

## A new species of the genus *Bembecia* Hübner, 1819 [“1816”] (Lepidoptera: Sesiidae) from the Gissar Mountain Range

### Новый вид рода *Bembecia* Hübner, 1819 [“1816”] (Lepidoptera: Sesiidae) с Гиссарского хребта

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**КЛЮЧЕВЫЕ СЛОВА.** Lepidoptera, Synanthedonini, бабочки-стекляницы, *Bembecia sotchivkoi*, систематика, новый вид, Палеарктический регион, Таджикистан.

**ABSTRACT.** *Bembecia sotchivkoi* **sp.n.** from the highlands of the eastern part of the Gissar Range in Tajikistan is described and illustrated. This new species is most similar to *B. senilis* (Grum-Grshimailo, 1890) and *B. kaabaki* O. Gorbunov, 2001, from which it differs in the coloration of the frons, hind tibia, forewing and hindwing and abdomen.

**РЕЗЮМЕ.** Приведено описание *Bembecia sotchivkoi* **sp.n.** из высокогорий восточной части Гиссарского хребта в Таджикистане. Этот новый вид наиболее близок к *B. senilis* (Grum-Grshimailo, 1890) и *B. kaabaki* O. Gorbunov, 2001, от которых отличается окраской лба, задних голеней, передних и задних крыльев и брюшка.

### Introduction

The genus *Bembecia* Hübner, 1819 [“1816”] is the largest sesiid genus of the tribe Synanthedonini. It is restricted to the Palearctic region. However, two taxa of the genus were described from the Arabian Peninsula, namely *Pyropteron balkis* Le Cerf, 1937 (type-locality: [Yemen] “Arabia, San’a Waila, ...”) (transferred to the genus *Bembecia* by Heppner, Duckworth, 1981: 39) and *Bembecia balkis atrocaudata* Wiltshire, 1986 (type locality: “Saudi Arabia, Taif, ...”) [Gorbunov *et al.*, 2017].

The monograph on the clearwing moths of the Palearctic provides information on 74 species (including the genus *Scalarignathia* Capuše, 1973) and 13 subspecies of the genus [Špatenka *et al.*, 1999]. Over the past two

decades, 30 species have been described as new to science [Špatenka, 2001; Špatenka, Kallies, 2001; Špatenka, Lingenhöle, 2002; Kallies, Špatenka, 2003a–b; Špatenka, Kallies, 2006; Sobczyk *et al.*, 2007; Špatenka, Bartsch, 2010; Bartsch, Špatenka, 2010; Stalling *et al.*, 2010, 2011; Garrevoet, Garrevoet, 2011; Garrevoet, Lingenhöle, 2011; Lingenhöle, Bartsch, 2011; Špatenka, Pavličko, 2011; Toševski, 2011a–b; Gorbunov, 2018, 2020; Gorbunov, Efetov, 2018]. In addition, several species were restored from synonyms or, on the contrary, synonymized; for several subspecies, their level was raised to the species one [Garrevoet *et al.*, 2013; Garrevoet, Garrevoet, 2016; Gorbunov, 2019]. As a result, by the end of 2022, this genus included 106 species with 13 subspecies [Pühringer, Kallies, 2022].

As for Central Asia, and specifically the Tien Shan and Pamir-Alay mountain systems, slightly more than 30 species of clearwing moths of the *Bembecia* have been noted here [Špatenka *et al.*, 1999; Pühringer, Kallies, 2022]. Below I give a description of another species from the highlands of the western part of the Gissar Range.

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® á450 DSLR camera equipped with a Minolta® 50 mm f/2.8 Macro lens. The genitalia were photographed using a Keyence® BZ-9000 Bioevo Fluorescence Microscope. The processing of all illustrations was finalized using Adobe® Photoshop® CC2020 software.

All labels of the holotype are cited verbatim. The labels with geographical data, data on photos and preparation numbers of the genitalia are printed on white

paper, but the type label of the holotype and paratypes are printed on red paper. Each label is separated by a semicolon (“;”) lines in a label are separated by a slash (“/”). All pictures of specimens are labelled 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 0355-0356–2013). These letters 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–003-2022) is pinned under the specimen and listed in the author’s archive.

The material studied or mentioned herein is kept in the collection of the A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, Moscow, Russia (COGM).

## Taxonomic account

### *Bembecia sotchivkoi* O. Gorbunov, sp.n.

Figs 1–6, 13–19.

**MATERIAL.** **Holotype** ♂ (Figs 1–2) with labels: “Tajikistan, W Gissar Mts., / upstream of Zambar River, / 3787 m, Mura pass, 02–05.VIII.2013, / A. Sotchivko leg.”; “SESIIDAE / Pictures Nos / 0355-0356–2013 / Photo by O. Gorbunov”; “HOLOTYPUS ♂ / *Bembecia sotchivkoi* / O. Gorbunov, 2023 / O. Gorbunov des., 2022”.

**Paratypes** 5 ♂♂, 2 ♀♀, with same locality and date as in holotype, A. Sotchivko leg. (Sesiidae pictures Nos 0343-0354–2013, 0359-0360–2013), 1 ♂ and 1 ♀ with genitalia preparations Nos OG–003-2022 and OG–004-2022.

**DESCRIPTION.** **Male** (holotype) (Figs 1–2). Alar expanse 25.1 mm; body length 12.6 mm; forewing length 11.9 mm; antenna length 7.8 mm.

**Head:** antenna completely black with dark blue shine; both frons and vertex black with dark blue-violet shine; labial palpus with long hair-like scales ventrally, yellow interior-ventrally, narrowly black exterior-ventrally and pale yellow dorsally; occipital fringe yellow dorsally and black laterally; neck plate pale yellow; additionally, frons, vertex and neck plate, in addendum to flat scales, covered with pale yellow, long, hairy-like scales.

**Thorax:** patagia black with dark blue-violet shine and small yellow spot laterally; tegula black with dark greenish-violet shine, small pale yellow spot at base of forewing and a few pale yellow scales posteriorly; both meso- and metathorax black with dark violet shine; besides this, tegula, meso- and metathorax densely covered with pale yellow to white, long, hair-like scales; thorax laterally dark brown to black with bright violet shine and a small yellow spot anteriorly; both metepimeron and metameron posteriorly black with dark violet shine densely covered with pale yellow, long, hair-like scales.

**Legs:** fore coxa black with dark greenish-violet shine, densely covered with pale yellow and black, long, hair-like scales and few pale yellow scales interior-distally; fore femur black with dark violet shine ventrally and grey-brown with bronze-violet shine dorsally; fore tibia pale yellow ventrally and black with blue-violet shine and few yellow scales dor-

sally; fore tarsus completely pale yellow with golden shine; mid coxa black with greenish shine and a few white, long, hair-like scales; mid femur completely black with dark blue shine; mid tibia narrowly black basally, pale yellow with golden shine ventro-internally, dorso-externally black with greenish shine, large yellow spot medially and small yellow spot distally; spurs pale yellow with golden shine; mid tarsus completely pale yellow with golden shine; hind coxa black with greenish shine and few white, long, hair-like scales; hind femur completely black with dark blue shine; hind tibia pale yellow with golden shine, shortly black dorso-basally, broadly yellow both medially and distally, and few black scales at base of apical spurs; spurs pale yellow with golden shine; hind tarsus completely pale yellow with golden shine.

**Forewing dorsally** with basal part black with anthracitic shine; costal margin up to tip of vein  $R_3$  black with dark violet shine;  $CuA$ -stem dark brown with dark blue-violet shine; anal margin yellow; discal spot trapeziform, black with dark blue-violet shine and yellow-orange distal half; veins  $R_4$ ,  $R_5$  and  $M_3$  dark brown with admixture of yellow scales basally; surface between veins  $CuA_1$  and  $CuA_2$  and distal half of apical area dark brown to black with dark bronze-blue-shine; basal half of apical area and veins  $M_1$  and  $M_2$  within external transparent area yellow; ventrally costal margin up to tip of vein  $R_1$  pale yellow with admixture of yellow and dark brown scales;  $CuA$ -stem yellow with few dark brown scales; anal margin yellow; surface between veins  $R_1$ – $R_5$  dark brown with bronze shine; discal spot yellow with admixture of dark brown scales with dark violet shine basally; apical area dark brown with bronze shine distally and yellow basally; transparent areas poorly-developed, densely covered with translucent scales with light golden hue; posterior transparent area undeveloped, completely covered with yellow scales; external transparent area small, rounded, divided into five cells between veins  $R_3$  and  $CuA_1$ , (cells between veins  $R_3$ – $R_{4+5}$ , and  $M_3$ – $CuA_1$  very small), level to vein  $M_2$  about as broad as discal spot and apical area; cilia dark brown with bronze shine.

**Hindwing transparent;** dorsally costal margin and vein  $M_1$  yellow; veins  $M_3$ ,  $CuA_1$  and  $CuA_2$  dark brown with bronze shine; other veins yellow with admixture of brown scales distally; discal spot cuneiform, reaching base of common stem  $M_3$ – $CuA_1$ , yellow with a few dark brown scales at proximal margin; outer margin narrow, about 0.5 times as broad as cilia, dark brown with bronze shine, anally orange; ventrally veins in basal half yellow and in distal half dark brown; discal spot yellow; cilia dark brown with bronze shine.

**Abdomen dorsally** black with dark blue-violet shine, densely covered with pale yellow to white, long, hair-like scales; tergites 2, 4 and 6 each with narrow pale yellow stripe distally (broadest on tergite 4), tergite 7 with few yellow scales medially; ventrally abdomen black with dark greenish-violet shine, sternite 1+2 with small pale yellow spot distally; sternites 4–7 each with narrow pale yellow stripe distally; anal tuft well-developed, black with dark greenish-violet shine dorsally, orange laterally and yellow ventrally.

**Male genitalia** (paratype; genital preparation No OG–003-2022) (Figs 13–16). Tegumen-uncus complex relatively broad; scopula androconialis well-developed, about 0.6 times as long as tegumen-uncus complex (Fig. 13); crista gnathi medialis long and broad; crista gnathi lateralis subcordiform, about half as long as and about as broad as crista gnathi medialis (Fig. 13); valva (Fig. 14) trapeziform-ovoid, crista sacculi oblique, dual, covered with apically pointed setae anteriorly and flat-topped ones posteriorly; caudal part of row of setae bent towards ventral margin; saccus (Fig. 15)

relatively broad, long, about twice as long as vinculum; phallus (Fig. 16) rather broad, straight, about 0.75 time as long as valva; vesica with numerous small cornuti (Fig. 16).

**Female** (paratype) (Figs 5–6). Alar expanse 25.0 mm; body length 12.6 mm; forewing length 11.6 mm; antenna length 7.6 mm.

Legs with hind tibia black with dark blue shine and yellow spots both medially and distally; all spurs and all tarsi light grey-brown with bronze shine. Wings with less number of yellow scales and these scales somewhat darker (cp. Figs 1–2 with Figs 5–6); posterior transparent area of forewing completely covered with dark brown scales with dark violet shine. Veins of hindwing dorsally dark brown to black with bronze shine and only with few dark yellow scales on discal spot and basally. Abdomen dorsally black with dark blue-violet shine;

tergite 2 with sparse and narrow pale yellow to yellow stripe distally, tergite 4 with broad pale yellow to yellow stripe distally and tergite 6 with narrow pale yellow stripe distally; ventrally abdomen grey-brown with blue-violet shine; sternites 4–6 each with admixture of pale yellow to yellow scales distally; anal tuft small grey-brown with blue-violet shine. Otherwise colour pattern as in the holotype.

**Female genitalia** (paratype) (genital preparation No OG–004-2022) (Figs 17–18). Papillae anales relatively broad, well-sclerotized basally and narrowly membranous distally, covered with short and long setae; tergite 8 broad with short and long setae ventrally and distally, triangular, with ventral margin folded inside; posterior apophysis about 1.8 times as long as anterior apophysis; both lamellae antevaginalis and postvaginalis undeveloped; ostium bursae broad, stright, situated me-



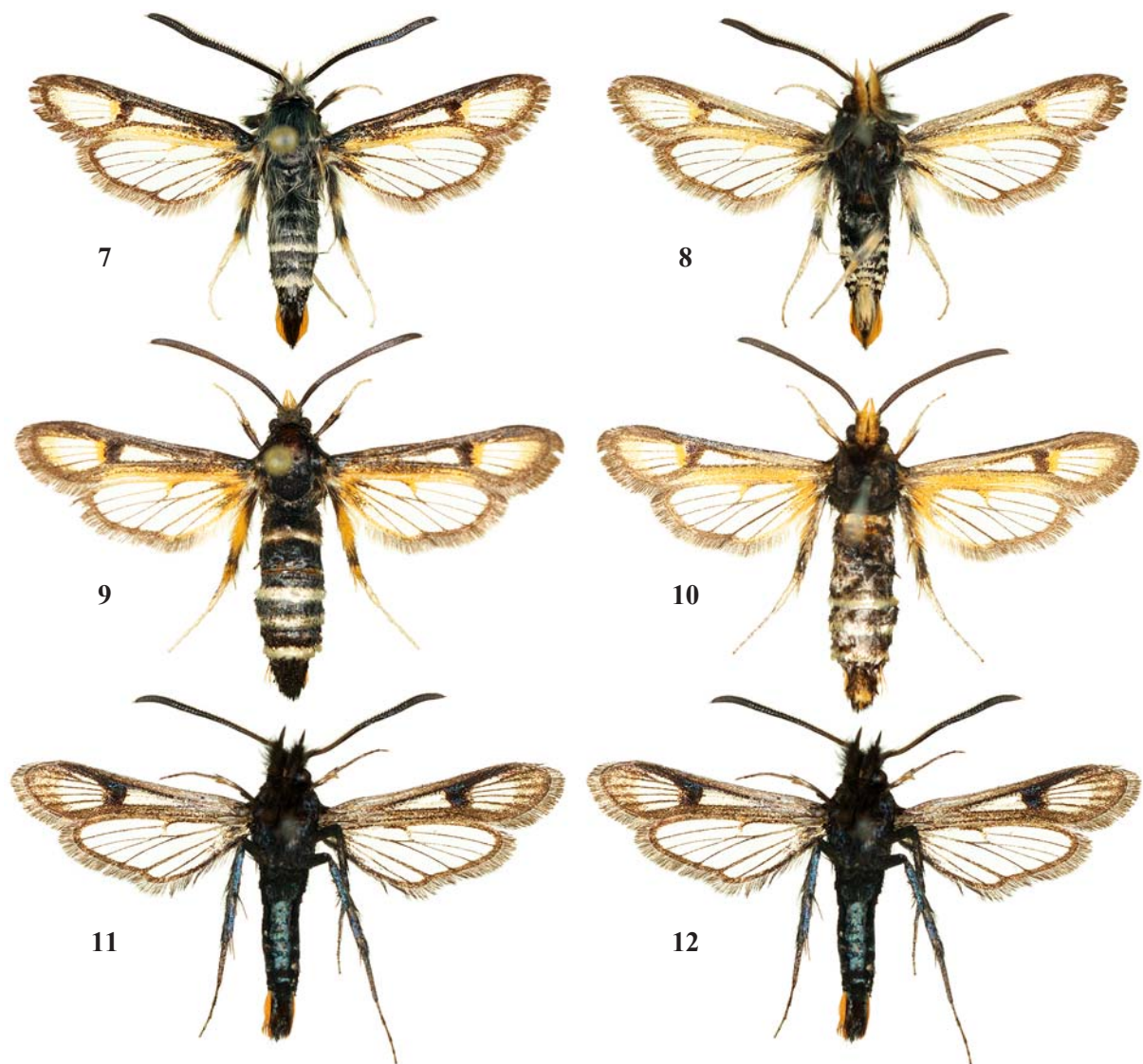
Figs 1–6. *Bembecia sotchivkoi* O. Gorbunov, **sp.n.**: 1–2 — holotype ♂, alar expanse 25.1 mm. Sesiidae picture Nos 0355-0356–2013; 3–4 — paratype ♂, alar expanse 25.5 mm. Sesiidae picture Nos 0343-0344–2013; 5–6 — paratype ♀, alar expanse 24.9 mm, Sesiidae picture Nos 0353-0354–2013. 1, 3, 5 — dorsal view; 2, 4, 6 — ventral view.

Рис. 1–6. *Bembecia sotchivkoi* O. Gorbunov, **sp.n.**: 1–2 — голотип ♂, размах крыльев 25.1 мм. Sesiidae снимки №№ 0355-0356–2013; 3–4 — паратип ♂, размах крыльев 25.5 мм. Sesiidae снимки №№ 0343-0344–2013; 5–6 — паратип ♀, размах крыльев 24.9 мм, Sesiidae снимки №№ 0353-0354–2013. 1, 3, 5 — вид сверху; 2, 4, 6 — вид снизу.

dio-ventral to tergite 8 (Fig. 18); antrum broad broad in distal half and narrow in proximal half, long, about 0.76 times as long as anterior apophysis, well-sclerotized; ductus bursae membranous with numerous wrinkles medially, about as long as antrum; corpus bursae ovoid, without signum.

INDIVIDUAL VARIABILITY. Both males and females vary in the number of pale yellow and yellow scales on the thorax, legs and abdomen. There are two males that can be called the “dark” form, as opposed to the “normal” form described above. (Figs 3–4). They have the following differ-

ences from the holotype described above: labial palpus black and narrowly pale yellow interior-dorsally on mid joint; neck plate black with dark blue-violet shine; tegula and thorax laterally completely black with dark violet shine; legs black with blue-violet shine and pale yellow scales on fore tibia ventrally and a few yellow scales both medio-externally and distally on mid and hind tibiae; all tarsi dark grey-brown ventrally; forewing dorsally with yellow-orange scales on proximal half of discal spot, vein  $M_1$  and anal margin only; veins of hindwing dark brown to black with bronze shine and

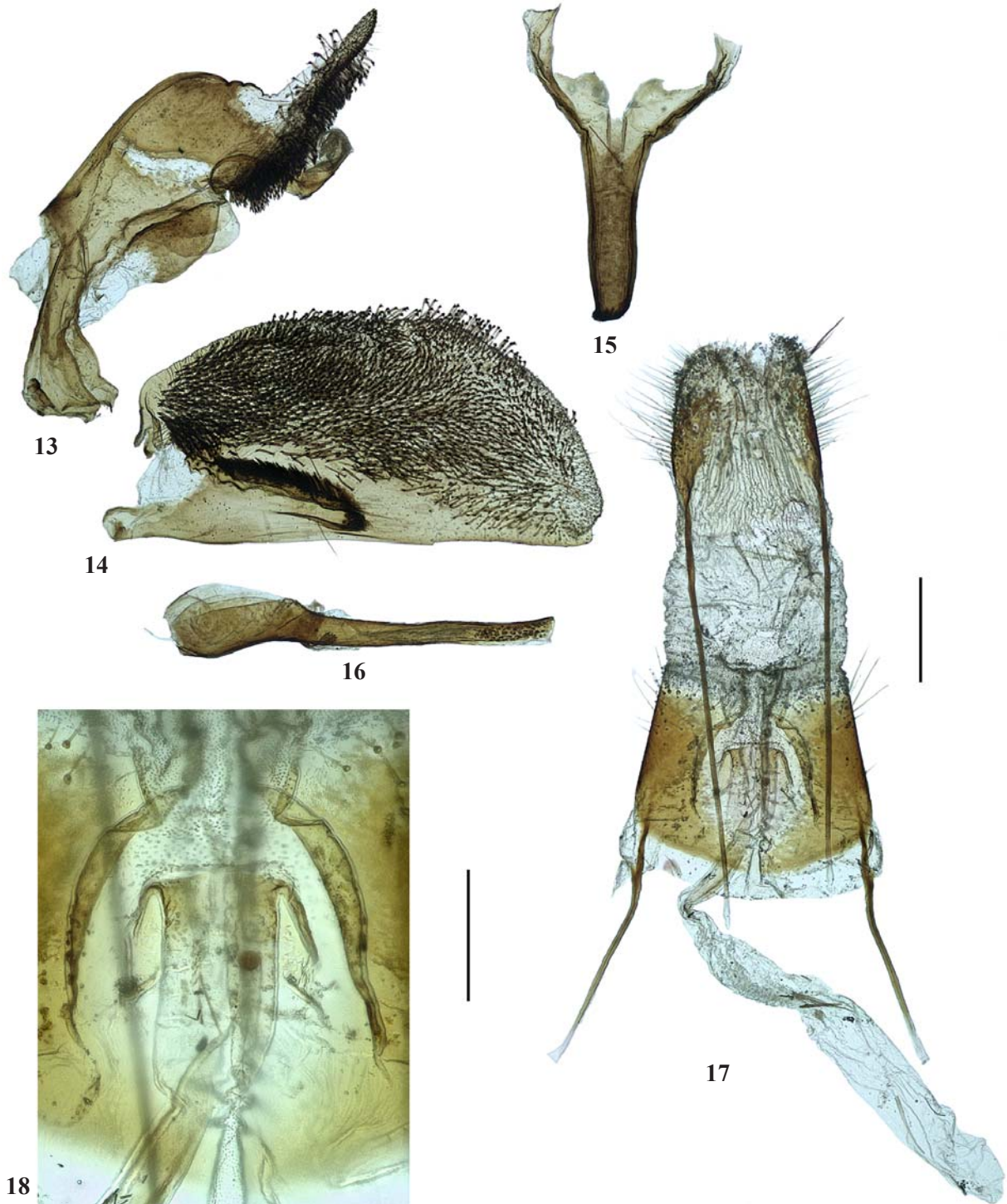


Figs 7–12. *Bembecia* spp. 7–10 — *B. senilis* (Grum-Grshimailo, 1890): 7–8 — ♂, Kirgizstan, Transalai Mts., env. of Kyzyl-Art Pass, 39.406896° N, 73.345962° E, 4310 m, 21–22.VII.1992, O. Gorbunov leg. Alar expanse 24.0 mm. Sesiidae picture Nos 0003-0004–2013 (COGM); 9–10 — ♀, Kirgizstan, Transalai, env. of Kyzyl-Art Pass, 39.406896° N, 73.345962° E, 4310 m, 21–22.VII.1992, O. Gorbunov leg. Alar expanse 25.0 mm. Sesiidae picture Nos 0001-0002–2013 (COGM); 11–12 — *B. kaabaki* O. Gorbunov, 2001, holotype ♂, Tajikistan, E Pamir, Sarikol Mts., env. of Dunkeldyk lake, 17.VII.1997, A. Sotchivko leg. Alar expanse 25.5 mm. Sesiidae picture Nos 0313-0314–2014 (COGM). 7, 9, 11 — dorsal view; 8, 10, 12 — ventral view.

Рис 7–12. *Bembecia* spp. 7–10 — *B. senilis* (Grum-Grshimailo, 1890): 7–8 — ♂, Киргизстан, Трансалайский хребет, окрестности перевала Кызыл-Арт, 39.406896° С, 73.345962° В, 4310 м, 21–22.VII.1992, О. Горбунов leg. Размах крыльев 24.0 мм, Sesiidae снимки №№ 0003-0004–2013 (COGM); 9–10 — ♀, Киргизстан, Трансалайский хребет, окрестности перевала Кызыл-Арт, 39.406896° С, 73.345962° В, 4310 м, 21–22.VII.1992, О. Горбунов leg. Размах крыльев 25.0 мм, Sesiidae снимки №№ 0001-0002–2013 (COGM); 11–12 — *B. kaabaki* О. Gorbunov, 2001, голотип ♂, Таджикистан, Восточный Памир, Сарыкольский хребет, окрестности озера Дункельдык, 17.VII.1997, А. Сочивко leg. Размах крыльев 25.5 мм, Sesiidae снимки №№ 0313-0314–2014 (COGM). 7, 9, 11 — dorsal view; 8, 10, 12 — ventral view.

only with a few dark yellow scales on discal spot and basally; abdomen dorsally with a narrow pale yellow stripe on tergite 4, tergite 6 with a few pale yellow scales distally; ventrally abdomen completely black with dark greenish-violet shine; anal tuft black with dark greenish-violet shine ventrally.

Individual size is variable as follows. Males: alar expanse 21.1–25.5 mm; body length 13.0–15.2 mm; forewing length 9.8–12.0 mm; antenna length 6.9–7.8 mm. Females: alar expanse 24.2–24.9 mm; body length 12.3–12.6 mm; forewing length 11.2–11.6 mm; antenna length 6.4–7.6 mm.



Figs 13–18. Genitalia of *Bembecia sotchivkoi* O. Gorbunov, **sp.n.**: 13–16 — paratype ♂. Genital preparation No OG–003–2022: 13 — tegumen-uncus complex; 14 — valva; 15 — saccus; 16 — phallus; 17–18 — paratype ♀. Genital preparation No OG–004–2022: 17 — common view; 18 — ostium bursae. Scale bar 0.5 mm for 1–11 and 0.25 mm for 12.

Рис. 13–18. Гениталии *Bembecia sotchivkoi* O. Gorbunov, **sp.n.**: 13–16 — паратип ♂. Препарат гениталий № OG–003–2022: 13 — тегумен-ункусный комплекс; 14 — вальва; 15 — саккус; 16 — фаллюс; 17–18 — паратип ♀. Препарат гениталий № OG–004–2022: 17 — общий вид; 18 — устье копулятивной сумки. Масштаб 0,5 мм для 1–11 и 0,25 мм для 12.

**DIFFERENTIAL DIAGNOSIS.** This new species obviously belongs to the high-mountainous Central Asian *B. senilis* (Grun-Grshimailo, 1890) species group and it seems to be the closest to *B. senilis* (type locality: Tajikistan – China border, East Pamir, Sarikol Range, Beyik Pass) and *B. kaabaki* O. Gorbunov, 2001 (type locality: Tajikistan, East Pamir, Sarikol Range, env. of Dunkeldyk lake).

From the male of *B. senilis* that of the “normal” form of *B. sotchivkoi* **sp.n.** differs in the colouration of the frons (pale yellow medially in *B. senilis*, vs. black with dark blue-violet shine in *B. sotchivkoi* **sp.n.**), hind tibia (both basally and distally broadly black with greenish-violet shine, medially pale-yellow to yellow, distally with a few yellow-orange scales dorsally; in addition, hind tibia densely covered with pale yellow long hair-like scales in *B. senilis*, vs. pale yellow with golden shine, shortly black dorso-basally, broadly yellow both medially and distally, and a few black scales at base of apical spurs in *B. sotchivkoi* **sp.n.**; compare Figs 1–2 with Figs 7–8), hindwing basally (dorsally black with a few yellow scales in the species compared, vs. yellow with a few black scales in the new species; compare Fig. 1 with Fig. 7), abdomen dorsally (black with greenish-violet shine; tergites 4 and 6 each with a narrow pale yellow stripe distally, tergites 3 and 5 each with a few pale yellow scales at distal margin in *B. senilis*, vs. black with dark blue-violet shine; tergites 2, 4 and 6 each (broadest on tergite 4) with a narrow pale yellow stripe distally, tergite 7 with a few yellow scales medially in *B. sotchivkoi* **sp.n.**; compare Fig. 1 with Fig. 7), and by the structure of the external transparent and apical areas of the

forewing (external transparent area large, divided into five cells between veins  $R_3$ – $CuA_1$  (cell between veins  $R_3$ – $CuA_1$  large), level to vein  $M_2$  about twice as broad discal spot and apical area; apical area narrow, about as broad as cilia in *B. senilis*, vs. external transparent area small, divided into five cells between veins  $R_3$  and  $CuA_1$ , (cell between veins  $M_3$ – $CuA_1$  very small), level to vein  $M_2$  about as broad as discal spot and apical area; compare Figs 1–2 with Figs 7–8). The male of the “dark” form of *B. sotchivkoi* **sp.n.** can be easily distinguished from the male of *B. senilis* by the colouration of the legs, wings and abdomen (compare Figs 3–4 with Figs 7–8). The female of *B. sotchivkoi* **sp.n.** is separable from that of *B. senilis* by the colouration of the frons (pale yellow in *B. senilis*, vs. black with dark blue-violet shine in *B. sotchivkoi* **sp.n.**), hind tibia and tarsus (hind tibia yellow-orange with a broad black ring with blue-violet shine both basally and at base of apical spurs; hind tarsus pale yellow to white in the species compared, vs. hind tibia black with dark blue shine and yellow spots both medially and distally; hind tarsus light grey-brown with bronze shine in the new species; compare Figs 5–6 with Figs 9–10), abdomen dorsally (dark brown to black with greenish-violet shine, tergites 2, 4–6 each with a broad (narrowest on tergite 5) pale yellow stripe distally in *B. senilis*, vs. black with dark blue-violet shine, tergite 2 with a sparse and narrow pale yellow to yellow stripe distally, tergite 4 with a broad pale yellow to yellow stripe distally, tergite 6 with a narrow pale yellow stripe distally in *B. sotchivkoi* **sp.n.**), and by more numerous yellow scales on the hindwing both basally and anally (compare Figs 5–6 with



Fig. 19. The type locality of *Bembecia sotchivkoi* O. Gorbunov, **sp.n.**: Tajikistan, W Gissar Mts., upstream of Zambor River, Mura pass, ca. 3780 m, 05.VIII.2013. Photo by A. Sotchivko.

Рис. 19. Типовое местонахождение *Bembecia sotchivkoi* O. Gorbunov, **sp.n.**: Таджикистан, Западный Гиссар, верховье реки Замбар, перевал Мура, около 3780 м, 05.VIII.2013. Фото А. Сочивко.

Figs 9–10). In addition, these two species have differences in the structure of the gnathos, shape of the crista sacculi and size of the phallus in the male genitalia (compare Figs 13, 14, 16 with text-fig. 128 in Špatenka *et al.* 1999: 491) and shape and size of the antrum in the female genitalia (compare Figs 17, 18 with text-fig. 378 in Špatenka *et al.* 1999: 529).

From the male of *B. kaabaki* (unfortunately, the female of the species is unknown) the male of the “dark” form of this new species can be distinguished by the colouration of the frons (dark brown to black with green-violet shine and a small grey-brown spot with purple shine medially in *B. kaabaki*, *vs.* completely black with dark blue-violet shine in *B. sotchivkoi* **sp.n.**), labial palpus (dark brown to black with green-violet shine in *B. kaabaki*, *vs.* yellow interior-ventrally, narrowly black exterior-ventrally and pale yellow dorsally in *B. sotchivkoi* **sp.n.**), patagia (dark brown to black with greenish shine in *B. kaabaki*, *vs.* black with dark blue-violet shine and small yellow spot laterally in the new species), forewing dorsally (dark brown to black with greenish shine and only with a few pale cream scales on apical area between veins  $R_4$ – $M_3$  proximally in the species compared, *vs.* forewing dorsally with yellow-orange scales on proximal half of discal spot, vein  $M_1$  and anal margin only in *B. sotchivkoi* **sp.n.**; compare Figs 3–4 with figs 11–12). The male of the “normal” form of the new species easily differs from that of *B. kaabaki* in the present of much more numerous pale yellow, yellow and yellow-orange scales on various parts of the body and wings; compare figs 1–2 with figs 11–12. Also, these two species differ from each other in the structure of the gnathos (compare Fig. 13 with fig. 5a in Gorbunov, 2001: 130).

From some other Central Asian congeners, such as *B. alaica* (Püngeler, 1912), *B. irina* Špatenka, Petersen & Kallies, 1997, *B. elena* Špatenka & Bartsch, 2010, *B. lingenhoelei* Garrevoet et Garrevoet, 2011, *B. aye* Stalling, Altermatt, Lingenhöle et Garrevoet, 2010, *B. hissorensis* Stalling, Bartsch, Garrevoet, Lingenhöle et Altermatt, 2011, and *B. lingenhoelei* Garrevoet et Garrevoet, 2011, *B. sotchivkoi* **sp.n.** is easily distinguished by the colouration of various parts of the body and wings (compare Figs 1–6 with figs 209, 210 in Špatenka *et al.*, 1999: 439, fig. 4 in Špatenka *et al.*, 1997: 419, figs 1–5 in Garrevoet, Garrevoet, 2011: 74, figs 4–5 in Špatenka, Bartsch, 2010: 43, figs 1–4 in Stalling *et al.*, 2010: 250, figs 1–4 in Stalling *et al.*, 2011: 171), and in some details in the male and/or female genitalia (compare Figs 13–18 with fig. 133 in Špatenka *et al.*, 1999: 491 an fig. 384 in *loc. cit.*: 531, fig. 9 in Špatenka *et al.*, 1997: 420, figs 7, 8 in Garrevoet, Garrevoet, 2011: 75, fig. 8 in Špatenka, Bartsch, 2010: 43, fig. 5 in Stalling *et al.*, 2010: 250, fig. 5 in Stalling *et al.*, 2011: 171).

**BIONOMICS.** The larval host plant is unknown. The type series was collected on the crest of the ridge, where the specimens, when passing to the other side of the ridge, were pressed by a headwind and landed on the ground.

**HABITAT.** Alpine and even nival belt (Fig. 19).

**DISTRIBUTION.** This species is known only from the type locality in the vicinity of the Mura Pass (38.945710° N, 68.285200° E) in the western part of the Gissar Range of the Pamir-Alay at an altitude of about 3780 m above sea level.

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## References

- Bartsch D., Špatenka K. 2010. *Bembecia magnifica* und *Bembecia afghana*, zwei neue Glasflügler Arten aus Afghanistan (Lepidoptera, Sesiidae) // Entom. Z. Bd.120. No.6. S.243–248.
- Garrevoet T., Bartsch D., Lingenhöle A. 2013. On the knowledge of *Bembecia rushana* Gorbunov, 1992 and some related species (Lepidoptera: Sesiidae) // Nota lepidopterologica. Vol.36. No.2. P.95–108.
- Garrevoet T., Garrevoet W. 2011. *Bembecia lingenhoelei*, a new Clearwing moth from Tajikistan (Lepidoptera: Sesiidae) // Phegea. Vol.39. No.2. P.73–79.
- Garrevoet T., Garrevoet W. 2016. On the status of *Bembecia zebo* Špatenka & Gorbunov, 1992; *Bembecia pamira* Špatenka, 1992; *Bembecia kreuzbergi* Špatenka & Bartsch, 2010 and *Bembecia martensi* Gorbunov, 1994 (Lepidoptera: Sesiidae) // Phegea. Vol.44. No.1. P.6–13.
- Garrevoet T., Lingenhöle A. 2011. *Bembecia bartschi*, a new clearwing moth from Tajikistan (Lepidoptera: Sesiidae) // Entom. Z. Bd.121. No.4. P.157–161.
- Gorbunov O.G. 2018. New data on the clearwing moth fauna of the Altai Mountains, Russia, with the description of two new species (Lepidoptera, Sesiidae) // Zootaxa. Vol.4425. No.2. P.263–282.
- Gorbunov O.G. 2019. A new species of the genus *Bembecia* Hübner 1819 [“1816”] from the European part of Russia (Lepidoptera, Sesiidae), with remarks on the *Bembecia dispar* (Staudinger 1891) species group // Zool. Zhurn. Vol.98. No.4. P.393–406.
- Gorbunov O.G. 2020. A new and poorly known clearwing moth of the genus *Bembecia* Hübner, 1819 [“1816”] from the European part of Russia and northwestern Kazakhstan (Lepidoptera, Sesiidae) // Zootaxa. Vol.4729. No.4. P.551–565.
- Gorbunov O.G. 2001. Two new species of the genus *Bembecia* Hübner (Lepidoptera, Sesiidae) from Tadzhikistan and Turkmenistan // Melittia, lepid. almanac. Vol.1. P.125–134.
- Gorbunov O.G., Efetov K.A. 2018. The clearwing moth genus *Bembecia* Hübner 1819 [“1816”] (Lepidoptera, Sesiidae) in Crimea, with the description of a new species // Zool. Zhurn. Vol.97. No.7. P.812–839.
- Gorbunov O.G., Krupitsky A.V., Marusov A.A. 2017. A new species of *Bembecia* from China, with a catalogue of Chinese species of the genus (Lepidoptera: Sesiidae) // Zootaxa. Vol.4273. No.4. P.559–575.
- Heppner J.B., Duckworth W.D. 1981. Classification of the Superfamily Sesiioidea (Lepidoptera, Ditrysia) // Smithsonian Contr. Zool. Vol.314. P.1–144.
- Kallies A., Špatenka K. 2003a. The clearwing moths of Iran (Lepidoptera, Sesiidae) (1st part) // Linneana Belgica. Vol.19. No.2. P.81–94.
- Kallies A., Špatenka K. 2003b. The clearwing moths of Iran (Lepidoptera, Sesiidae) (2nd part) // Linneana Belgica. Vol.19. No.3. P.119–126.
- Lingenhöle A., Bartsch D. 2011. *Bembecia garrevoeti* sp. nov. aus dem östlichen Hissargebirge in Tadschikistan (Lepidoptera: Sesiidae) // Entom. Z. Bd.121. No.4. S.163–167.
- Pühringer F., Kallies A. 2022. Checklist of the Sesiidae of the world (Lepidoptera: Ditrysia). Online database. Last modified: 26.12.2022. Available from: <http://www.sesiidae.net/> (accessed 26 January 2023)
- Sobczyk T., Kallies A., Riefenstahl H. 2007. Die Arten der *Bembecia megillaeformis*-Gruppe (Hübner, 1813) aus der Türkei mit der Beschreibung von *Bembecia stuebingeri* sp. nov. (Lepidoptera: Sesiidae) // Entom. Z. Bd.117. No.1. S.17–26.
- Špatenka K. 2001. Neue paläarktische Glasflügler-Arten (Lepidoptera: Sesiidae) // Entom. Z. Bd.111. No.3. S.75–80.

- Špatenka K., Bartsch D. 2010. Drei neue Arten von *Bembecia* Hübner, [1819] aus Usbekistan (Lepidoptera: Sesiidae) // Entom. Z. Bd.120. No.1. S.41–45.
- Špatenka K., Gorbunov O., Laštůvka Z., Toševski I., Arita Y. 1999. Sesiidae, Clearwing Moths // Naumann C.M. (ed.). Handbook of Palaearctic Macrolepidoptera. Vol.1. Wallingford: Gem Publishing Company. 569 pp. 57 pls.
- Špatenka K., Kallies A. 2001. Zur Taxonomie, Bionomie und Verbreitung zentralasiatischer Sesiidae und Brachodidae (Lepidoptera, Sesiioidea) // Entom. Z. Bd.111. No.7. S.199–205, No.8. S.234–237.
- Špatenka K., Kallies A. 2006. Zwei neue Glasflüglerarten sowie eine kommentierte Checkliste der Glasflügler Kyrghyzstans (Lepidoptera: Sesiidae) // Entom. Z. Bd.116. No.4. S.163–168.
- Špatenka K., Lingenhölle A. 2002. Ergebnisse einer sesiidologischen Expedition in die Mongolei 2000 (Lepidoptera: Sesiidae) // Entom. Z. Bd.112. No.7. S.200–205.
- Špatenka K., Pavlicko A. 2011. Beitrag zur Glasflüglerfauna Syriens (Sesiidae: Lepidoptera) // Entom. Z. Bd.121. No.4. S.147–156.
- Špatenka K., Petersen M., Kallies A. 1997. Ergebnisse einer sesiidologischen Expedition 1994 nach Kasachstan und Kirgistan (Lepidoptera: Sesiidae) // Nachr. Ent. Ver. Apollo (N.F.). Bd.17.No.4. S.405–422.
- Stalling T., Altermatt F., Lingenhölle A., Garrevoet, T. 2010. A new species of *Bembecia* Hübner, [1819] from Tajikistan, Central Asia (Lepidoptera, Sesiidae) // Entom. Z. Bd.120. No.6. S.249–251.
- Stalling T., Bartsch D., Garrevoet T., Lingenhölle A., Altermatt F. 2011. *Bembecia hissorensis*, a new species of Clearwing moths from Tajikistan, Central Asia (Lepidoptera: Sesiidae) // Entom. Z. Bd.121. No.4. S.169–172.
- Toševski I. 2011a. *Bembecia diamerica* sp. n. – a new species of clearwing [sic!] moth (Lepidoptera, Sesiidae) from Aston Rama Valley in North West Pakistan // Zastita bilja (Plant Protection). Vol.62. No.1. P.39–43.
- Toševski I. 2011b. *Bembecia bumbureta* sp. n. – a new species of clearwing moths from North-Western Pakistan (Lepidoptera, Sesiidae) // Zastita bilja (Plant Protection). Vol.62.No.3. P.197–202.