

A new species of the genus *Macrotarsipodes* Le Cerf, 1916 (Lepidoptera: Sesiidae) from Ethiopia

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ABSTRACT. A new species, *Macrotarsipodes rybalovi* sp.n., is described and illustrated from a series of males collected in the vicinity of Arba Minch in the Gamo Zone of the Southern Nations, Nationalities, and Peoples Region of Ethiopia. This new species is closest to *M. pedunculatus* (Hampson, 1910), from which it differs in the colouration of the abdomen, the shape of the discal spot, and the size of the external transparent area of the forewing. This is the first record of the genus for the country.

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Новый вид рода *Macrotarsipodes* Le Cerf, 1916 (Lepidoptera: Sesiidae) из Эфиопии

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РЕЗЮМЕ. Приведено описание *Macrotarsipodes rybalovi* sp.n., собранных в окрестностях Арба Мынча в зоне Гамо в Регионе южных народов и народностей Эфиопии. Этот новый вид наиболее близок к *M. pedunculatus* (Hampson, 1910), от которого он отличается окраской брюшка, формой дискального пятна и размером наружного прозрачного поля переднего крыла. Это первая находка рода в Эфиопии.

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КЛЮЧЕВЫЕ СЛОВА: биоразнообразие, бабочки-стеклянницы, таксономия, Федеральная Демократическая Республика Эфиопия, Афротропический регион, Sesiidae, Synanthedonini, новый вид.

Introduction

Despite a fairly large number of works published over the past quarter century, our knowledge of the faunal composition as well as the taxonomic structure of clearwing moths (Lepidoptera, Sesiidae) of the Afrotropical region is

far from perfect. During this time, many new species and genera were described (Bartsch, 2009, 2015, 2017; Gorbunov, 2015, 2018, 2023b–c; Gorbunov, Gurko, 2017), the systematic position of a number of taxa was clarified (Bartsch, 2008a; Bartsch, Sáfíán, 2022; Gorbunov, 2017, 2023a), and several reviews of

larger taxonomic groups or individual large regions were made (Gorbunov, Arita, 1997, 1998; Bąkowski *et al.*, 2008; Bartsch, 2008b, 2010, 2013, 2016, 2018a–b).

The genus *Macrotarsipodes* Le Cerf, 1916 was established in the legend for the figures for a single species *M. tricinctus* collected in “Zoulouland” [= South Africa: KwaZulu-Natal province, Zululand district] (Le Cerf, 1916: 13). The full description of the genus was published a year later (Le Cerf 1917: 338) with the establishment of *M. tricinctus* Le Cerf, 1916 as the type species of the genus by the original designation. However, two years after the publication of the original description, Hampson synonymized this genus with the genus *Tipulamima* Holland, 1893 (Hampson, 1919). *Macrotarsipodes* was considered a junior synonym of the genus *Tipulamima* until very recently, when Bartsch and Sáfián studied both these taxa and showed that *Macrotarsipodes* is a distinct genus (Bartsch, Sáfián, 2022). In their review (op. cit.), they included the following four species in the genus *Macrotarsipodes*:

Macrotarsipodes tricinctus Le Cerf, 1916 (the type species);

Macrotarsipodes sexualis (Hampson, 1910) (type locality: “S. Nigeria, Lagos ...”);

Macrotarsipodes pedunculatus (Hampson, 1910) (type locality: “Gold Coast, Ashanti, Obuassi ...” [= Ghana: Ashanti Region, Obuasi]);

Macrotarsipodes leptosceles (Bradley, 1968) (type locality: “Kenya, Matwapa (near Mombasa), ...” [= Kenya: Kilifi County, 16 km N of Mombasa, Mtwapa]).

In November 2009, during the field work of the Entomological group of the Joint Ethio-Russian Biological Expedition, some species of Sesiidae were collected with the help of artificial sex attractants. Following a detailed analysis of both external morphology and genitalia, one collected species turned out to represent a new species of the genus *Macrotarsipodes*. Its description is given below and, thus, the genus *Macrotarsipodes* is recorded for the first time for Ethiopia.

Material and methods

The type series was attracted to artificial female sex pheromone produced by PHEROBANK®, Wijk bij Duurstede, the Netherlands.

The descriptions of the specimens were made using a Leica EZ4 stereomicroscope with LED illumination. All images of the type series were taken with a Sony Alpha DSLR A-450 camera equipped with a Minolta 50 mm f/2.8 macro lens. The genitalia were photographed using a Keyence BZ-9000 Bio-evo fluorescence microscope. The processing of all illustrations was finalised using Adobe Photoshop CC 2020 software.

All labels of the holotype are cited verbatim. The labels with geographical data, data of photos and preparation numbers of the genitalia are printed on white paper, but the type labels of the types are printed on red paper. Each label is separated from other labels by a semicolon (;); lines in a label are separated by a slash (/). All pictures of specimens are labeled with a number consisting of letters and digits: name of the family, two consecutive digits separated by an n-dash and, a year following the m-dash (e.g. “SESIIDAE pictures Nos 0281-0282-2014”). These letter and digit codes correspond to the numbering system of the figured specimens in the author’s archive. Each preparation of the genitalia is stored in a microtube with glycerol pinned under the specimen. The dissected genitalia are equipped with the corresponding number placed in the microtube. This number as a label (e.g., “Genitalia preparation No OG-016-2023”) is pinned under the specimen and listed in the author’s archive.

The types are deposited in the collection of the A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, Moscow, Russia (COGM).

Systematics

Macrotarsipodes rybalovi sp.n.

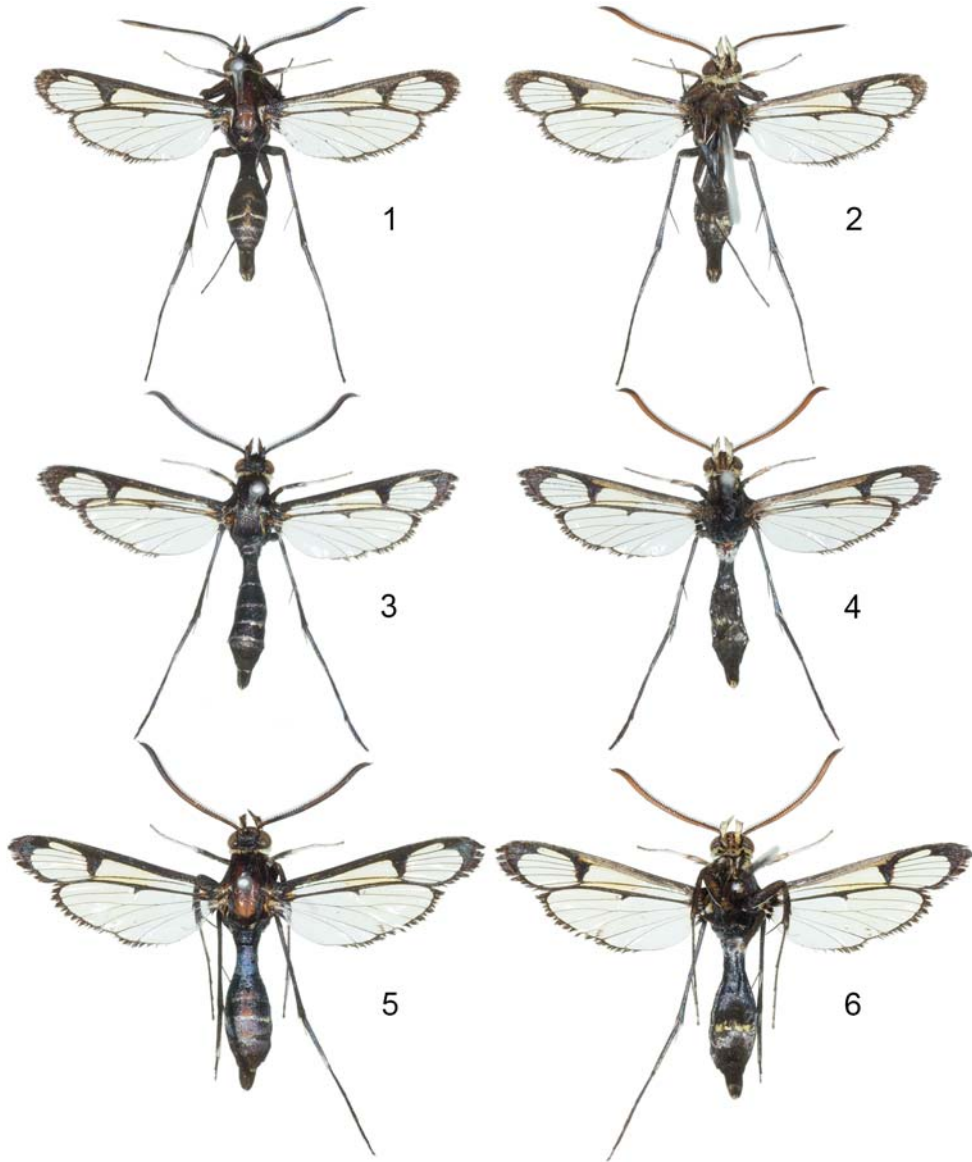
Figs 1–9.

TYPE MATERIAL. **Holotype** ♂ with labels: “Ethiopia, Gamo Gofa, / 5 km E Arba Monch, 1180 m, 06°02’N, 037°36’E, / 21.XI.2009, / O.G. Gorbunov leg.”; “SESIIDAE / Pictures №№ / 0281–0282-2014 / Photo by O. Gorbunov”; “HOLOTYPUS ♂ / *Macrotarsipodes rybalovi* / O. Gorbunov, 2023 / O. Gorbunov des., 2023”.

Paratypes: 3 ♂♂ with same locality and date as in the holotype, O. Gorbunov leg. Sesiidae pictures Nos 0279–0280-2014, 0283–0286-2014; 1 ♂ with genitalia preparation No. OG-016-2023.

DESCRIPTION. Male (holotype) (Figs 1–2). Wing span 20.0 mm; body length 10.8 mm; forewing length 8.8 mm; length of antenna 6.0 mm.

Head: antenna black with dark violet sheen dorsally and light brown with a few yellow scales ventrally, scapus black with dark violet sheen dor-

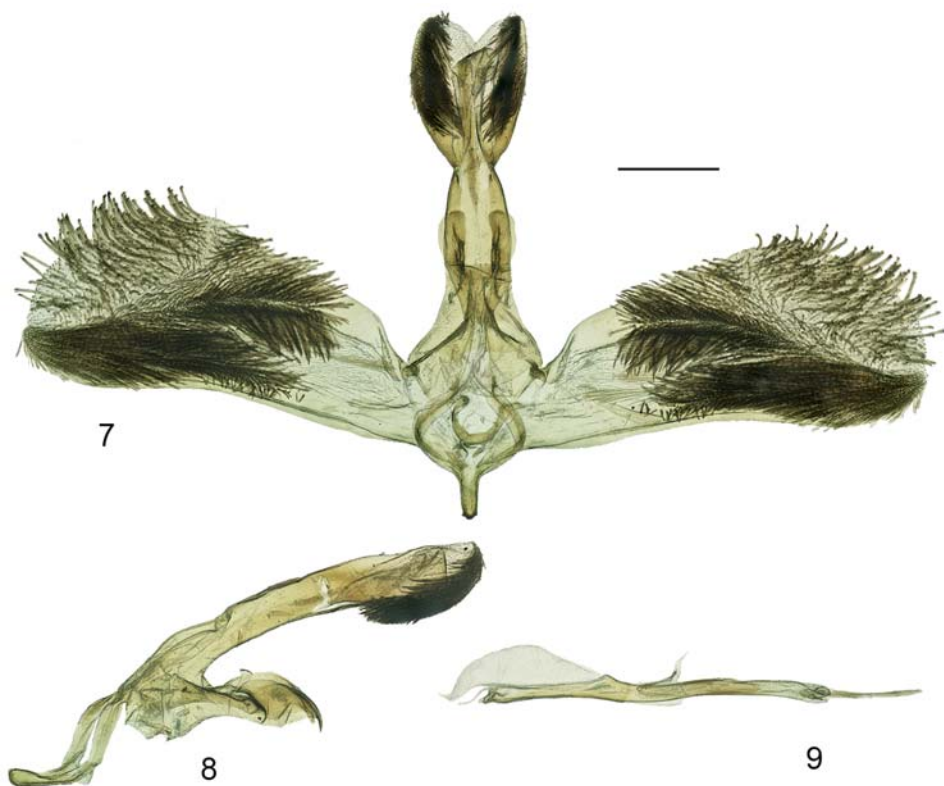


Figs 1–6. Variability of males of *Macrotarsipodes rybalovi* sp.n.: 1–2 — holotype, alar expanse 20.0 mm, Sesiidae pictures Nos 0281–0282-2014; 2–3 — paratype, alar expanse 19.8 mm, Sesiidae pictures Nos 0283–0284-2014; 4–5 — paratype, alae expanse 22.4 mm, Sesiidae pictures Nos 0285–0286-2014. 1, 3, 5 — dorsal view; 2, 4, 6 — ventral view.

Рис. 1–6. Изменчивость самцов *Macrotarsipodes rybalovi* sp.n.: 1–2 — голотип, размах крыльев 20.0 мм, Sesiidae снимки №№ 0281–0282-2014; 2–3 — паратип, размах крыльев 19.8 мм, Sesiidae снимки №№ 0283–0284-2014; 4–5 — паратип, размах крыльев 22,4 мм, Sesiidae снимки №№ 0285–0286-2014. 1, 3, 5 — сверху; 2, 4, 6 — снизу.

sally and white ventrally; frons grey brown with bronze-violet sheen and a narrow white stripe laterally; labial palpus pale lemon yellow with a narrow black stripe with dark violet sheen exterior dorsally;

vertex black with bright greenish-violet sheen; occipital fringe pale lemon yellow; neck plate pale lemon yellow and several grey-brown scales with bronze-violet sheen.



Figs 7–9. Male genitalia of *Macrotarsipodes rybalovi* sp.n., paratype, genitalia preparation No OG-016-2023: 7 — tegumen-uncus complex, valvae and saccus, ventral view; 8 — tegumen-uncus complex and saccus, lateral view; 9 — aedeagus. Scale bar: 0.5 mm.

Рис. 7–9. Гениталии самца *Macrotarsipodes rybalovi* sp.n., паратип, препарат гениталий № OG-016-2023: 7 — тегумен-ункусный комплекс, вальвы и саккус, вид снизу; 8 — тегумен-ункусный комплекс и саккус, вид с боку; 9 — эдеагус. Масштаб: 0,5 мм.

Thorax: patagia dark brown to black with greenish-violet sheen and a few pale lemon-yellow scales laterally; tegula dark brown to black with bronze-violet sheen and a few pale lemon-yellow scales distally; mesothorax dark brown to black with bronze sheen; metathorax dark brown to black with bronze sheen, a small pale lemon-yellow spot medially and a tuft of black hair-like scales with bright violet sheen laterally; thorax laterally grey-brown with violet sheen and a few pale lemon-yellow scales dorsocranially, at base of forewing and dorsodistally; posteriorly both metepimeron and metameron dark brown to black with bright violet sheen and densely covered with white hair-like scales.

Legs: fore coxa dark brown to black with greenish-violet sheen, narrow white interior margin and pale lemon-yellow stripe at exterior margin; fore femur dark brown to black with blue-violet sheen; both fore tibia and fore tarsus dark brown to black

with greenish-violet sheen dorsally and white ventrally; mid coxa dark brown to black with blue-violet sheen; mid femur dark brown to black with blue-violet sheen and white hair-like scales at posterior margin; mid tibia dark brown to black with blue-violet sheen and a few yellow scales exteriordistally, exterior spur white, interior spur white internally and dark grey-brown with bronze sheen internally; mid tarsus dorsally dark brown to black with blue-violet sheen; ventrally basal tarsomere white, remaining tarsomeres dark brown to black with bronze-violet sheen; hind coxa dark brown to black with blue-violet sheen; hind femur dark brown to black with blue-violet sheen and white hair-like scales at posterior margin; hind tibia dark brown to black with blue-violet sheen and a few yellow scales exteriordistally, exterior spurs white, interior spurs white internally and dark grey-brown with bronze sheen internally; hind tarsus dorsally dark brown to black with blue-

violet sheen; ventrally basal tarsomere white, remaining tarsomeres dark brown to black with bronze-violet sheen.

Forewing dorsally with basal part black with dark blue sheen and a few red-orange scales; costal and anal margins, CuA-stem, veins within external transparent area and apical area dark brown to black with greenish-blue sheen; discal spot in form of an isosceles triangle black with dark blue sheen; ventrally costal margin pale yellowish, CuA-stem dark brown with bronze sheen, discal spot, veins within external transparent area and apical area black with dark blue sheen; transparent areas well-developed, external transparent area large, rounded, divided into six cells between veins R_3 -CuA₂, level to vein M_2 , about 4.4 times as broad as discal spot and about 7.3 times as broad as apical area; cilia dark brown to black with greenish-blue sheen.

Hindwing transparent; costal margin, discal spot, veins, outer margin dark brown to black with dark blue sheen; discal spot triangular, slightly exceeding level of vein M_2 ; outer margin extremely narrow, about 0.2 times as broad as cilia; cilia dark brown to black with greenish-blue sheen, anally white.

Abdomen wasp-shaped: tergite 1 small, acutely narrowed, tergites 2 and 3 gradually broadened, tergites 4–7 gradually narrowed; dark brown to black with greenish-bronze sheen; dorsally tergites 2 and 7 each with a few pale lemon-yellow scales distally; tergite 4 with a narrow (one scale) pale lemon-yellow stripe distally; ventrally sternite 4 with a narrow (one or two scales) pale lemon-yellow stripe distally; anal tuft undeveloped.

Male genitalia (paratype) (genital preparation No OG-016-2023) (Figs 7–9). Tegumen-uncus complex straight and narrow; uncus long, oval, bilobed, with a group of strong distally splitted setae internally; gnathos well-developed, roof-shaped basally, with two beak-like projections (Figs 7, 8); valva elongate-oval, internally dorsodistal third weak sclerotized and sparsely covered with clubbed, apically angled and bifurcate setae, ventral lobe and longitudinal fold densely covered with strong distally splitted setae (Fig. 7); saccus narrow and short, rounded basally; vinculum narrow about twice as long as saccus (Figs 7, 8); aedeagus (Fig. 9) slightly bisinuate, slender, with bilobed coecum penis; vesica long and slender.

Female. Unknown.

INDIVIDUAL VARIABILITY. Unknown for females. Males vary slightly in the number of pale lemon-yellow scales on the thorax and abdomen, white scales on the fore coxa and orange scales on the basal part of the forewing. The posterior transparent area of the forewing reaches the discal spot or even slightly exceeds it (Figs 1–6). Individual sizes range as follows: alar expanse 19.8–22.4 mm; body length 11.1–12.4 mm; forewing length 7.6–10.0 mm; length of antenna 5.6–6.3 mm.

DIFFERENTIAL DIAGNOSIS. In the absence of red-orange scales on the legs and anal margin of the forewing, this new species appears to be closely related to *M. pedunculatus*, from which it can be distinguished by the presence of red-orange scales on the basal part of the forewing dorsally (basal part of the forewing dorsally black in *M. pedunculatus*), colouration of the abdomen (dorsally tergites 2, 4 and 7 distinctly broader in *M. pedunculatus*; cp. Figs 1, 3, 5 in this article with fig. 34 in Bartsch, Sáfián, 2022: 120 or with corresponding fig. in De Prins, De Prins, 2011–2023), by the shape of the discal spot of the forewing (narrow and with nearly parallel margins in *M. pedunculatus* vs. discal spot in form of an isosceles triangle in the new species; cp. Figs 1–6 in this article with fig. 34 in Bartsch, Sáfián, 2022: 120 or with corresponding fig. in De Prins, De Prins, 2011–2023), and by conformation of the external transparent area of the forewing (external transparent area level to vein M_2 about 7.0 times as broad as discal spot and about 10 times broader than apical area in the species compared vs. level to vein M_2 about 4.4 times as broad as discal spot and about 7.3 times as broad as apical area in *M. rybalovi* sp.n.; cp. Figs 1–6 in this article with fig. 34 in Bartsch, Sáfián, 2022: 120 or with corresponding fig. in De Prins, De Prins, 2011–2023).

From all other congeners, *M. rybalovi* sp.n. clearly differs in the absence of red-orange scales on the legs and anal margin of the forewing, and by the shape of the discal spot of the forewing (compare Figs 1–6 in this article with figs 32–43 in Bartsch, Sáfián, 2022: 120 or with corresponding fig. in De Prins, De Prins, 2011–2023).

The male genitalia of species of the genus are almost identical and have no serious taxonomic significance (cp. Figs 7–9 in this article with figs 45 and 46 in Bartsch, Sáfián, 2022: 121).

BIONOMICS. The larval host plant is unknown. The males of the type series were collected using unspecific synthetic sex attractants produced by PHEROBANK, Wijkbij Duurstede, the Netherlands. They came to lures at the late morning (9–11 a.m.).

HABITAT. The type series of this new species was collected at the edge of a primary evergreen forest in the western part of Nechisar National Park.

DISTRIBUTION. This new species is known only from the type locality in the vicinity of Arba Minch in the Gamo Zone of the Southern Nations, Nationalities, and Peoples Region of Ethiopia.

ETYMOLOGY. This new species is named after my friend Dr. Leonid B. Rybalov, Head of the Entomological group of the Russian part of the Joint Ethio-Russian Biological Expedition.

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