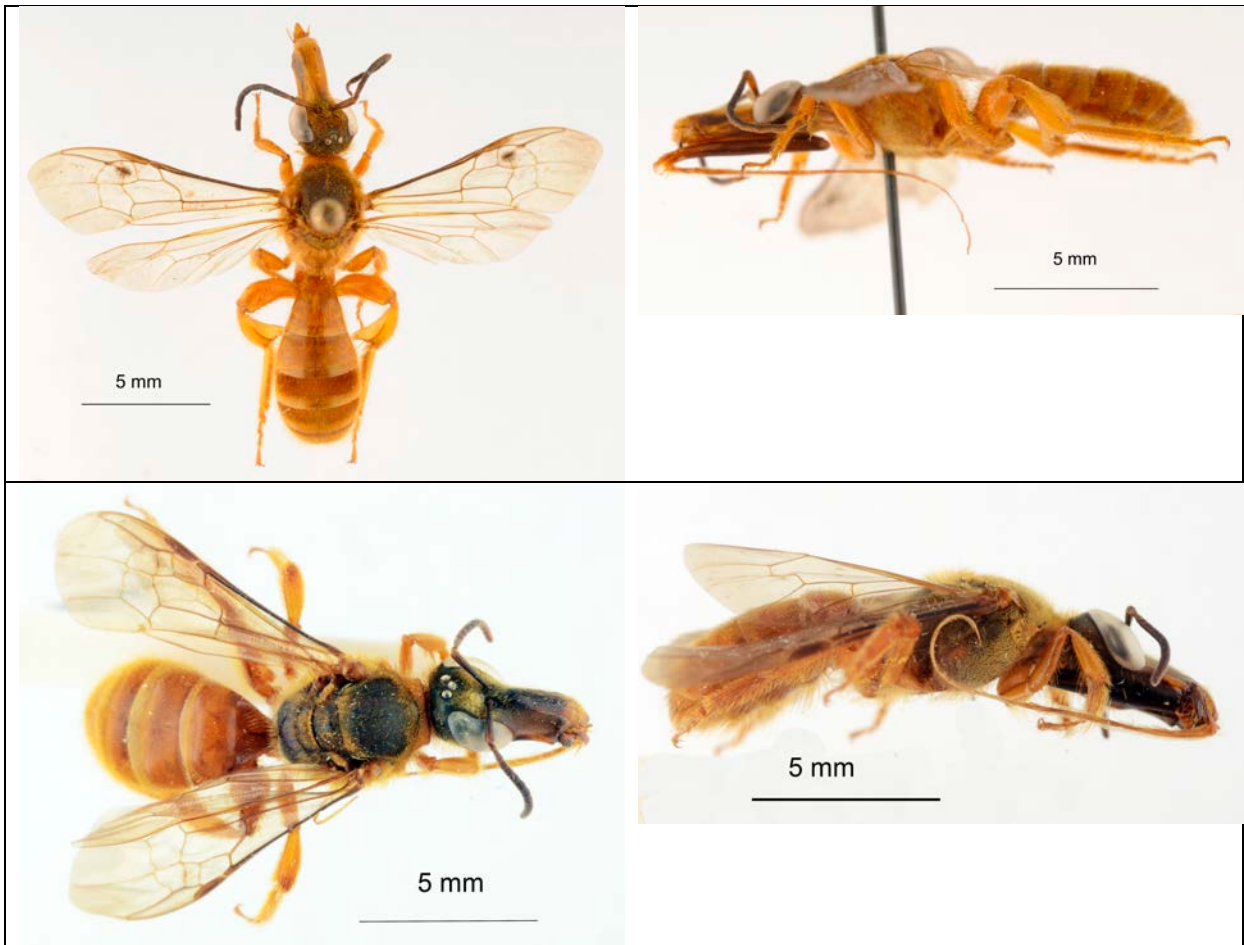


Fig. 16. *Thrinchostoma (Diagonozus) lettowvorbecki*, male habitus (Congo-Brazzaville : Odzala), female habitus (Ivory Coast : Thai National Park).



Fig. 17. *Thrinchostoma (Diagonozus) lettowvorbecki*, male (Congo-Brazzaville : Odzala).



Fig. 18. *Thrinchostoma lettowvorbecki*, female (Ivory Coast : Taï)

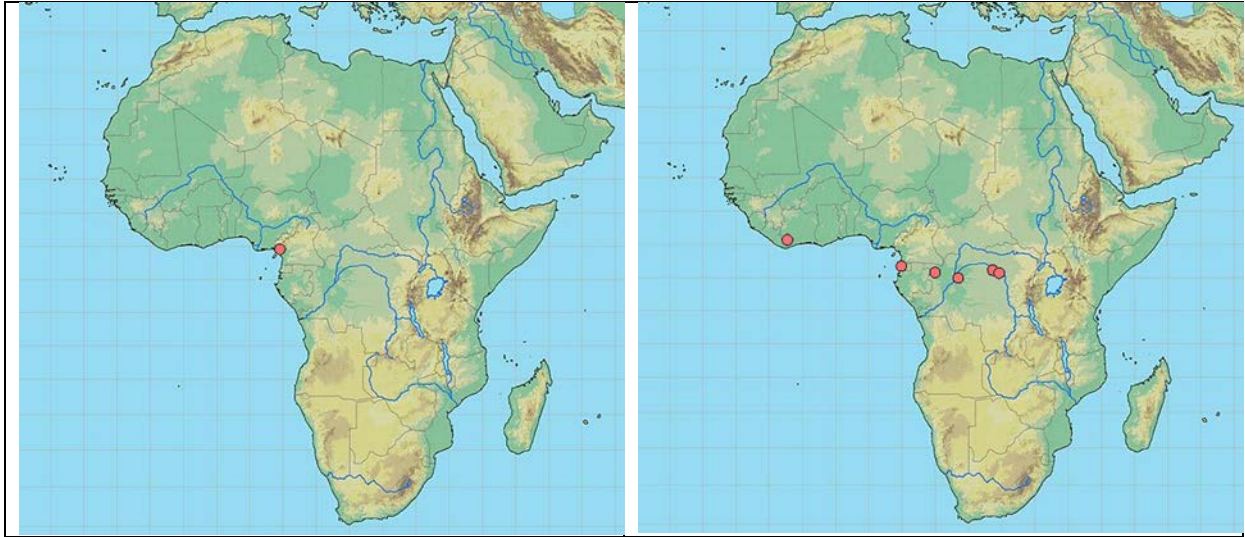


Fig. 19. Distribution maps of *Thrinchostoma bicometes* and *T. lettowvorbecki*



Fig. 20. *Thrinchostoma (Eothrinchostoma) silvaticum*, male (Kenya : Kakamega Forest)

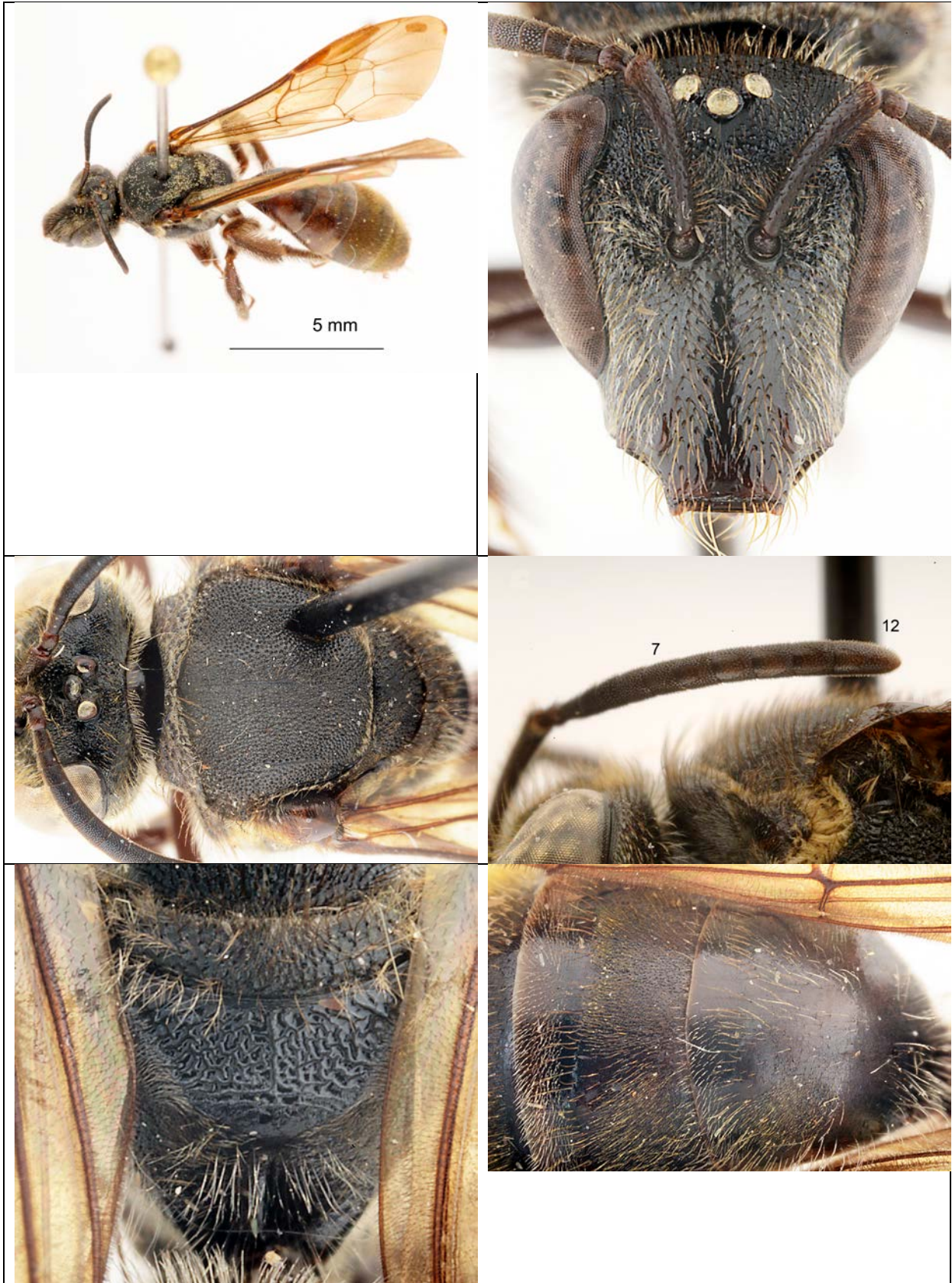


Fig. 21. *Thrinchostoma (Eothrinchostoma) silvaticum*, female (Kenya : Kakamega Forest).



Fig. 22. *Thrinchostoma* (*Eothrinchostoma*) *torridum*, male, dorsal and lateral views (Kenya), females red form (Kenya) and black form (Congo-Brazzaville).

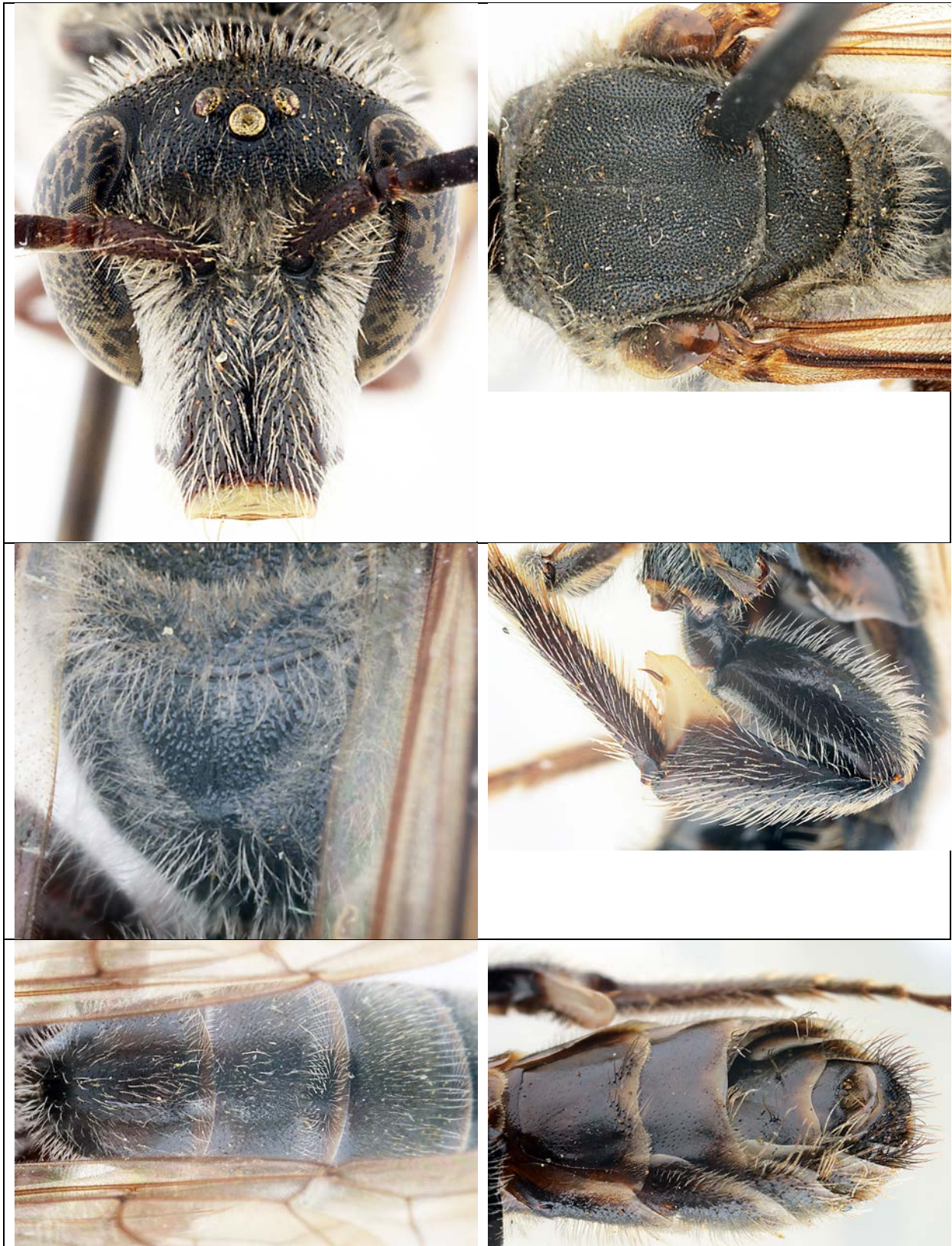


Fig. 23. *Thrinchostoma (Eothrinchostoma) torridum*, male (Kenya).

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Fig. 24. *Thrinchostoma (Eoethrinchostoma) torridum*, female. a, head *T. torridum* (Zimbabwe) ; b, head type *T. malelanum* ; c, d, e, mesosoma, propodeum and two first terga of *T. torridum* (Zimbabwe).

aa

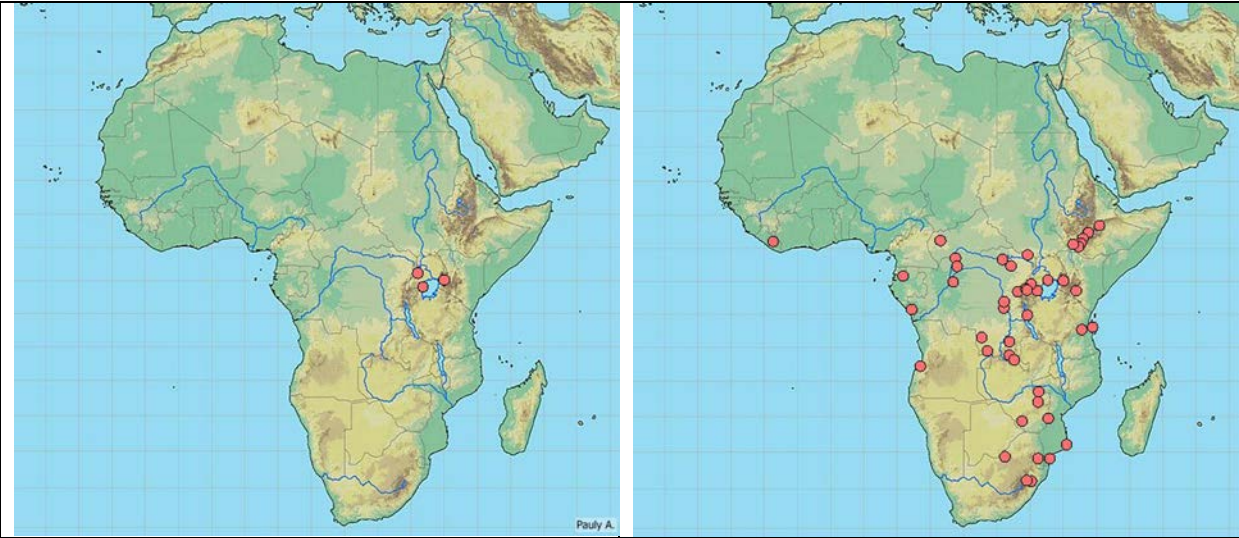


Fig. 25. Distribution maps of *Thrinchostoma silvaticum* and *T. torridum*.



Fig. 26. *Thrinchostoma amanicum*, male holotype in MNHUB.

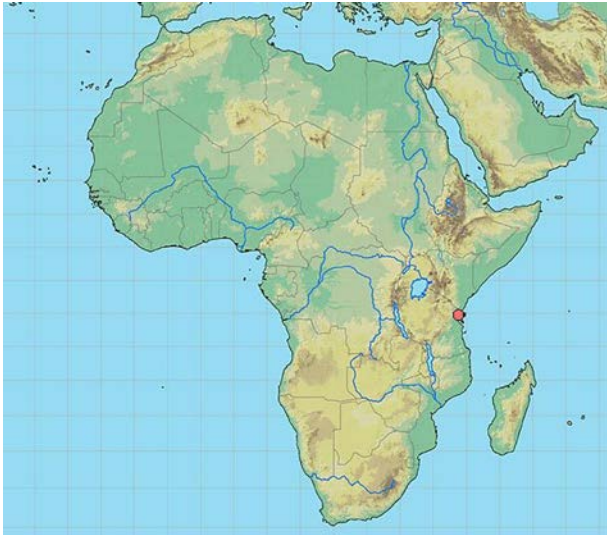


Fig. 27. Distribution map of *Thrinchostoma amanicum*



Fig. 28. *Thrinchostoma emini*, male and female (Kenya : Kakamega Forest)



Fig. 29. *Thrinchostoma emini*, male (Kenya: Kakamega).



Fig. 30. *Thrinchostoma emini*, female (Kenya: Kakamega).

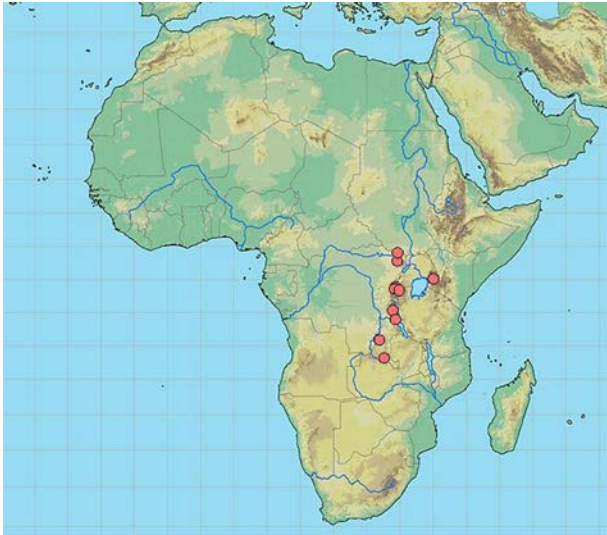


Fig. 31. Distribution map of *Thrinchostoma emini*



Fig. 32. *Thrinchostoma kandti*, male holotype in BMNH.

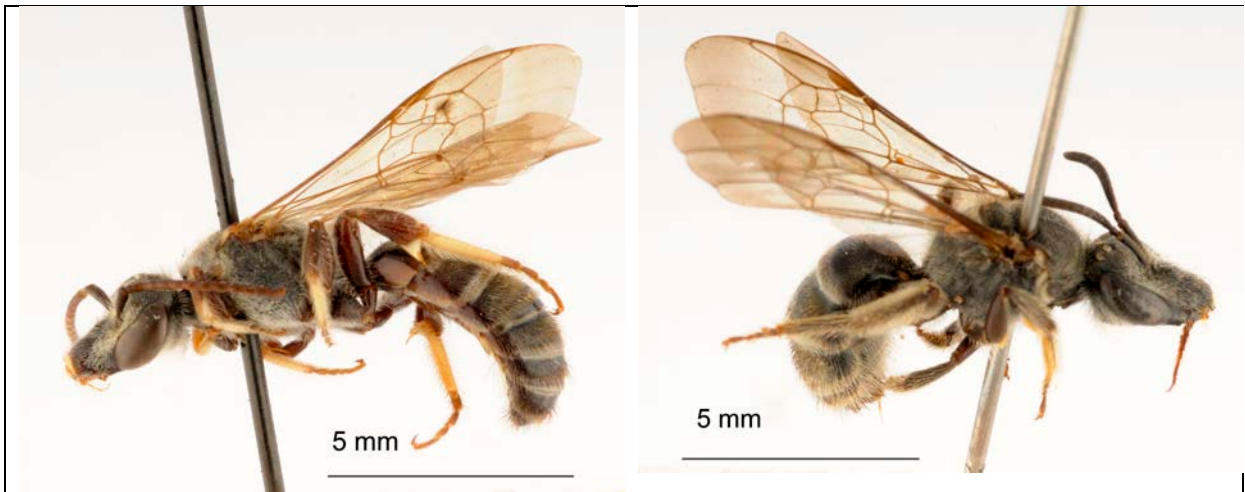


Fig. 33. *Thrinchostoma kandti* ; male (D.R. Congo : Kabinda) and female (Kenya : Kakamega).

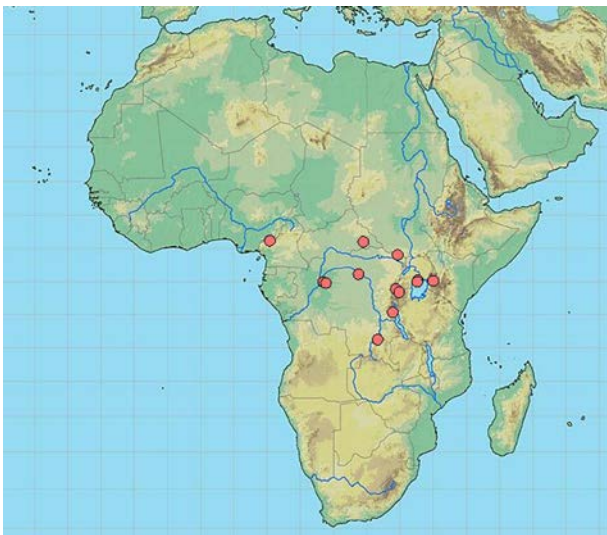


Fig. 34. Distribution map of *Thrinchostoma kandti*



Fig. 35. *Thrinchostoma kandti*, male ; head (Kenya : Kakamega) ; antenna, hind leg, last sterna, mesosoma and metasoma (Cameroon : Fundong).



Fig. 36. *Thrinchostoma kandti*, female (Kenya: Kakamega) found with male.

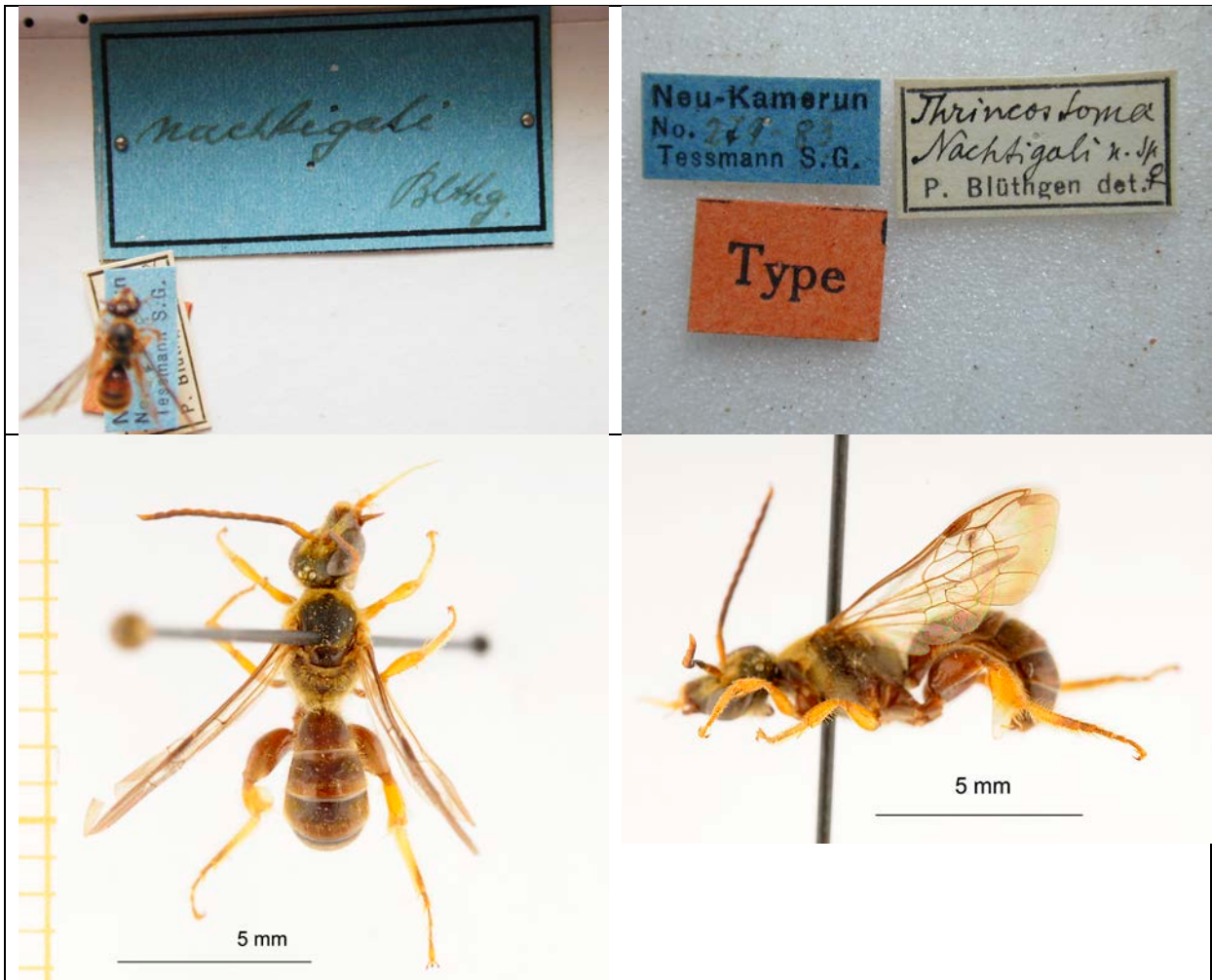


Fig. 37. *Thrinchosoma nachtigali*, female holotype in MNHUB, male dorsal and lateral habitus (Cameroon : Nkolbisson).

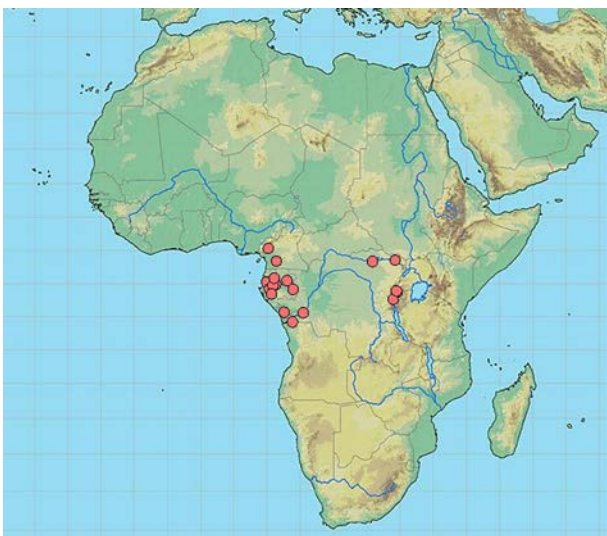


Fig. 38. Distribution map of *Thrinchosoma nachtigali*



Fig. 39. *Thrinchostoma nachtigali*, male. Head, antenna, scutum, legs with black femora and with orange femora, metasoma dorsal and ventral view.



Fig. 40. *Thrinchostoma nachtigali*, female holotypein MNHUB.

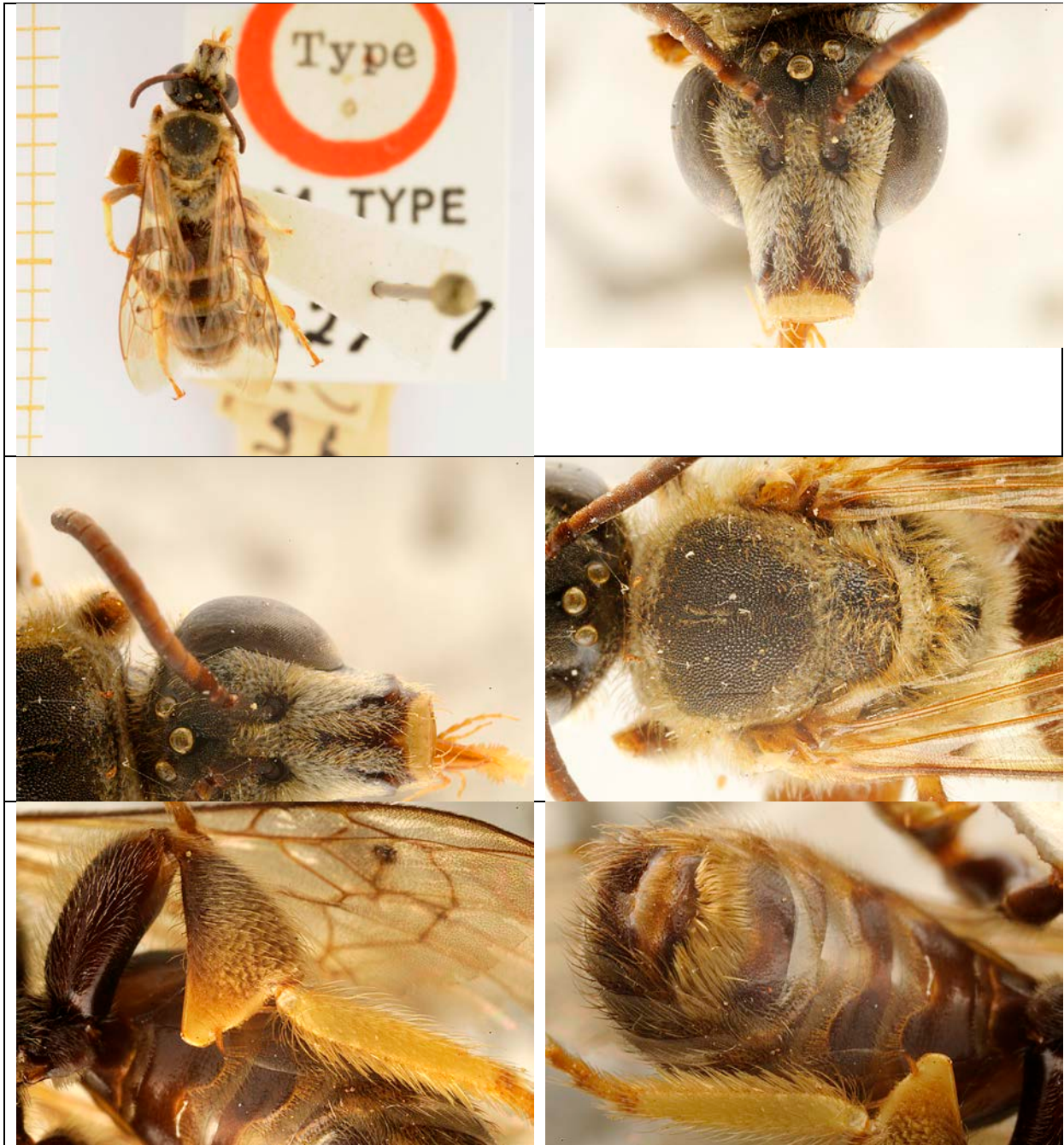


Fig. 41. *Thrinchostoma orchidarum*, male holotype in BMNH.

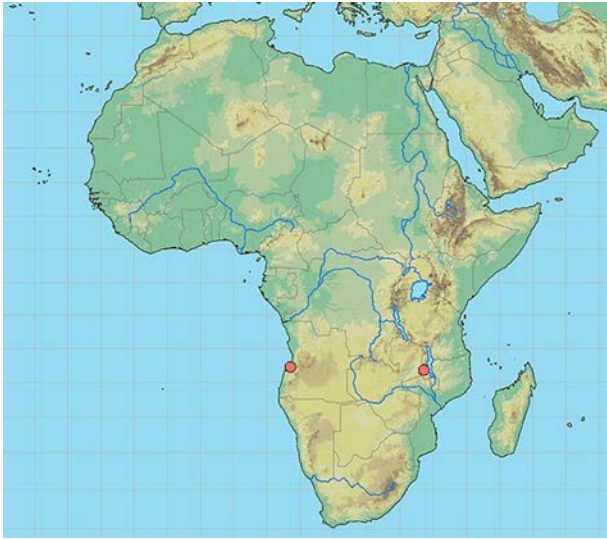


Fig. 42. Distribution map of *Thrinchostoma orchidarum*



Fig. 43. *Thrinchostoma othonnae*, female holotype in BMNH.

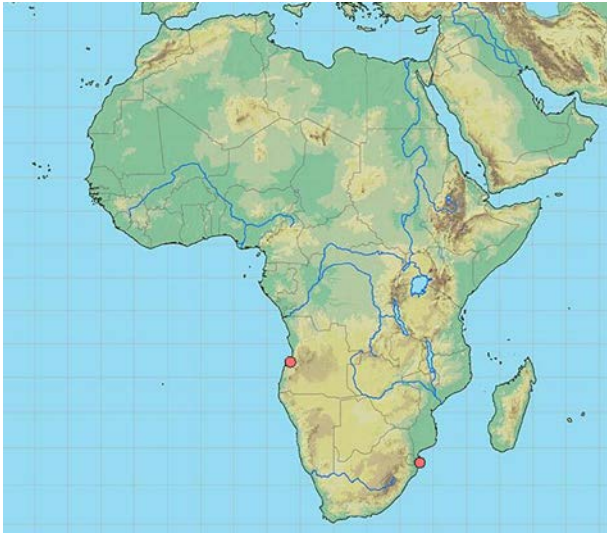


Fig. 44. Distribution map of *Thrinchostoma othonnae*

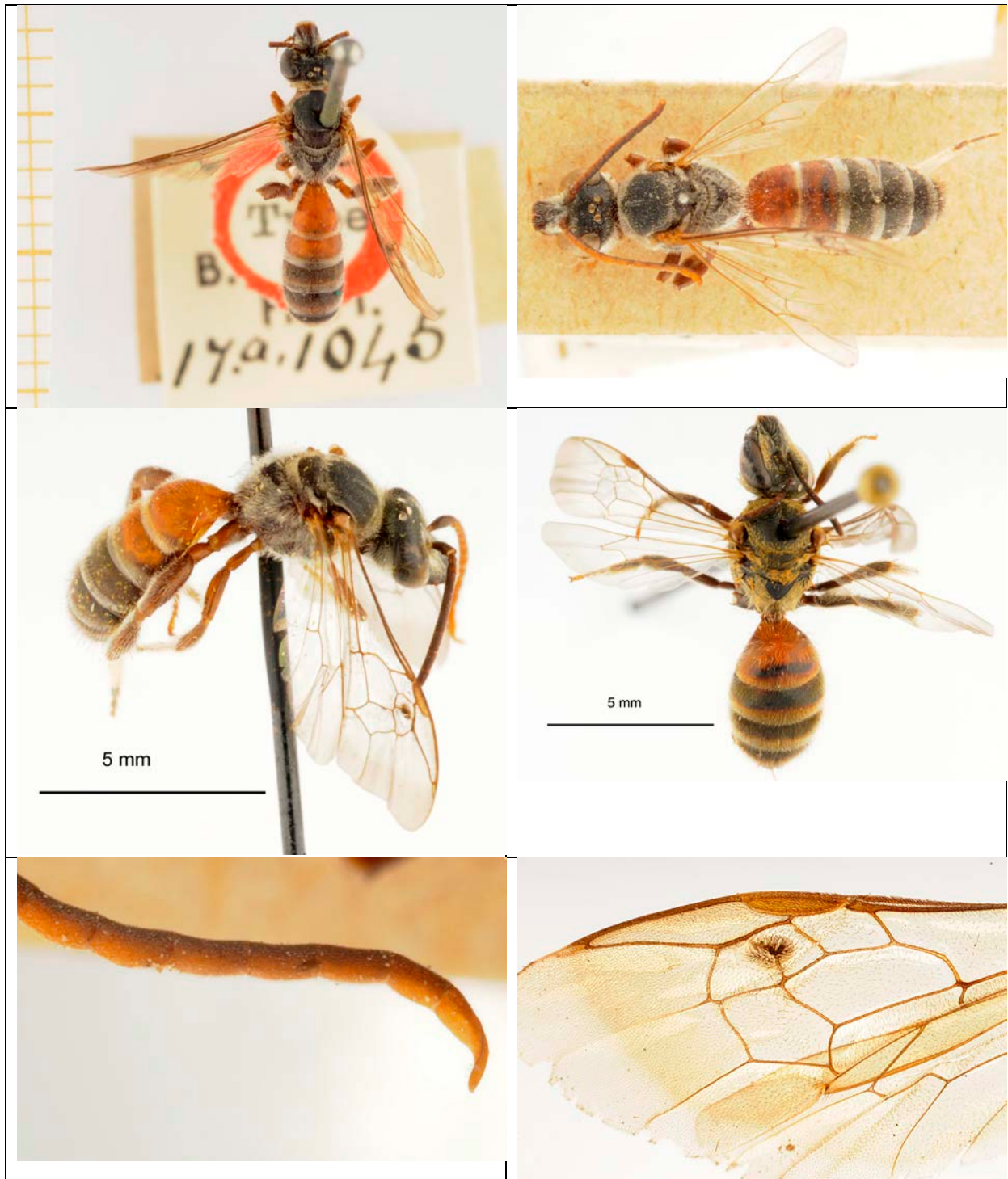


Fig. 45. *Thrinchostoma petersi*, male ; a, holotype *T. petersi* in BMNH; b, holotype *T. rubrocinctum* in MNHNP ; c-d, male and female specimens from Burkina-Faso ; e, antenna and wing of the male holotype of *T. rubrocinctum*.



Fig. 46. *Thrinchostoma petersi*, male holotype in BMNH.



Fig. 47. *Thrinchostoma petersi*, female (Burkina-Faso).



Fig. 48. *Thrinchostoma wissmanni*, male holotype in RMCA (syn of *T. petersi*).

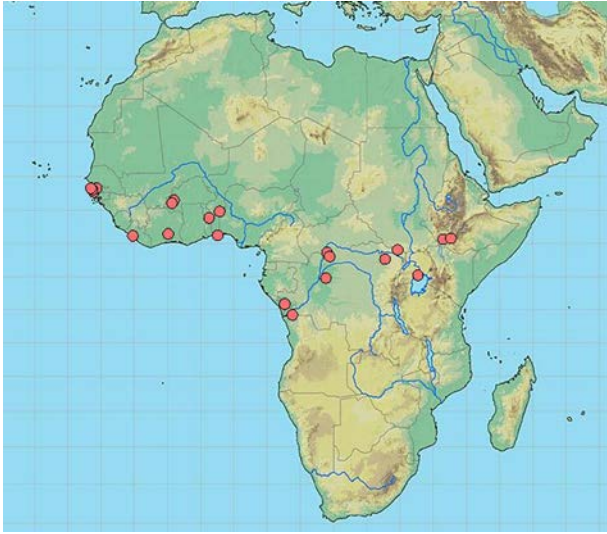


Fig. 49. Distribution map of *Thrinchostoma petersi*



Fig. 50. *Thrinchostoma productum* ; a, female holotype in BMNH (Sierra Leone); b-c, female lectotype *T. vachali* in MNHNP (Gabon); d, male, collected in copula (Gabon) ; e-f, male antenna (Gabon).



Fig. 51. *Thrinchostoma productum*, male (Gabon : Ntoum).



Fig. 52. *Thrinchostoma productum*, female holotype in BMNH.



Fig. 53. *Thrinchostoma vachali*, female lectotype in MNHNP (= *T. productum*).



Fig. 54. *Thrinchostoma bequaerti* var *ochropus*, male holotype in RMCA (= *T. productum*).

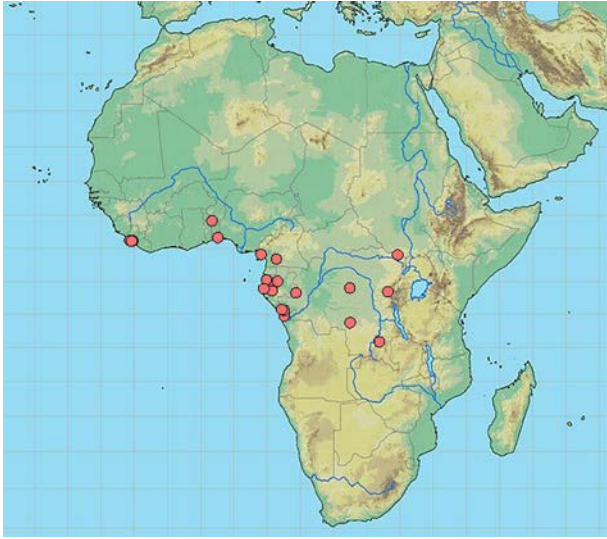


Fig. 55. Distribution map of *Thrinchostoma productum*



Fig. 56. *Thrinchostoma sjostedti*, male lectotype and female paratype in NHRS.



Fig. 57. *Thrinostoma sjostedti*; a-b, paratypes in MNHUB; c-d, male and female (Ethiopia); e, male var. *rufescens* (Cameroon: Fundong);



Fig. 58. *Thrinchostoma sjostedti*, male paratype in MNHUB.



Fig. 59. *Thrinchostoma sjostedti* ; a-d, female paratype in MNHUB ; e, tergum 1 (Ethiopia).



Fig. 60. Female holotype of *Thrinchostoma mwanagai* in BMNH (? syn. of *T. sjostedti*)



Fig. 61. Female holotype of *Thrinchostoma ugandae* in BMNH (? syn. of *T. sjostedti*)

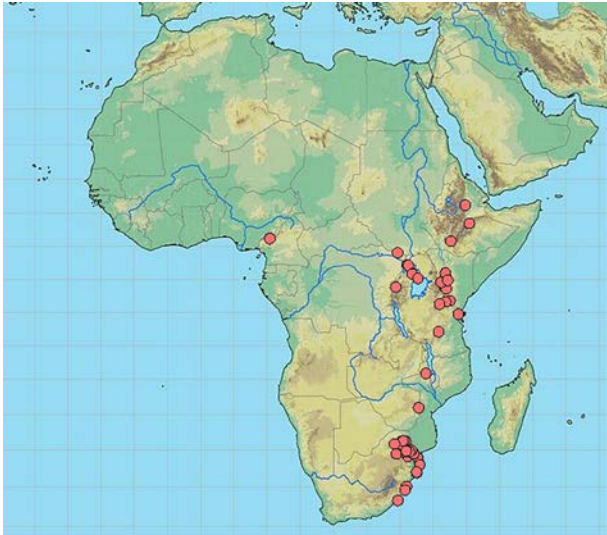


Fig. 62. Distribution map of *Thrinchostoma sjostedti*



Fig. 63. *Thrinchostoma uluguruensis*, male holotype in MRACT; a-b, lateral and dorsal habitus ; genitalia dorsal and ventral view.

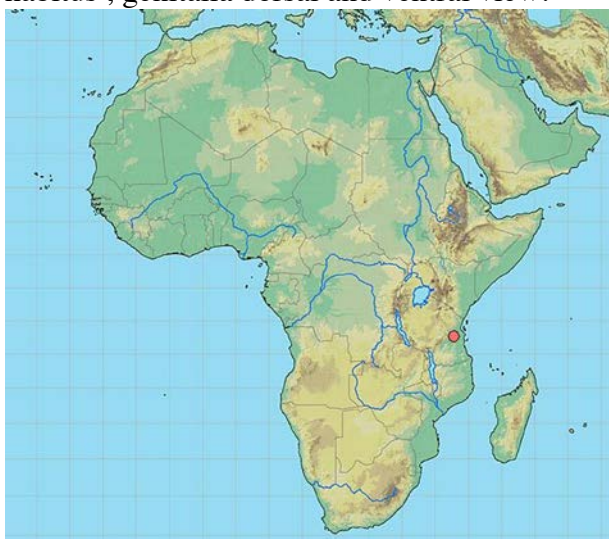


Fig. 64. Distribution map of *Thrinchostoma uluguruensis*



Fig. 65. *Thrinchostoma uluguruensis*, male holotype in MRACT.

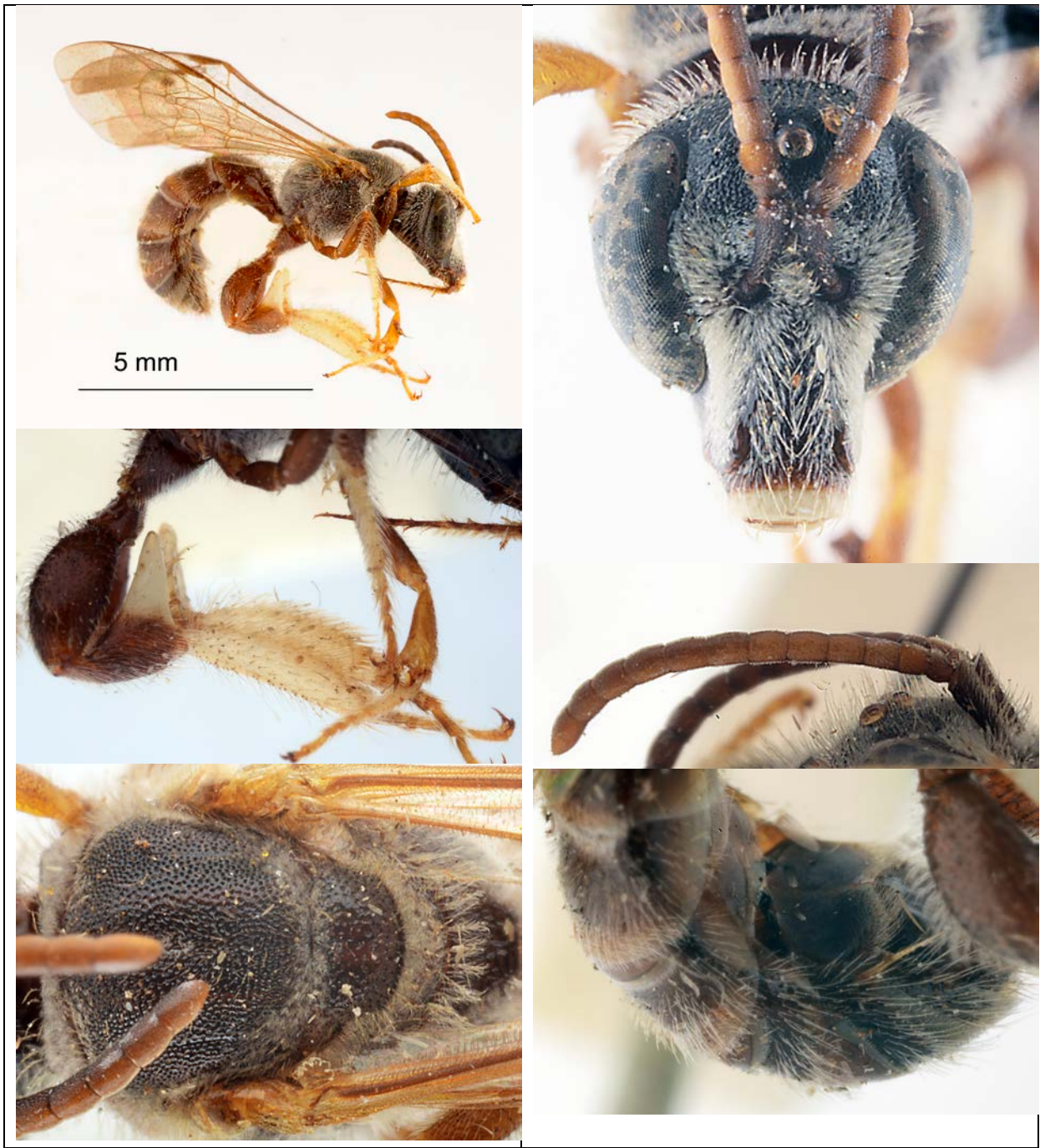


Fig. 66. *Thrinchostoma upembensis*, male holotype in MRACT.

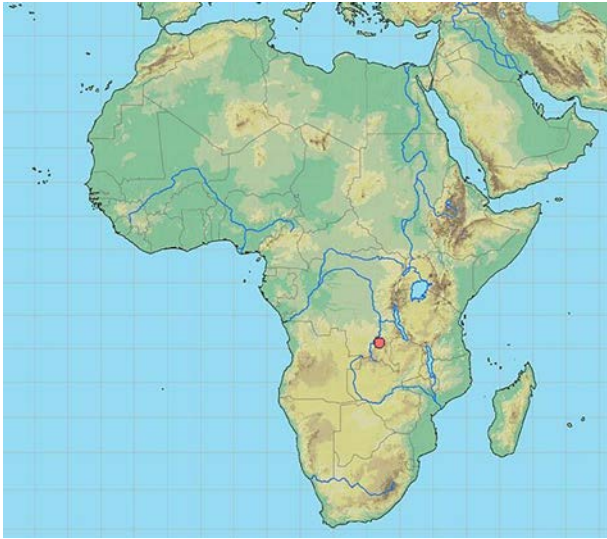


Fig. 67. Distribution map of *Thrinchostoma upembensis*

aa



Fig. 68. A, *Thrinchestoma nachtigali*, female, on *Turnera subulata* (Turneraceae) ;
B, *Thrinchestoma kandti*, male, on *Cuphea_hyssopifolia* (Lythraceae) (both (c) Nicolas Vereecken).