To the morphology and synonymy of insufficiently known *Melittia rutilipes* Walker, 1865 [“1864”] (Lepidoptera: Sesiidae)

К морфологии и синонимии недостаточно известного *Melittia rutilipes* Walker, 1865 [“1864”] (Lepidoptera: Sesiidae)

O.G. Gorbunov

О.Г. Горбунов

A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, Leninsky prospekt 33, Moscow 119071, Russia. E-mail: gorbunov.oleg@mail.ru

Институт проблем экологии и эволюции им. А.Н. Северцова РАН, Ленинский проспект 33, Москва 119071, Россия.

KEY WORDS: Melitiini, *Melittia moluccaensis*, systematics, new synonym, Oriental Region.


ABSTRACT. The specimens of the genus *Melittia* Hübner, 1819 [“1816”] collected on Bacan Island (North Maluku, Indonesia) made it possible to establish that *Melittia rutilipes* Walker, 1865 [“1864”] is a senior synonym for *M. moluccaensis* Hampson, 1919. Figures of the male genitalia of *M. rutilipes* Walker, 1865 [“1864”] are shown for the first time. Data on the flight period, biotope and distribution of *M. rutilipes* are presented.

РЕЗЮМЕ. Собранные на острове Бачан (Северное Малуку, Индонезия) экземпляры рода *Melittia* Hübner, 1819 [“1816”] позволили установить, что *Melittia rutilipes* Walker, 1865 [“1864”] является старшим синонимом *M. moluccaensis* Hampson, 1919. Впервые приведено изображение гениталий самца *M. rutilipes* Walker, 1865 [“1864”]. Приведены данные о сроках лёта, биотопе и распространении *M. rutilipes*.

Introduction


During a short-time trip to North Maluku, Indonesia in February–March 2017, I could collect several very interesting species of Sesiidae with the help of artificial sex attractants produced by PHEROBANK®. Wijk bij Duurstede, the Netherlands. One of the collected species was a representative of the genus *Melittia* Hübner, 1819 [“1816”]. Following a detailed analysis of external morphology, it turned out to be *M. rutilipes* Walker, 1865 [“1864”], which was described directly from this island. The female holotype of this species was revised by Arita and Gorbunov [1995], but its male remained unknown. Further, after carefully studying the habitus of the collected specimens and comparing them with the holotype of *M. moluccaensis* Hampson, 1919 (Fig. 1), which was also described from the island of Bacan, I came to the conclusion that they are conspecific and here I establish a new synonym of *Melittia rutilipes* Walker, 1865 [“1864”] = *Melittia moluccaensis* Hampson, 1919, syn.n.

The descriptions of specimens were made using a Leica EZ4 stereomicroscope with LED illuminations. Images of freshly collected moths and their habitat were taken with a Sony® α450 DSLR camera equipped with a Minolta® 50 f/2.8 Macro lens. The figures of the specimens from museums and their labels were scanned using a Nikon® LS 2000 Cool Scan from Ektachrome® slides. The genitalia were photographed using a Keyence® BZ-9000 Biorevo Fluorescence Microscope. The processing of all illustrations was finalized with Adobe® Photoshop® 2020 software.

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The material studied or mentioned herein is kept in the following collections: BMNH — the Natural History Museum, London, UK; COGM — the collection of the A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, Moscow, Russia; OUMZ — Oxford University Museum of Natural History (Zoological Collections), Oxford University, Oxford, UK.

All synonymic names in the text are given in quotation marks, in the same way as they are presented in the original descriptions. All labels of the holotype of *M. rutilipes* are cited verbatim. Each label is separated by semicolonon marks (;), while lines on a label are shown separated by a slash (“/”). Pictures of the specimens are labeled with a number which consists of the name of the family, two consecutive digits and a year (e.g., SESI-IDAE pictures №№ 0011-0012–2017). These numbers correspond to those of the illustrated specimens in the archives of the author. All dissected genitalia are placed in a microtube and pinned under the specimen. The genitalia number is also printed on a label (e.g., Preparation № OG–005-2018), pinned under the specimen and listed in the archives of the author.

### Taxonomic account

*Melittia rutilipes* Walker, 1865 [*“1864”*] *

Figs 1–11.

“*Melittia rutilipes.*” — Walker, 1865: 16. Type locality: “Bat-
chian.” [= Indonesia: North Maluku, Bacan Island]. Holotype § (OUZM).

= “Melittia moluccaeana n. sp.” — Hampson, 1919: 89. Type
locality: “Batchian (Watersstradt). 2 1/2 type in Coll. Rothschild;
Buru (Doherty), 1, 1 in Coll. Rothschild.” [= Indonesia: North
Maluku, Bacan Island]. Syntype 1/2 (BMNH), syn.n.

Literature. Boisduval, 1875: 471 (*Melittia rutilipes*); Svinhove,
1892: 37 (*Melittia rutilipes*); Hampson, 1919: 87 (*Melittia rutili-
pes*); Dalla Torre, Strand, 1925: 146 (*Melittia moluccaeana*), 148
(*Melittia rutilipes*); Gaede, 1933: 788 (*Melittia rutilipes*), 789
(*Melittia moluccaeana*); Heppner, Duckworth, 1981: 27 (*Melittia
moluccaeana*, *Melittia rutilipes*); Arita, Gorbunov, 1995: 196, figs
7–22, 26 (*Melittia rutilipes*), 197 (*Melittia moluccaeana*); Pähning-
er, Kallies, 2004: 17 (*Melittia moluccaeana*, *Melittia rutilipes*).

**MATERIAL.** 1 1/2 (holotype of *Melittia rutilipes*) with labels:

“Bac.” (white circle); “Wallace” (white); “A Walker’s / Type / Melittia / rutilipes” (white); “2 / F. Le Cerf” (white); “150” (white);

“Gentilia examined by / O. Gorbunov & Y. Arita / Prepara-
tion No. GA-002” (white); “HOPE ENT. COLL. / OX. UNIV. MUS. / GENTILIA NO.: / 1552/1955” (white); “TYPE LEP.: No. 57 /
Melittia / rutilipes / Walker / HOPE DEPT. OXFORD” (white);

“HOLOTYPE 1/2 / Melittia rutilipes / Walker, [1865] / O. Gor-
bunov & / Y. Arita rev., 1994” (red (OUZM)); 1 1/2 (holotype of
*Melittia moluccaeana*) (Fig. 1) with labels as in Fig. 2 (BMNH).

**DESCRIPTION.** Male (Figs 7–8). Alar expanse 31.0
mm, body length 16.8 mm, forewing 13.5 mm, antenna 6.9 mm.

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* Head with antenna black with dark violet sheen dorsally
  and brown to light brown ventrally, scapus dark brown to
  black with a few dark yellow scales externally; frons gray-
  brown with violet sheen; labial palpus black with dark violet
  sheen and a dense admixture of dark orange scales; vertex
  mixed with black and dark orange hair-like scales; peri-
  cephalic hairs mixed with black and dark orange hair-like
  scales dorsally and dark yellow laterally.

Thorax with patagia dark brown to black with dark blue-
violet sheen; tegula dark brown to black with dark violet
sheen and a few dark orange scales laterally; meso- and
metathorax dark brown to black with dark violet sheen and a
few dark orange hair-like scales posterior-laterally; laterally
thorax gray-brown with bronze-violet sheen; posteriorly both
metepimeron and metameron gray densely covered with long
gray hair-like scales with yellowish hue. Legs with neck plate
black with bronze-violet sheen; fore coxa black with dark
violet sheen and a few dark yellow-orange scales medially;
femur black with dark violet sheen, a narrow orange
anterior margin and a few dark yellow scales posterior-
distally; fore tibia black with dark violet sheen dorsally and
dark orange ventrally; fore tarsus dark orange with a few
black scales with dark violet sheen dorsally and dark yellow
with golden hue ventrally; mid coxa dark gray-brown to black
with dark violet sheen; mid femur black with dark blue-violet
sheen, a narrow orange anterior margin and a few dark orange
scales exterior-distally; mid tibia black with dark violet sheen
and an admixture of dark orange scales exterior-laterally;
spars black with dark violet sheen mixed with dark orange
scales internally; mid tarsus black with dark violet sheen and
a dense admixture of orange scales dorsally and dark yellow
ones ventrally; hind coxa dark gray-brown to black with dark
violet sheen; hind femur black with dark blue-violet sheen,
a narrow orange anterior margin and a few dark orange scales
exterior-distally; hind tibia black with dark violet sheen, a
dense admixture of dark orange scales dorsally and a narrow
oblique, dark orange stripe in basal third externally; spurs
black with dark violet sheen mixed with dark orange scales
externally; hind tarsus black with dark violet sheen, an
admixture of dark orange scales dorsally and a narrow dark
orange stripe externally. Forewing dorsally black with an-
thracite sheen at base; costal and anal margins, CuA-stem,
veins within external transparent area and apical area dark
brown to black with dark violet sheen and a few brownish
scales; discal spot dark brown to black with dark violet sheen
and a few brownish scales, broad, triangular, with a long and
narrow projection proximally; transparent area poorly devel-
oped and densely covered with semitransparent scales with
brownish hue; anterior transparent area narrow and short;
posterior transparent area not reaching level of distal margin
descal spot; external transparent area trapeziform, divided
into four cells between veins R4+5 and CuA1 narrower costally
between veins R4+5 and CuA1; external-transparent area dark
brown to black with dark violet sheen.

**Abdomen.** Dorsally black with dark violet sheen; distal
row of scales of each tergite dark gray-brown with bronze-
violet sheen and a few orange scales on tergites 2, 4 and 7
laterally; ventrally dark gray-brown with blue-violet sheen;
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distal row of scales of sternites 3, 4 and 7 with a few pale yellow scales; anal tuft extremely small, black with dark violet sheen.

**Male genitalia** (Figs 9–10) (genital preparation № OG–054-2018). Tegumen-uncus complex relatively broad; uncus bilobed distally with a relatively large oval plate of strongly pointed setae internally and a group of setae ventrally on each side; gnathos rather small, membranous, with weakly-sclerotized semi-oval, pointed apically, plate (Fig. 9); valva (Fig. 9) trapeziform; distal field of setae not separated from medial one; setae of medial field relatively long, reaching pocket-shaped crista; ventral lobe relatively narrow and long, only slightly exceeds distal margin od valva; pocket-shaped crista relatively narrow; saccus narrow, slightly broadened subbasally and rounded; aedeagus (Fig. 10) narrow, slightly shorter than valva; vesica with numerous minute cornuti.

**Female** (holotype of *Melittia rutilipes*) [see fig. 7 in Arita, Gorbunov, 1995]. Alar expanse 35.0 mm; body length 17.0 mm; forewing 15.5 mm; antenna 7.5 mm.

Head with antenna ventrally light brown with a few, thin, yellow scales subapically; frons with a few orange scales laterally; pericephalic hairs black dorsally and orange laterally; thorax with patagia with a small orange spot laterally; forewing with costal margin with a narrow, longitudinal, orange line; Cu-stem and anal margin black mixed with orange; apical area orange; transparent areas small; anterior transparent area hyaline only at posterior half; external transparent area densely covered with slightly darkened, semitransparent scales, divided into three cells; Hindwing with anal lobe orange mixed with black; veins and discal spot orange; abdomen dorsally with a few rusty-orange scales on 3rd and 5th tergites; tergites 2, 4 and 6 each with a narrow, orange-yellow, distal margin; tergites 3 and 5 each with a few yellowish scales on distal margin; ventrally sternites 3–6 each with a narrow, yellow, distal margin; anal tuft small, black with yellow-orange scales distally. Otherwise colour pattern as in male.

**Female genitalia** (genital preparation № GA–092) [see figs 22 and 26 in Arita, Gorbunov, 1995].

**INDIVIDUAL VARIABILITY.** The second female known to me (Fig. 3), has more large external transparent area of the forewing, which is divided into 5–6 cells and the outer margin of the hindwing is more narrow. The females are invariable in the colouration and in the conformation of the wings. They are slightly variable in the individual size: Alar expanse 31.0–32.0 mm, body length 16.8–17.5 mm, forewing 13.2–13.5 mm, antenna 6.9–7.1 mm.

**DIFFERENTIAL DIAGNOSIS.** By the shape of the discal spot and anterior transparent area of the forewing this species cannot be confused with any congeners, but it is probably closest to *Desmopoda bombiformis* Felder et Felder, 1874 (it is quite possible that *Desmopoda* is a junior synonym...
of Melittia, as stated earlier [Arita, Gorbunov, 1995]), but can be distinguished by a somewhat smaller size (alar expanse 44.0 mm in the species compared) and coloration of the hind leg tuft (with orange, yellow and brown-orange scales in the species compared; see tab. 75, fig. 5 in Felder, Felder, 1874) and forewing (without orange or brown-rusty scales in D. bombiformis). In addition, it should be noted that the presence of setae on the uncus of the male genitalia is unique among all Melittia species for which the male genitalia are known.

BIONOMICS. The larval host-plant is unknown. The freshly collected specimens were attracted by unspecific artificial sex pheromones. They came to lures in the afternoon around 2–3 pm. Specimens from Bacan and Ambon were collected on February.

HABITAT. In the island of Bacan, North Maluku, this species was collected on a clearing among the secondary rainforest in the vicinity of the town of Labuha (Fig. 11).

DISTRIBUTION. Known from the islands of Bacan (North Maluku) and Buru and Ambon (Maluku), Indonesia.

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References


Fig. 11. Habitat of Melittia rutilipes. Indonesia, North Maluku, Bacan Id., Labuha, 00°39.390’N, 127°30.042’E, 118 m, 28.II.2017.


