

A new species of *Bembecia* HÜBNER, [1819] from Tajikistan, Central Asia (Lepidoptera: Sesiidae)

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Abstract. A new species of *Bembecia* HÜBNER, [1819] is described based on individuals collected in Tajikistan. *Bembecia aye* sp. nov. was collected in different habitats in the Hissar mountains west and north of Dushanbe. The adults and the male genitalia are illustrated.

Key words. Lepidoptera, Sesiidae, *Bembecia*, new species, taxonomy, Palaearctic Region, Central Asia, Tajikistan, Hissar mountains.

Zusammenfassung. Eine neue Art der Gattung *Bembecia* HÜBNER, [1819] wird aus Tadschikistan beschrieben. *Bembecia aye* sp. nov. wurde in verschiedenen Lebensräumen des Hissar-Gebirges westlich und nördlich Dushanbe gefunden. Die Imagines und die männlichen Genitalien werden abgebildet.

47°N / 68°51'18" E, 24.VII.2009, leg. A. LINGENHÖLE (CAL); 4♂, Tajikistan, Khoja Ob-i Garm, 35 km north of Dushanbe, 2200 m, 6.VII.2009, 38°53'19,9" N / 68°45'08,9" E, leg. T. & J. GARREVOET (CTG); 24♂, same locality, 18.VII.2009, leg. T. & J. GARREVOET (CTG); 6♂, Tajikistan, Safedorak, 37 km north-east of Dushanbe, 2350 m, 17.VII.2009, 38°51'24,1" N / 69°00'03,2" E, leg. T. & J. GARREVOET (CTG); 4♂, Tajikistan, 1 km S Rufigar, 45 km north of Romit, 2100 m, 21.VII.2009, 39°07'29,7" N / 69°25'13,9" E, leg. T. & J. GARREVOET (CTG); 1♂, Tajikistan, Magov, 30 km north-east of Dushanbe, 1500 m, 23.VII.2009, 38°41'21,7" N / 69°06'04,0" E, leg. T. & J. GARREVOET (CTG); 29♂, Tajikistan, 2 km south of Anzob pass, 2450 m, 25.VII.2009, 39°03'59,7" N / 68°51'00,0" E, leg. T. & J. GARREVOET (CTG).

Introduction

Knowledge of clearwing moths (Sesiidae) has recently increased due to the use of synthetic pheromones. As a result, several monographs on clearwing moths were written over the last 20 years (e.g. FREINA 1997, ŠPATENKA et al. 1999) and the Western Palaearctic fauna is well known. The clearwing moths of Central Asia however are still poorly known. As a result of recent expeditions to Central Asia, several species were discovered and described within the last twenty years (ŠPATENKA 1987, ŠPATENKA 1997, GORBUNOV 2001, ŠPATENKA & KALLIES 2006, ŠPATENKA & BARTSCH 2010). Little research on Sesiidae has been done in Tajikistan to date. During two expeditions to this country in 2007 and 2009, a series of a previously undescribed species belonging to the genus *Bembecia* HÜBNER, [1819] was collected and is described here.

Materials and Methods

All clearwing moths were attracted to synthetic pheromone baits ("black band" from BASF with unknown composition and the api-pheromone from the Plant Research International, Wageningen which contains (Z, Z)-3,13-octadecadien-1-ol [PÜHRINGER & RYRHOLM 2000]). The baits were deployed at different times of the day over different time periods.

Almost all specimens were attracted before noon.

Abbreviations. ETA – external transparent area; PTA – posterior transparent area; ATA – anterior transparent area; CAL – collection of A. LINGENHÖLE; CTG – collection of T. GARREVOET; CTS – collection of T. STALLING; CFA – collection of F. ALTERMATT.

Bembecia aye sp. nov. (Figs 1–5)

Holotype. ♂, "Tadschikistan, Hissargebirge, Anzob Pass Südseite, 2450 m, 39°03'47" N, 68°41'18" E, 24.7.2009 leg. A. Lingenhöle" (CAL; the holotype will be deposited in the Staatliches Museum für Naturkunde Stuttgart, Germany).

Paratypes. 1♂, TJ, Uzun, NW Dushanbe, 1730 m, 3.VII.2007, 38°37'50,7" N / 68°24'59,8" E, 16:00 h, attracted to the api-pheromone (Plant Research International), leg. T. STALLING (CTS); 2♂, Kalon, south of Anzob pass, 2500 m, 39°03'23,9" N / 68°52'07,6" E, 10.VII.2007, at pheromones, leg. F. ALTERMATT & T. STALLING (CFA, CTS); 10♂, Tajikistan, 35 km north of Dushanbe, Khoja-i Garm, 2230 m, 38°53'19" N / 68°45'08" E, 5.VII.2009, leg. A. LINGENHÖLE (CAL); 16♂, same locality, 18.VII.2009, leg. A. LINGENHÖLE (CAL); 8♂, Tajikistan, Romit valley, 2150 m, 39°08'29" N / 69°25'31" E, 21.VII.2009, leg. A. LINGENHÖLE, CAL; 1♂, TJ, 37 km north of Dushanbe, Safedorak, 2350 m, 38°51'24" N / 69°00'03" E, 17.VII.2009, leg. A. LINGENHÖLE (CAL); 91♂, Tajikistan, south of Anzob pass, 2450 m, 39°03'

Etymology. The new species is named after RAFFAEL AYE (Basel, Switzerland). RAFFAEL has an excellent knowledge of Central Asia, especially of its culture and avifauna. He lived for a long time in Central Asia and enabled the two first authors to visit Tajikistan.

Description. **Holotype** (Figs 1–2). ♂, Alar expanse 29 mm, antenna 9 mm, forewing length 12 mm, body length 15 mm.

Head. Antenna black with a few bright scales interspersed; labial palpus yellow with a black stripe laterally; frons yellow, vertex yellow with long, hair-like gray scales.

Thorax. Black, with black scapular spot at wing base; patagia yellow; tegulae yellow. Front legs: inner side of coxa black, outer side yellow; femur black; tibia and tarsi yellow with black spines. Hind legs: coxa and femur yellow, tibia yellow with black ring distally and two long, yellow spurs, tarsi yellow with black spines.

Abdomen. Black, tergites II, IV, VI and VII yellow; sternites IV–VII yellow; anal tuft completely yellow with black hair-like scales laterally.

Forewing. Transparent areas well developed; costal margin dark brown. Anal area orange. Discal spot black, orange distally. PTA long, reaching distal end of



Figs 1–4. *Bembecia aye* sp. nov. 1. Holotype (male), dorsal view. 2. Holotype (male), ventral view. 3. Paratype (male), dark morph, dorsal view (TJ, Hissar mountains, south of Anzob pass, 2450 m, 24.VII.2009 leg. LINGENHÖLE). 4. Paratype (male), dark morph, ventral view. Scale bar 10 mm.

discal spot. ATA transparent, long and large. ETA transparent, long and large. Apical area narrow, yellow-orange. Veins M1 and M2 yellow-orange, all other veins black. Wing underside similar as upperside, but all veins yellow-orange. Outer margin narrow, grayish-brown.

Hindwing. Discal spot present, yellow-orange, reaching M2. Veins narrow, Cu1, Cu2 and M3 black, M2, A1 and A2 yellow-orange. Underside similar, but all veins yellow-orange. Outer margin narrow, grayish-brown.

Male genitalia (Fig. 5). Tegumen-uncus complex with simple crista lateralis and well developed crista medialis; valva elongate, rounded; crista sacculi large, reaching apex of valva, with a line of setae, the end deviating sharply, with a small gap where bent.

Female. Female is unknown.



Fig. 5. Male genitalia of *Bembecia aye* sp. n., paratype (TJ, Hissar mountains, south of Anzob pass, 2450 m, 24.VII.2009 leg. LINGENHÖLE). Scale bar 1 mm.

Variability. The wingspans of the type series vary between 20–30 mm, but most specimens have a wingspan of 28 mm. The type series consists of two forms, ones resembling the holotype and a dark form.

Description of the black form (Figs 3, 4). **Head.** Antenna black; labial palpus black, interspersed yellow hair-like scales; frons black; vertex black.

Thorax. Black, with some long, yellow-gray hair-like scales. Front legs: coxa and femur black, tibia and tarsus black, speckled yellow. Hind legs: coxa black, femur with long yellow hair-like scales proximally, tibia and tarsus black with some yellow scales.

Abdomen. Black, sternit IV with a large yellow spot medially, sternit V with some yellow scales. Anal tuft black with some yellow hair-like scales dorsally.

Diagnosis. *Bembecia aye* sp. nov. differs from all other *Bembecia* species of Central Asia by its larger size and the large transparent areas of the forewing. The male genitalia suggest a relationship to the *Bembecia ichneumoniformis*-group.

Habitat. The species was captured both in dry grassland in open juniper-forest at about 1700 m in the lower Hissar mountain ridge and in alpine grassland vegetation until about 2500 m in the higher Hissar mountains. The lower area is semi-wild with partially abandoned almond and apple orchards and is extensively used for grazing of cattle and sheep.

The higher area is alpine grassland vegetation. At both places the vegetation is rich in various Fabaceae (e.g. various species of *Astragalus* spp., Fabaceae).

Distribution. The species is known only from the Hissar mountains west and north of Dushanbe, Tajikistan.

Life history. Almost unknown. Imago found in July.

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