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ON THE FAUNA OF THE PLUME MOTHS (LEPIDOPTERA, PTEROPHORIDAE) OF ETHIOPIA

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[Устюжанин П.Я., Ковтунович В.Н., Горбунов О.Г., Кемаль А. К фауне пальцекрылок (Lepidoptera, Pterophoridae) Эфиопии]
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Key words: *plume moths, Lepidoptera, Pterophoridae, Ethiopia, new species*

Ключевые слова: *пальцекрылки, Lepidoptera, Pterophoridae, Эфиопия, новые виды*

Summary. The list of species of the plume moths (Lepidoptera, Pterophoridae) of Ethiopia is presented. Seven more species are added to the known fauna. Two new species: *Hellinsia ambo* Ustjuzhanin & Kovtunovich, **sp. nov.** and *Cosmoclostis gorbunovi* Ustjuzhanin & Kovtunovich, **sp. nov.** are described and illustrated.

Резюме. Представлен список видов пальцекрылок (Lepidoptera, Pterophoridae) Эфиопии. К ранее известной фауне добавлены еще семь видов. Описаны два новых вида – *Hellinsia ambo* Ustjuzhanin & Kovtunovich, **sp. nov.** и *Cosmoclostis gorbunovi* Ustjuzhanin & Kovtunovich, **sp. nov.**

INTRODUCTION

The first information on the fauna of the plume moths (Lepidoptera, Pterophoridae) of Ethiopia have been published by E. Meyrick [Meyrick, 1932] based on the collection of an expedition to Abyssinia in 1926-27. In this work he described the following five species of Pterophoridae: *Platyptilia daemonica* Meyrick, 1932, *P. implacata* Meyrick, 1932, *P. amblydectis* Meyrick, 1932, *Stenoptilia tyropiesta* Meyrick, 1932, and *Paracapperia esuriens* (Meyrick, 1932). Later *Platyptilia amblydectis* Meyrick, 1932 turned out to be a junior synonym of *Oxyptilus direptalis* Walker, 1864 [Gielis, 2003]. In 1963 H. Amsel published a work on Microlepidoptera of Ethiopia [Amsel, 1963], where described two more species of the plume moths, namely *Hellinsia aethiopica* (Amsel, 1963) and *Pteroporus lindneri* (Amsel, 1963). 20 years later, P. Rougeot described a new species, *Hellinsia bigoti* (Rougeot, 1983), from Ethiopia [Rougeot, 1983]. Finally, in 1994 Ch. Gibeaux published a special work dealing with Pterophoridae of Ethiopia [Gibeaux, 1994], listing 14 species from which the following four species have been described as new for science: *Platyptilia gondarensis* Gibeaux, 1994, *Stenoptilia aethiopica* Gibeaux, 1994, *Stenoptilia rougeoti* Gibeaux, 1994, and *Oidaematophorus negus* Gibeaux, 1994. In the present paper we add seven species to the fauna of the plume moths of Ethiopia, including two new species, *Hellinsia ambo* Ustjuzhanin & Kovtunovich, sp. n. and *Cosmoclostis gorbunovi* Ustjuzhanin & Kovtunovich, sp. n.

MATERIAL AND METHODS

This is the first publication of rather abundant material on Lepidoptera collected by Dr. Oleg G. Gorbunov in Ethiopia as a member of Joint Ethio-Russian Biological Expedition in autumn 2008 and 2009. The specimens of the plume and other moths were mainly collected using mercury vapor balbs 160 W E27 Philips at the Ambo Plant Protection Research Center, which is situated ca. 2 km S of the centre of the town Ambo, or about 120 km W of Addis Ababa (ca. 08°58' N, 037°51' E), at altitude of about 2150 m a.s.l.

The area of the Center is about 1 km^2, about a half of which is using for studying of agricultural crops. The remaining part of it is covered by savanna with some *Acacia abyssinica* and semi-deciduous forest with different bushes and trees (col. pl. IV: *1, 2*).

All specimens examined and cited herein are kept in the following collections abbreviated in the text as follows: BMNH: The Natural History Museum [formerly British Museum (Natural History)], London, Great Britain.

CUK – Collection of P. Ustjuzhanin and V. Kovtunovich (Novosibirsk, Moscow, Russia).

PPRC: The Ambo Plant Protection Research Center, Ambo, Ethiopia.

TAXONOMIC PART

Subfamily **Agdistinae** Tutt, 1907

Genus ***Agdistis*** Hübner, 1825 [“1825“]

1. ***Agdistis malitiosa*** Meyrick, 1909

Agdistis malitiosa Meyrick, 1909: 4. Type locality: S. Africa, Pretoria.

Distribution. This species is known from Congo, Uganda, Kenya, Tanzania, RSA, and Ethiopia.

Notes. This is the first record for Ethiopia.

Material examined. 1♂, Ethiopia, West Shewa, Huleta, 2160 m, 09°04' N, 038°41' E, 14.11.2009, O. Gorbunov leg. (CUK); 1♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 28-29.09.2008, O. Gorbunov leg. (CUK); 1♂, same locality, 2-3.11.2008, O. Gorbunov leg. (CUK); 1♀, same locality, 13-14.10.2009, O. Gorbunov leg. (CUK); 1♂, same locality, 23.10.2009, O. Gorbunov leg. (CUK); 1 ♂, same locality, 27-28.10.2009, O. Gorbunov leg. (CUK).

Subfamily **Platyptilinae** Tutt, 1906

Genus ***Platyptilia*** Hübner, 1825 ["1816"]

2. ***Platyptilia gondarensis*** Gibeaux, 1994
Platyptilia gondarensis Gibeaux, 1994: 424. Type locality: Ethiopia.
Distribution. Known from the Ethiopia only.
Material examined. 1♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 12-13.11.2009, O. Gorbunov leg. (CUK).

Genus ***Stenoptilodes*** Zimmerman, 1958

3. ***Stenoptilodes taprobanes*** (Felder & Rogenhofer, 1875)
Amblyptilia taprobanes Felder & Rogenhofer, 1875: Pl. 140, fig. 54. Type locality: Sri Lanca.
= *Platyptilia brachymorpha* Meyrick, 1888: 240. Type locality: India.
= *Platyptilia seeboldi* Hofmann, 1898: 33. Type locality: Syria.
= *Platyptilia terlizzii* Turati, 1926: 67. Type locality: Libya.
= *Amblyptilia zavatterii* Hartig, 1953: 67. Type locality: Italy.
= *Platyptilia legrandi* Bigot, 1962: 86. Type locality: Seychelles.
= *Stenoptilodes vittata* Service, 1966: 11. Type locality: Nigeria.
Distribution. Throughout the Old World subtropics and tropics.
Material examined. 3♂, 2♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 13-18.11.2009, O. Gorbunov leg. (CUK).

Genus ***Stenoptilia*** Hübner, 1825 ["1816"]

4. ***Stenoptilia zophodactyla*** (Duponchel, 1840)
Pterophorus zophodactylus Duponchel, 1840: 668. Type locality: France.
Distribution. Known from Europe, Ethiopia, Kenya, RSA, Madagascar, India, Vietnam, the Philippines, New Zealand, Mexico, Ecuador, Paraguay.
Material examined. 12♂, 12♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 23-29.09.2008, O. Gorbunov leg. (CUK); 14♂, 8♀, same locality, 3-15.10.2008, O. Gorbunov leg. (CUK); 3♂, 4♀, same locality, 19-26.10.2008, O. Gorbunov leg. (CUK); 4♂, 3♀, same locality, 13-18.11.2008, O. Gorbunov leg. (CUK); 1♂, same locality, 11.11.2009, O. Gorbunov leg. (CUK).

Genus ***Amblyptilia*** Hübner, 1825 ["1816"]

5. ***Amblyptilia direptalis*** (Walker, 1864)
Oxyptilus direptalis Walker, 1864: 934. Type locality: S. Africa, Cape Prov.
= *Platyptilia amblydectis* Meyrick, 1932: 108. Type locality: Ethiopia.
Distribution. At present known from Ethiopia and RSA.
Material examined. 1♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 24. 09.2008, O. Gorbunov leg. (CUK); 1♀, same locality, 3.10.2009, O. Gorbunov leg. (CUK).

Genus ***Sphenarches*** Meyrick, 1886

6. ***Sphenarches anisodactylus*** (Walker, 1864)
Oxyptilus anisodactylus Walker, 1864: 934. Type locality: S. Africa.
= *Pterophorus diffusalis* Walker, 1864: 945. Type locality: Australia.
= *Sphenarches synophrys* Meyrick, 1886: 17. Type locality: New Hebrides, Tonga.
= *Megalorhipida rishwani* Makhan, 1994: 353. Type locality: Suriname.
Distribution. Known from Gambia, Guinea, Cote d'Ivoire, Nigeria, Chad, Cameroon, Ethiopia, Kenya, Zaire, Tanzania, Malawi, Swaziland, RSA, Madagascar, Seychelles, Reunion Isl., Brazil, Dominica, Grenada, Panama, Virgin Isl., Bahamas, St. Thomas, Puerto Rico, Peru, Paraguay, Fiji Isl., New Hebrides, Tonga Isl., New Caledonia, Palau, Bonin Isl., Guam, Nepal, China, Taiwan, Japan, India, Sri Lanca, Thailand, Vietnam, Malaysia, Indonesia, Solomon Isl., New Guinea, Bismarck Isl., Australia.
Material examined. 1♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 15.10.2008, O. Gorbunov leg. (CUK); 1♂, same locality, 13.11.2009, O. Gorbunov leg. (CUK).

Genus ***Stenodacma*** Amsel, 1959

7. ***Stenodacma wahlbergi*** (Zeller, 1851)
Pterophorus wahlbergi Zeller, 1851: 346. Type locality: S. Africa.
= *Pterophorus rutilalis* Walker, 1864: 943. Type locality: "Port Natal", S. Africa
= *Oxyptilus rutilans* Wollaston, 1879: 441. Type locality: St. Helena Isl.
= *Stenodacma iranella* Amsel, 1959: 30. Type locality: Iran.
Distribution. Known from Cameroon, Ethiopia, Kenya, Tanzania, Zimbabwe, Swaziland, RSA, Madagascar, Comoros, Reunion Isl., Rodriguez Isl., Mauritius, Seychelles, St. Helena Isl., Saudi Arabia, Iran, Pakistan.
Material examined. 1♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 13.11.2009, O. Gorbunov leg. (CUK).

Genus ***Megalorhipida*** Amsel, 1935

8. ***Megalorhipida leucodactyla*** (Fabricius, 1794)
Pretophorus leucodactylus Fabricius, 1794: 346. Type locality: Virgin Isl.
= *Pterophorus defectalis* Walker, 1864: 943. Type locality: Sierra Leone.
Distribution: Everywhere throughout of the World.
Material examined. 1♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 12.10.2008, O. Gorbunov leg. (CUK); 1♂, same locality, 25.10.2009 O. Gorbunov leg. (CUK).

Genus ***Exelastis*** Meyrick, 1908

9. ***Exelastis montischristi*** (Walsingham, 1897)
Pterophorus montischristi Walsingham, 1897: 59. Type locality: Dominica.
= *Pterophorus cervinicolor* Barnes & McDunnough, 1913: 185. Type locality: USA, Florida.

Distribution. Known from Tanzania, Ethiopia, RSA, USA, Virgin Isl., Martinique, Grenada, Jamaica, Puerto Rico, Galapagos Isl.
Note. The present finding is new for Ethiopia.
Material examined. 1♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037°51' E, 5.10.2008, O. Gorbunov leg. (CUK); 1♂, 1♀, same locality, 24.10.2008, O. Gorbunov leg. (CUK).

Subfamily **Pterophorinae** Zeller, 1841

Genus ***Hellinsia*** Tutt, 1905

10. ***Hellinsia ambo*** Ustjuzhanin & Kovtunovich, spec. nov. (col. pl. IV: *3, 5, 7*)
Material examined. Holotype ♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 31.10.2009, O. Gorbunov leg. (genital preparation No. 22862) (BMNH). Paratypes: 1♀, Ethipia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 28.09.2009, O. Gorbunov leg. (genital preparation No. 22863) (BMNH); 1♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 10.11.2009, O. Gorbunov leg. (CUK).
Description. External characters. Alar expanse 19-20 mm. Head and thorax light brown. Labial palpus short, straight, twice shorter than diameter of eye. Both wings light brown. Forewing with a small transverse dark brown to black spot at cleft basally and with a very small black spot medially in a cell. Costal margin with two longitudinal strips: long one at cleft and very short one at apex.
Male genitalia (col. pl. IV: *5*). Valvae asymmetrical. Left valva somewhat broader than right one, with a strong sclerotized harpe in form of broad plate with a curved outside outer margin and with a hook-like protuberance on inner margin basally. Right valva with sacculus with a rounded fold. Uncus simple, narrow. Aedeagus thin, basally broader, slightly curved apically.
Female genitalia (col. pl. IV: *7*). Papilla analis oval, posterior apophyses thin and long. Antrum slightly sclerotized, narrowly tube-shaped, shifted left. Ostium bursae considerably extended. Ductus bursae short, membranous. Bursa copulatrix oval, slightly elongated with two narrow long stripes. Sternite VIII with a spine-like projection medially.
Differential diagnosis. By the structure of the male genitalia this new species is somewhat closely related to *Hellinsia aethiopica* (Amsel, 1963) and *H. madecassea* (Bigot, 1964), but it can be separated by the shape and visibly broader harpe on left valva, and by the shape of rounded fold on right valva.
Bionomics. The host plant and larval bionomics are unknown. The type series was collected in October-November.
Distribution. Known from the type locality in Central Ethiopia at about 2160 m a.s.l.
Etymology. The new species is named after the town Ambo, Ethiopia, where it was collected.

Genus ***Emmelina*** Tutt, 1905

11. ***Emmelina lochmaius*** (Bigot, 1974)
Leioptilus lochmaius Bigot, 1974: 701. Type locality: Gabon.
Distribution. Known from Gabon and Ethiopia only.
Note. This is a new record for the Ethiopian fauna of Pterophoridae.
Material examined. 1♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 23.10.2008, O. Gorbunov leg. (CUK).

Genus ***Pterophorus*** Schaffer, 1766

12. ***Pterophorus albidus*** (Zeller, 1852)
Aciptilus albidus Zeller, 1852: 397. Type locality: S. Africa.
= *Alucita endogramma* Meyrick, 1922: 549. Type locality: Fiji.
= *Alucita endophaea* Meyrick, 1930: 567. Type locality: Mozambique.
= *Aciptilia suffiata* Yano, 1963: 200. Type locality: Japan.
Distribution. Widely distributed in Gambia, Cote d'Ivoire, Nigeria, Chad, Ethiopia, Cameroon, Uganda, Kenya, Zaire, Tanzania, Malawi, Mozambique, Zimbabwe, RSA, Madagascar, Reunion Isl., Thailand, Vietnam, Japan, Indonesia, the Philippines, Papua New Guinea, Kei.
Note. This is a new species for Ethiopia.
Material examined. 1♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 16.11.2008, O. Gorbunov leg. (CUK).

13. ***Pterophorus rhyparias*** (Meyrick, 1908)
Alucita rhyparias Meyrick, 1908: 489. Type locality: RSA, Pretoria.
= *Alucita centrocrates* Meyrick, 1933: 425. Type locality: Zaire.
= *Aciptilia viettei* Bigot, 1964: 35. Type locality: Madagascar.
Distribution. Congo, Ethiopia, Kenya, Tanzania, RSA, Madagascar.
Note. This is a new finding for the fauna of Ethiopia.
Material examined. 3♂, 3♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 24-30.09.2008, O. Gorbunov leg. (CUK); 3 ♂, 1 ♀, same locality, 4-16.10.2008, O. Gorbunov leg. (CUK); 3♂, 2♀, same locality, 19-26.10.2008, O. Gorbunov leg. (CUK); 1♂, same locality, 2.11.2008, O. Gorbunov leg. (CUK); 1♀, same locality, 13.11.2008, O. Gorbunov leg. (CUK); 1♀, same locality, 19.10.2009, O. Gorbunov leg. (CUK); 1♂, same locality, 27.10.2009, O. Gorbunov leg. (CUK); 1♂, same locality, 12.11.2009, O. Gorbunov leg. (CUK).

Genus ***Cosmoclostis*** Meyrick, 1866

14. ***Cosmoclostis gorbunovi*** Ustjuzhanin & Kovtunovich, spec. nov. (col. pl. IV: *4, 6, 8*)
Material examined. Holotype ♂, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 08.10.2008, O. Gorbunov leg. (genital preparation No. 22864) (BMNH). Paratypes: 1♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 10-11.11.2009, O. Gorbunov leg. (genital preparation No. 22865) (BMNH); 2♀, Ethiopia, West Shewa, 2 km S Ambo, PPRC, 2160 m, 08°58' N, 037° 51' E, 11-12.11.2009, O. Gorbunov leg. (CUK).
Description. External characters. Alar expanse of the holotype 14 mm. Head and thorax light grey. Labial palpus short, straight, twice shorter than diameter of eye. Antenna thin, light brown. Forewing light grey, with a transverse dark brown to black stroke. First lobe apically and cleft basally dusted with brown scales. Second lobe darkened apically. Hindwing monotonously brown, somewhat darker than forewing.
Male genitalia (col. pl. IV: *6*). Valvae narrow, slightly broadened apically, with spin-like thorns. Sacculus separated from valva, plate-shaped, broad, but narrowed apically. Uncus

rather broad, pointed and curved inside apically. Inner margin of tegumen dorsally with sucker-like structures. Aedeagus thin, long, slightly curved basally, with a rather long cornutus apically. Saccus with a very long and thin process.

Female genitalia (col. pl. IV: *8*). Papilla analis oval, posterior apophyses thin and long. Antrum goblet-shaped, rather abruptly turning into long, thin ductus bursae. Bursa copulatrix large, oval, with a strong t-shaped signum.

Differential diagnosis. By the shape of the valva, uncus and sacculus, this new species cannot be confused with other representatives of the genus. By the shape of the cornutus of the bursa copulatrix, *Cosmoclostis gorbunovi* Ustjuzhanin & Kovtunovich, spec. nov. is closely related to *C. brachybella* Fletcher, 1947, but it can be easily distinguished by the longer ductus bursae and by the other shape of the antrun and bursa copulatrix.

Bionomics. The host plant and larval bionomics are unknown. The type series was collected in October-November.

Distribution. Known from the type locality in Central Ethiopia at about 2160 m a.s.l.

Etymology. We name this beautiful species after our friend famous expert on Sesiidae of the Old Word Oleg G. Gorbunov, who collect during his travels to different parts of the Eastern Hemisphere not only Sesiidae, but and a lot of group of Lepidoptera, including Pterophoridae.

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COLOR PLATE IV **ЦВЕТНАЯ ТАБЛИЦА IV**

1

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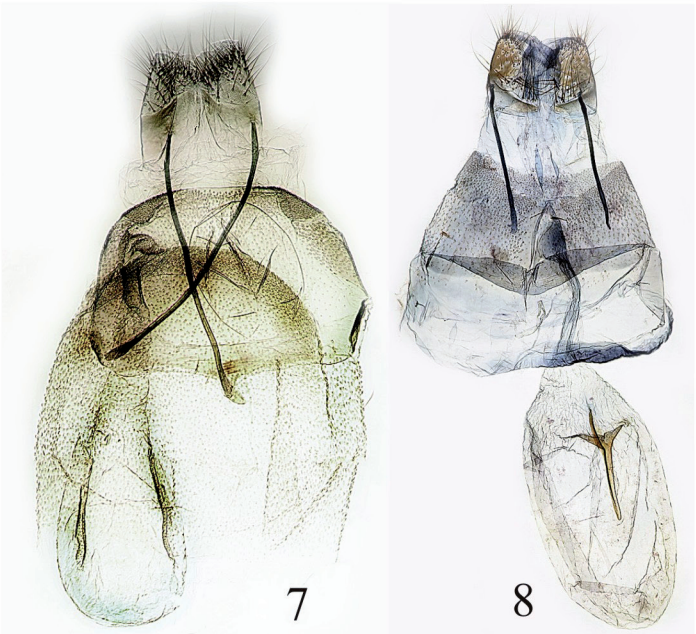
3

4



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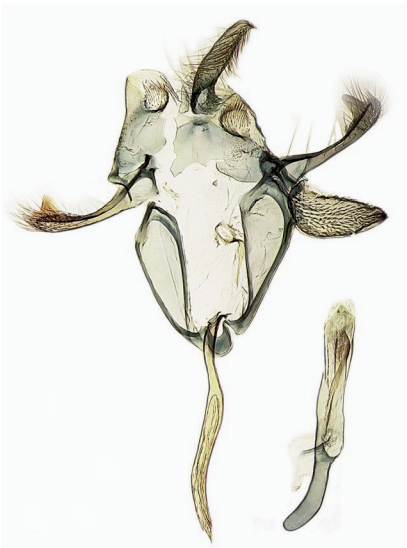

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1 – environs of the Ambo Plant Protection Research Center, West Shewa, Ethiopia. 12 November, 2008. Foto by O.Gorbunov; *2* – semi-deciduous forest inside the Ambo Plant Protection Research Center, West Shewa, Ethiopia. 14 November, 2008. Foto by O.Gorbunov; *3* – *Hellinsia ambo* Ustjuzhanin & Kovtunovich, spec. nov., holotype ♂, (BMNH); *4* – *Cosmoclostis gorbunovi* Ustjuzhanin & Kovtunovich, spec. nov., holotype ♂, (BMNH); *5* – male genitalia of *Hellinsia ambo* Ustjuzhanin & Kovtunovich, spec. nov., holotype (genital preparation No. 22862); *6* – male genitalia of *Cosmoclostis gorbunovi* Ustjuzhanin & Kovtunovich, spec. nov., holotype (genital preparation No. 22864); *7* – female genitalia of *Hellinsia ambo* Ustjuzhanin & Kovtunovich, spec. nov., paratype (genital preparation No. 22863); *8* – female genitalia of *Cosmoclostis gorbunovi* Ustjuzhanin & Kovtunovich, spec. nov., paratype (genital preparation No. 22865).