**Typhonoya gen. nov. and Weberolega gen. nov. - two new genera for African *Gastropacha OCHSENHEIMER, 1810* (Lepidoptera, Lasiocampidae)**

by **ALEXEY M. PROZOROV**

received 12.XII.2010

**Abstract:** African species of *Gastropacha OCHSENHEIMER, 1810*, are revised. Taxon *Estigena MOORE, [1860] 1858-1859 stat. rev.* is proposed again in original status of a separate genus. The species african*a HOLLAND, 1893* and silvestris STRAND, 1918 are considered within *Estigena*, containing now 13 species. Two new genera are established: *Weberolega gen. nov.* with the type-species *Tauscheria weberi TAMS, 1929* and *Typhonoya gen. nov.* with the type-species *Estigena longipennis HERING, 1941*; for both species the ♀♂ are described for the first time. Distributional maps and typical specimens for each species are pictured.


**Introduction:** The present article is devoted to the taxonomy of African moths traditionally considered within *Gastropacha OCHSENHEIMER, 1810* or subordinated genera. Totally 5 species of the complex are known from Africa (in original combinations given):

- *Estigena africana HOLLAND, 1893*
- *Estigena silvestris STRAND, 1918*
- *Estigena longipennis HERING, 1941*
- *Tauscheria muscovit BRYK, 1915*
- *Tauscheria weberi TAMS, 1929*

It was not suspected to happen, but during the study of the type-specimens, polyphyly of the complex was found. This situation becomes more complex because in all special literature published after 1930, *T. muscovit* BRYK is treated as a synonym of *E. africana HOLLAND*, and the genus *Tauscheria BRYK, 1915* as synonym of *Estigena MOORE, [1860] 1858-1859* (*AURIVILLIUS, [1930]; TAMS, 1935; COLLIER, 1936*). Moreover, *Estigena MOORE* is treated as a synonym of *Gastropacha OCHSENHEIMER, 1810* recently and the epithet "Estigena" is using to join a small species-group. Thus, some questions are arised:

- how the genus *Tauscheria BRYK* is related to the *Estigena MOORE*;
- how the African moths are related to the Oriental *Estigena MOORE*;
- what's a real systematic position for *Estigena MOORE* between related *Gastropacha OCHSENHEIMER, 1810* and *Stenophylloides HAMPSHON,*[1893] 1892? The answers are given below in 'Results'.

**Materials and methods:** All photos for the article were made by *VADIM V. ZOLOTUHIN* (Ulyanovsk, Russia). Necessary type-specimens storing in The Natural History Museum, Carnegie Museum of Natural History, Riksmusæet Stockholm, and Royal Museum for Central Africa were used for the study. Their genitalia were also studied except for *E. africana HOLLAND* and *T. weberi TAMS*. The material of all museum and private collections was investigated and is stipulated. The following abbreviations are used for the museum and private collections in the text:

- **CMNH:** Carnegie Museum of Natural History (Pittsburgh, PA, U.S.A.),
- **CMS:** private collection of MANFRED STROHLE (Germany),
- **CRM:** private collection of RAYMOND J. MURPHY (Malawi),
- **CSP:** private collection of SERGEY N. PUGAEV (Russia),
- **CVZ:** private collection of VADIM V. ZOLOTUHIN (Russia),
- **MCL:** Musée des Confluences (Lyon, France),
- **MHNG:** Museum d'histoire naturelle (Geneve, Switzerland),
- **MNNH:** Muséum national d'Histoire naturelle (Paris, France),
- **MMW:** Entomological Museum of THOMAS J. WITT (Munich, Germany),
- **NRM:** The Natural History Museum (London, Great Britain),
- **NMK:** National Museum (Nairobi, Kenya),
- **RMCA:** Royal Museum for Central Africa (Tervuren, Belgium),
- **RMS:** Riksmusæet (Stockholm, Sweden),
- **ZMZH:** Zoologisches Museum der Humboldt Universität (Berlin, Germany),
- **ZSM:** Zoologische Staatssammlung (Munich, Germany).

All illustrations for the article were prepared by the author using Adobe Photoshop CS, some photos of the moths were modified for better perception.

**Results**

**Relationships between Tauscheria muscovit BRYK, 1915 and Estigena africana HOLLAND, 1893:**

The genus *Tauscheria BRYK* is treated as a synonym of *Estigena HOLLAND*, because *T. muscovit* BRYK (the type-species of the genus) is synonymised with *E. africana HOLLAND* (*AURIVILLIUS, [1930]: 212*). Accuracy of this hypothesis is doubtful, because *AURIVILLIUS* was guided only by external characters of the moths, and only since 1935 the ♀♂ genitalia have been used in the lasiocampid
Relationships of the Oriental and African Estigena species: Traditionally the genus Estigena Moore joins the species of Oriental region, with the type-species Megasoma pardale Walker, 1855, described after G. from Java (syntypes in NHM). It is needed to compare genitalia of African taxa with those of P. pardale WLK. to understand their relationship. 

The genitalia of M. pardale WLK. is characterised by a pair of short tergal processes, bifurcate valvae, clavate saccus with dentate surface, bilobed juxta, tubular aedeagus, elongated vesica with basal and terminal clusters of needle-shaped cornuti. 

The genitalia of E. africana HOLLAND has certainly the same "gastropachoid" shape and differs only by sacculus without additional structures and much longer vesica with two basal and one terminal clusters of cornuti connected with a stretched row of single cornuti coming from top downwards. Shape of vesica therefore is similar to E. xenepates (TAMS) and E. leopoldi (TAMS) but differs in two, not a single, basal cluster of cornuti, known in some Stenophylloides HAMPSON, [1893] 1892: clathrata BRYK, 1948, insularis ZOLOTUHIN, 2005 (see ZOLOTUHIN, 2005). 

Thus, E. africana HOLLAND belongs doubtless to Estigena MOORE. Therefore Tauscheria BRYK, 1915 syn. nov. is synonymised with Estigena MOORE, [1860] 1858-1859.

Estigena silvestris STRAND was described after a specimen from D.R.C., and no specimen was matched so far, also during preparation of the present revision. The genitalia of a typical E. silvestris STRAND specimen was strongly damaged (pers. comm. of VADIM Z. ZOLOTUHIN) and additionally were fallen to pieces under preparation. The shape of vaginal plates is practically identical to E. africana HOLLAND, but narrow spiral (2 turns) ductus bursae differs the species clearly. Therefore silvestris STRAND also belongs to Estigena MOORE.

Estigena silvestris STRAND, 1918 inhabits the African continent and its phenotype and genitalia are similar to those of the Oriental taxa. It is supposed that in the Pleistocene ancestor penetrated into Africa through forests of Asia Minor and Saudi Arabia and formed the separated African population (later separated because of the aridization) beyond the Oriental range. It is possible to say, the African Estigena is an invader and not a native component of the African biota.

Two other species, considered always within Gastroptacha - weberi TAMS, 1929 and longipennis HERING, 1941 - differ from other Estigena species and are considered in a special part below.

Taxonomical position of Estigena MOORE, [1860] 1858-1859: Estigena MOORE was originally established as a separate genus, with the type-species Megasoma pardale Walker, 1855, from Java. The genus was treated close to the Gastroptacha OCHSENHEIMER, 1810 and TAMS (1935: 49) reviewed this status in writing: "I find no sound reason for treating the genera Estigena MOORE, Stenophylloides HAMPSON, and Tauscheria BRYK as separate groups, as species which I list here under Gastroptacha appear to me to form a homogenous group...". YES DE LAJONQUERE (1976: 151) followed TAMS, but he added: "...l'analogie des armures génitales des différentes espèces, autrefois disperses dans ces genres, est frappante et doit certainement l'empêcher de leur conférer un statut distinct..." and also that "...incite HAMPSON à crées le genre Stenophylloides...". ZOLOTUHIN (2005: 291) gave in the revision of the subgenus Stenophylloides HAMPSON, [1893] 1892 more important character for taxonomy: saccular part of valva is absent in c genitalia. Constant characters differing c genitalia of Estigena MOORE and Gastroptacha OCHSENHEIMER were not found so far. Completely Estigena MOORE may be diagnosed by the following characters:

- Middle-sized moths with narrow fore wings, with anal part of hind wings rather protruded;
- Outer margin of wings is smooth to convex but never serrate or dentate;
- Pattern of wings rarely reduced; yellow costal spot on the hind wing of males is distinct; dark "noise" on both wings is often typical;
- 2-5 windows on hind wings of males are characteristic for many species;
- Bilobed valvae;
- Vesica of varying length according to a species; one or two clusters of cornuti in base and one cluster on top, also may be stretched range of numerous cornuti from top to base.

The most important characters are narrow wings with outer margin smooth, costal spot and characteristic dark "noise" on the wings, however species without yellow costal spot are also known: kontinsis TAMS, 1935, minima DE LAJONQUERE, 1979. The characters listed are enough to treat Estigena MOORE at least as a subgenus within Gastroptacha OCHSENHEIMER, but DNA analysis gives more information. In the study undertaken in the Biodiversity Institute of Ontario, Guelph (see www.boldsystems.org) under the project LBEOW, the DNA sequence was investigated for some Oriental Gastroptacha OCHSENHEIMER and Estigena MOORE and for longipennis HERING (see phylogram, number of sequences in LBEOW-project shown in brackets). The evolutionary history was inferred using the Maximum Parsimony method. The bootstrap consensus tree inferred from 10000 replicates is taken to represent the evolutionary history of the taxa analyzed. Branches corresponding to partitions reproduced in less than 50% bootstrap replicates are collapsed. There were a total of 590 positions in the final dataset, out of which 126 were parsimony informative. Phylogenetic analyses were conducted in MEGA4 (TAMURA, DUDLEY, NEI & KUMAR, 2007). 

Thus, three branches with different roots are clearly visible, one of them joins the Estigena MOORE species, the other - Gastroptacha OCHSENHEIMER and its subgenus Stenophylloides HAMPSON, and the third - longipennis HERING. That means that Estigena MOORE, Gastroptacha OCHSENHEIMER (with Stenophylloides HAMPSON and Typhonoya longipennis (HERING) are distinct genera. This result may be surely partly mistaken because only 658 nucleotide pairs were used for analysis, but the study of smaller tissue samples undertaken in the Saratov State University for 1200 bp shown very similar results (unpublished).
Therefore, the status of *Estigena* Moore, [1860] 1858-1859 stat. rev. is re-established here again. The following species are included (without known subspecies given):

- **africaena** Holland, 1893
- **caecarea** (Zolotuhin & Witt, 2005) comb. nov.
- **encastia** (Hampon, 1900) comb. nov.
- **konientis** (TAMS, 1935) comb. nov.
- **leopoldi** (TAMS, 1935) comb. nov.
- **minna** (DE Laronquere, 1979) comb. nov.
- **pardale** (Walker, 1855),
- **plelengata** (Zolotuhin & Holloway, 2006) comb. nov.
- **philippinensis** (TAMS, 1935) comb. nov.
- **prionophora** (TAMS, 1935) comb. nov.
- **silvestris Strando, 1918**
- **willemani** (TAMS, 1935) comb. nov.
- **xenapates** (TAMS, 1935) comb. nov.

At present *Estigena* Moore includes 13 species, two of them inhabiting Africa. The African taxa can be considered in detail now.


= *Tauscheria* Bryk, 1915, Arch. Nat. 81 (A) 4: 3. Type-species: *Tauscheria muscovit* Bryk, 1915, Arch. Nat. 81 (A) 4: 3, by original designation. Synonymy was established by *Aubrilvillius* ([1930] 1927: 212).

**Diagnosis:** Wingspan 32-46 mm in < and 45-68 in < (Zolotuhin, 2009: 79), fore wing length 20-23 mm and 23-34 mm respectively. Outer margin of both wings smooth not dentate. Species mostly cannot be identified after external characters (*Zolotuhin, 2009: 79*). Ground colour varies from light-brown to dark reddish-brown with dark “noise”. Wings pattern may be reduced. Two medial fasciae crenulated, submarginal fascia blurred, dark discal dot on the fore wings present; medial fascia crenulated; in the hind wings, Outer margin of both wings smooth, not dentate. Vaginal plates distinct, without relief. Anthrum cup-shaped, distinct. Ductus bursae large, strongly sclerotized, spiral-shaped (1 turn).

**Biology:** Larvae are polyphagous, Oriental species mostly on arboreal Rosaceae and Fabaceae (*Zolotuhin, 2009: 79*).

**Distribution:** Southern part of Eastern Palearctic, Indo-Malaysian region, Sunda Islands and Afro-tropical region.

**An annotated list of species**

*Estigena pandale* (Walker, 1855) (col. pl. 1: 9, 10)


**Diagnosis:** Wingspan 39-43 mm in < and 59-61 in <, fore wing length 21-23 mm and 30-33 mm correspondingly. Externally not diagnosed, ^ genitalia (fig. 1). Saccus clavate and dentate. Vesica elongated; one cluster in the base and one terminal brush of cornuti. ^ genitalia (fig. 10): Ostium large, ovoid. Ductus bursae large, strongly sclerotized, spiral-shaped (1 turn).
**Biology:** The species flies through the year and develops several generations; it is known from altitude of 130-2240 m. Different species from Anacardiaceae, Apocynaceae, Fabaceae, Lamiaceae, Malvaceae, Melastomataceae, Phaseoleae, Phyllanthaceae, Rosaceae, Sapindaceae, Theaceae are hosts for larvae.

**Distribution:** Pakistan, India (also southern), Nepal, southern China (Yunnan, Guangdong, Fujian), Thailand, Vietnam, Philippines, Malaysia, Java, Sumatra (Zoologia 2009: 80).


**Estiigena africana** Holland, 1893 (col. pl. 1: 1-7)

Psyche 6: 490, pi. 18: 17. Type-locality: [Gabon, valley of Ogooué river] Ogové. Holotype ♀ (by monotypy) (CMNH) [after colour photo examined].

**Diagnosis:** Wingspan 27-44 mm in ♂♂ and 47-56 mm in ♀♀, fore wing length 20-23 mm and 25-29 mm respectively. Ground colour varies from light-brown to dark-brown with dark "noise". Yellow costal spot with 2-5 windows on the hind wings of both sexes. Externally the type-specimens of *E. africana* Holland and *T. muscovi* Bryk slightly different: wings pattern of *T. muscovi* Bryk reduced outer margin of hind wing not so strongly concave. Totally three types of wing colouration (of fore wings especially) were found: probably they are depended on the market position (olive, light and dark green) of the place. The first type (col. pl. 1: 4) is the west population (Senegal, Ivory Coast, Gana, Togo, Nigeria, and R.S.A.); brown with usually pronounced yellow pattern. The second (col. pl. 1: 2, 3, 6, 7) is the population of Central Africa (Ivory Coast, Cameroon, Sudan, Gabon, Congo, D.R.C., and Tanzania): reddish-brown without yellow pattern. And the third (col. pl. 1: 1, 5) is the south population (Zambia, Zimbabwe): reddish-yellow without yellow pattern, dark "noise" may be reduced. ♀ genitalia (figs 2-7): saccular part of valvae simple, smooth and ovoid without some additional structure. Two clusters of cornuti in the base of vesica; special bag-shaped knob is distinct basally for better fixation in ♀♂ ductus bursae. ♀ genitalia (figs 9, 11-13): very long ductus bursae often spiraled in 1.0 additional turn and protruded ductus' process for better fixation with ♀♂ eadeus are characteristic.

**Biologie:** Some larvae were found on "...Césalpiniaceae forestière Erythrophleum guineense..." by G. Don. Duration of live-stages: larva - 23-27 days, pupa - 6-10 days (in Vuitoux, 1991: 248). The moths were collected in March-May and July-December between 400-1250 m.

**Distribution:** Senegal, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Nigeria, Cameroon, R.C.A., Sudan, Gabon, Congo, D.R.C., Uganda, Tanzania, Zambia, Zimbabwe.

**Taxonomical remarks:** The ♀♀ specimen of *Estiigena africana* Holland, 1893 from Gabon was not dissected, but ♀♀ from the nearest locations did not show significant variation (fig. 9).

**Material examined** (7♂♂, 17♀♀): Holotype ♀ of *Estiigena africana* Holland, 1893, [Gabon, valley of Ogooué river] Ogové (CMNH); holotype ♀ of *Tauchseria muscovi* Bryk, 1915, [Northern Zimbabwe, Mashonaland] Mashuna. Holotype ♀ (by monotypy) (RMS) [after colour photo examined].

**Diagnosis:** Wingspan 27-44 mm in ♂♂ and 47-56 mm in ♀♀, fore wing length 20-23 mm and 25-29 mm respectively. Ground colour varies from light-brown to dark-brown with dark "noise". Yellow costal spot with 2-5 windows on the hind wings of both sexes. Externally the type-specimens of *E. africana* Holland and *T. muscovi* Bryk slightly different: wings pattern of *T. muscovi* Bryk reduced outer margin of hind wing not so strongly concave. Totally three types of wing colouration (of fore wings especially) were found: probably they are depended on the market position (olive, light and dark green) of the place. The first type (col. pl. 1: 4) is the west population (Senegal, Ivory Coast, Gana, Togo, Nigeria, and R.S.A.); brown with usually pronounced yellow pattern. The second (col. pl. 1: 2, 3, 6, 7) is the population of Central Africa (Ivory Coast, Cameroon, Sudan, Gabon, Congo, D.R.C., and Tanzania): reddish-brown without yellow pattern. And the third (col. pl. 1: 1, 5) is the south population (Zambia, Zimbabwe): reddish-yellow without yellow pattern, dark "noise" may be reduced. ♀ genitalia (figs 2-7): saccular part of valvae simple, smooth and ovoid without some additional structure. Two clusters of cornuti in the base of vesica; special bag-shaped knob is distinct basally for better fixation in ♀♂ ductus bursae. ♀ genitalia (figs 9, 11-13): very long ductus bursae often spiraled in 1.0 additional turn and protruded ductus' process for better fixation with ♀♂ eadeus are characteristic.

**Biologie:** Some larvae were found on "...Césalpiniaceae forestière Erythrophleum guineense..." by G. Don. Duration of live-stages: larva - 23-27 days, pupa - 6-10 days (in Vuitoux, 1991: 248). The moths were collected in March-May and July-December between 400-1250 m.

**Distribution:** Senegal, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Nigeria, Cameroon, R.C.A., Sudan, Gabon, Congo, D.R.C., Uganda, Tanzania, Zambia, Zimbabwe.

**Taxonomical remarks:** The ♀♀ specimen of *Estiigena africana* Holland, 1893 from Gabon was not dissected, but ♀♀ from the nearest locations did not show significant variation (fig. 9).

**Material examined** (7♂♂, 17♀♀): Holotype ♀ of *Estiigena africana* Holland, 1893, [Gabon, valley of Ogooué river] Ogové (CMNH); holotype ♀ of *Tauchseria muscovi* Bryk, 1915, [Northern Zimbabwe, Mashonaland] Mashuna. Holotype ♀ (by monotypy) (RMS) [after colour photo examined].

**Diagnosis:** Wingspan 27-44 mm in ♂♂ and 47-56 mm in ♀♀, fore wing length 20-23 mm and 25-29 mm respectively. Ground colour varies from light-brown to dark-brown with dark "noise". Yellow costal spot with 2-5 windows on the hind wings of both sexes. Externally the type-specimens of *E. africana* Holland and *T. muscovi* Bryk slightly different: wings pattern of *T. muscovi* Bryk reduced outer margin of hind wing not so strongly concave. Totally three types of wing colouration (of fore wings especially) were found: probably they are depended on the market position (olive, light and dark green) of the place. The first type (col. pl. 1: 4) is the west population (Senegal, Ivory Coast, Gana, Togo, Nigeria, and R.S.A.); brown with usually pronounced yellow pattern. The second (col. pl. 1: 2, 3, 6, 7) is the population of Central Africa (Ivory Coast, Cameroon, Sudan, Gabon, Congo, D.R.C., and Tanzania): reddish-brown without yellow pattern. And the third (col. pl. 1: 1, 5) is the south population (Zambia, Zimbabwe): reddish-yellow without yellow pattern, dark "noise" may be reduced. ♀ genitalia (figs 2-7): saccular part of valvae simple, smooth and ovoid without some additional structure. Two clusters of cornuti in the base of vesica; special bag-shaped knob is distinct basally for better fixation in ♀♂ ductus bursae. ♀ genitalia (figs 9, 11-13): very long ductus bursae often spiraled in 1.0 additional turn and protruded ductus' process for better fixation with ♀♂ eadeus are characteristic.

**Biologie:** Some larvae were found on "...Césalpiniaceae forestière Erythrophleum guineense..." by G. Don. Duration of live-stages: larva - 23-27 days, pupa - 6-10 days (in Vuitoux, 1991: 248). The moths were collected in March-May and July-December between 400-1250 m.

**Distribution:** Senegal, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Nigeria, Cameroon, R.C.A., Sudan, Gabon, Congo, D.R.C., Uganda, Tanzania, Zambia, Zimbabwe.

**Taxonomical remarks:** The ♀♀ specimen of *Estiigena africana* Holland, 1893 from Gabon was not dissected, but ♀♀ from the nearest locations did not show significant variation (fig. 9).
Hind wings without yellow spot and windows. > genitalia (fig. 14) may be diagnosed by spiral-shaped (2 turns) ductus.

**Biology:** Male, early stages and host plants are still unknown.

**Distribution:** D.R.C.

**Taxonomical remarks:** > of this species should be characterized by long spiral-shaped vesica.

**Material examined:** Holotype >, Kongostaat, Kassaufuss (NHM, GU Lasio 1547).

**Weberolegra gen. nov.**


**Description:** Moderately sized > to large (> ) moths with robust body and short wings, with “gastropachoid”-like external and distinct sexual dimorphism is size. Wingspan 35-42 mm in > and 57-61 mm in >, the fore wing length 18-22 and 32-34 mm respectively. Outer margin of the fore wing is diagonally straight and angled on A1; the hind wing margin waved weakly (especially in >). Wing ground colour is yellowish-brown with dark brown veins, wing patterning is dark brown; in > the ground colour of the fore wings is darker. Fore wings with brown median fasciae, the antemedian one is straight, the postmedian one is strongly curved, with crenulated lower part, and the submarginal fascia is blurred and merges with dark brown external field; R-Cu cell with vertical streake. Hind wings with a dark streake in R-Cu, a brown crenulated postmedian fascia and light brown external field with submarginal fascia crenulated; humeral cells with spotted “gastropachoid” pattern. > genitalia (figs 15-16): uncus and gnathos are absent. Tegumen is modified, weakly covered with distinct ciliae and bears large V-shaped apical process. Valvae bilobed; cucculus part is short, hook-shaped, saccular part bilobed on the upper elongate C-shaped and apically rounded lobe covered with elastic ciliae on inner margin, and on the lower triangular processes. Juxta small, reduced and fused with ventral part of aedeagus base and cucculi. Saccus reduced. Aedeagus tubular, C-shaped, without additional process and basal apodemes. Vesica small, bag-shaped, without cornuti. Sternum VIII with distinct latero-apical processes. Tergum VIII mostly de-sclerotised. Ductus is very short and wide; corpus bursae wide, weakly sclerotized, bag-shaped without signa.

**Diagnosis:** The genus may be diagnosed by the following characters:

- Fore wing is gramophone-tube-like with wide external margin;
- tegumen with V-shaped apical process;
- valvae bilobed;
- sacculus bilobed;
- sternum VIII with distinct latero-apical processes;
- ductus very short.

**Distribution:** Ivory Coast, Liberia, Cameroon, Gabon, D.R.C.

**Etymology:** The genus name is devoted to H. L. Weber - famous collector, joined with modified Latin 'lego' means 'collected'.

**Weberolegra gen. nov. weberi** (Tams, 1929) comb. nov. (col. pl. 1: 15-18)


**Diagnosis:** The species may be diagnosed by the gramophone-like fore wings with smooth external margin, contrast yellowish-brown pattern, spotted “gastropachoid” pattern in humeral cells. In > genitalia valvae bifurcated, cucculus bilobed, aedeagus C-shaped and specific-shaped. Ostium chink-like. Ductus short, saccus reduced. Aedeagus tubular, C-shaped, without modifications. Vesica bag-shaped with one large hook-like cornutus. Sternum VIII with distinct latero-apical processes. Tergum VIII mostly de-sclerotised. Ductus is very short and wide; corpus bursae wide, weakly sclerotized, bag-shaped without signa.

**Typhonoma gen. nov.**


**Diagnosis:** The genus may be diagnosed by the following characters:
Etymology:
• anal zone protruded on hind wing;

Estigena longipennis (HERING, 1941) comb. nov. (col. pl. 1: 11-14)

Diagnosis:
• ostium chink-like.

Distribution:
• ostium chink-like.

Diagnosis:
• ostium chink-like.

Distribution:
• ostium chink-like.

Diagnosis:
• ostium chink-like.

Distribution:
• ostium chink-like.

Acknowledgements:
I'm thankful to VADIM Z. ZLOTUHIN (State Pedagogical University of Ulyanovsk, Russia) for his scientific support, in reading this paper and corrections, for help in obtaining the digital images of adults, support in examination of type material from different museums and other museums mentioned in the paper. Also I'm thankful to the late GEORGES BERNARDI (MNHN), JOEL CLARY (MCL), UGO DALL'ASTA (RMCA), BERT GUSTAFSSON (RMS), AXEL HAUSMANN (ZSM), MARTIN HONEY (NHM), LARS KÜHNE (Potsdam, Germany), BERNARD LANDRY (MHNG), BERNHARD MERZ (MHNG), JOEL MINET (MNHN), RAYMOND J. MURPHY (Malawi), JOHN RAWLINS (CMNH), and THOMAS J. WITT (MWM) for help in different ways during the preparation of this paper. I'm thankful to GEOFF MARTIN (NHM) for permission to publish material from the Natural History Museum. I'm thankful to the Canadian Centre for DNA Barcoding and especially to RODOLPHE ROUGIERE (Biodiversity Institute of Ontario, Guelph, Canada) for permission to publish results of DNA analysis of the project LBEOW under curation of the Canadian Centre for DNA Barcoding and especially to

References


Figs 1-7: ♂ genitalia (aedeagi extracted, vesica enverted).
Figs 8-14: ♀ genitalia.

8. africana Zambia

9. africana Congo

10. pardale Vietnam

11. africana Nigeria

12. africana Ghana

13. africana [HT of muscovit] Zambia

14. silvestris HT, D.R.C.


14: *Estigena silvestris* STRAND, 1918, holotype, Kongostaat, Kassafluß (NHM, GU Lasio 1547).

Figs 15-18: ♂♂ and ♀♀ genitalia.
17: *'Opisthodonita' cardinalli* TAMS, 1926, ♂, Ivory Coast, Ferke, 12.X.[19]82, leg. Dr. POLITZAR (ZSM, GU LAS-10-002).
<table>
<thead>
<tr>
<th>Image</th>
<th>Country</th>
<th>Location Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. africana ♀</td>
<td>Zambia</td>
<td></td>
</tr>
<tr>
<td>2. africana ♀</td>
<td>Cameroon</td>
<td></td>
</tr>
<tr>
<td>3. africana ♀</td>
<td>Congo</td>
<td></td>
</tr>
<tr>
<td>4. africana ♀</td>
<td>Ivory Coast</td>
<td></td>
</tr>
<tr>
<td>5. africana ♀</td>
<td>[HT of muscovit] Zimbabwe</td>
<td></td>
</tr>
<tr>
<td>6. africana ♀</td>
<td>HT, Gabon</td>
<td></td>
</tr>
<tr>
<td>7. africana ♀</td>
<td>Congo</td>
<td></td>
</tr>
<tr>
<td>8. silvestris ♀</td>
<td>HT, D.R.C.</td>
<td></td>
</tr>
<tr>
<td>9. pardale ♀</td>
<td>Nepal</td>
<td></td>
</tr>
<tr>
<td>10. pardale ♀</td>
<td>India</td>
<td></td>
</tr>
<tr>
<td>11. longipennis ♀</td>
<td>HT, D.R.C.</td>
<td></td>
</tr>
<tr>
<td>12. longipennis ♀</td>
<td>Kenya</td>
<td></td>
</tr>
<tr>
<td>13. longipennis ♀</td>
<td>Liberia</td>
<td></td>
</tr>
<tr>
<td>14. longipennis ♀</td>
<td>Zimbabwe</td>
<td></td>
</tr>
<tr>
<td>15. weberi ♀</td>
<td>Gabon</td>
<td></td>
</tr>
<tr>
<td>16. weberi ♀</td>
<td>HT, Cameroon</td>
<td></td>
</tr>
<tr>
<td>17. weberi ♀</td>
<td>D.R.C.</td>
<td></td>
</tr>
<tr>
<td>18. weberi ♀</td>
<td>D.R.C.</td>
<td></td>
</tr>
</tbody>
</table>


8: *Estigena silvestris* STRAND, 1918, holotype ♀, Kongostaat, Kassaifluss (NHM, GU Lasio 1547).

9, 10: *Estigena pardale* (WALKER, 1855): (9) ♀, East-Nepal, Milke Danda, Nesum, 1500 m, 21.VIII.2000, leg. CSVARI & HEBRILAY (MWM), (10) ♀, NE India, Assam, Kaziranga, Wild Life res, Pan Bari, 26°45' N, 93°10' E, 100 m, 12.-21.XI.[19]97, leg. SINAIEV (MWM).
