Taxonomic notes on the genus Gymnomus LOEW, with a description of a new species from Morocco (Diptera: Heleomyzidae)

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ABSTRACT. A new species, Gymnomus atlasicus sp. n. from the Atlas Mts. in Morocco is described and illustrated. The female holotype of Gymnomus ventricosus (BECKER, 1907) from Tibet is examined and redescribed. A key for the determination of all 20 species recorded in the Palaearctic Region is presented. The genus Gymnomus from North Africa is reported for the first time.

KEY WORDS: Heleomyzidae, Heleomyzinae, Gymnomus, taxonomy, new species, Palaearctic Region.

INTRODUCTION

The Holarctic genus Gymnomus LOEW, 1863 of the tribe Heleomyzini BEZZI, 1911 (subfamily Heleomyzinae) is widely distributed in the Northern Hemisphere (PAPP & WOŹNICA 1993; WOŹNICA 2008). In the Palaearctic 19 species are known (PAPP & WOŹNICA 1993; WOŹNICA 2006, 2007, 2008), mostly in Europe (WOŹNICA 2011). Only Gymnomus sabroskyi (GILL, 1962) is widely distributed in the Holarctic Region. The main purpose of this paper is to describe a new species of Gymnomus from Morocco and to redescribe G. ventricosus (BECKER, 1907) from Tibet.

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MATERIAL AND METHODS

The specimens examined are from the Muséum National d’Histoire Naturelle in Paris (MHNH, France) and the Zoological Institute of the Russian Academy of Sciences in St. Petersburg, (ZIN, Russian Federation). The images were taken with a Canon PowerShot G10 digital camera attached to a Zeiss Primo Star light microscope and using computer graphic techniques. The genitalia are dissected and preserved in a glycerine vial. In the species descriptions bilaterally symmetrical structures are described in the singular. Holotype and paratype label data are quoted as they appear; a comma (,) indicates the end of a line of print, a semicolon (;) signifies data on a further label. The terminology of the external structures is after MCALPINE (1981), and the terminology of the male terminalia is modified after ZATWARNICKI (1996). The abbreviations of the measurements follow WOŹNICA (2003, 2006).

TAXONOMY

**Gymnomus atlasicus** sp. n.

(Figs 1-6)

**Diagnosis**

This is a unique species with well-developed, long cerci and an externally flattened and V-shaped dististylus. The first flagellomere is reddish-brown, the postpronotum yellowish, the anepisternum with ca 10 or fewer small black hairs in the anterior corner, and the hind femur with three to four dorsal subapical bristles; the one or two irregular rows of genal setulae distinguish this species from other known Gymnomus species.

**Description**

Measurements: body length: 8.2 (♂) – 8.6 mm (♀). Head ratio: 1.23 (♀) – 1.25 (♂).

Head: frontal plate as far as the second orbital bristle orange, remaining part brownish. Ocellar triangle dusted ash-grey. Face and gena pale brown, with eye border area slightly dusted silver. Anterior orbital bristle ca 0.63x (♀) – 0.68x (♂) of the posterior one. Genal setulae in 1-2 irregular rows. Scape and pedicel pale orange, first flagellomere brownish-red, slightly elongated, and darker at apex. Cheek-eye ratio varies from 0.60 (♂) to 0.64 (♀), flag-cheek ratio ca 0.47 (♂) – 0.53 (♀). Palpus dark orange.

Thorax: prosternum pale brown with one pair of prosternal bristles. Mesonotum greyish-brown, postpronotum dirty yellow. Mesonotum greyish with 4 dorsocentral bristles arising from blackish spots. A smaller, and rather indistinct blackish stripe between the dorsocentrals present. Similar but smaller spots present under the prescutellar bristle. Intralalar areas blackish and also spotted. Scutellum with apex and lateral margins of yellowish-
brown, with dorsum dusted greyish. Postscutellum ash-grey. Anterior corner of anepisternum with 8 to 10 hairs. Notopleural areas paler, more yellowish. Proepisternum and hind metasternal part grey. Katepisternum distinctly thick haired but laterally bare, with one big black katepisternal bristle. Thorax distinctly longer haired and setulose than in female, especially in the ventral katepisternal area.

Wing: length: 6.67 (♂) – 7.3 mm (♀), width: 2.80 (♂) – 3.10 mm (♀). Medial vein ratio ca 1.27 (♀). Costal spines well developed and distinctly longer than width of costa. Veins brownish, membrane slightly tinged yellowish. Haltere yellowish-orange.

Legs: orange-brown. Fore femur dusted greyish in the dorsal part. Mid femur without antero-dorsal bristles, and short-haired only. Hind femur with 3-4 dorsal subapical bristles in both sexes. All femora and tibiae, with the exception of male mid tibia, short-haired. Male mid tibia distinctly long-haired. All tarsomeres yellowish-brown. Male first tarsomere of hind leg markedly flattened and with large ventral dense hook anteriorly, ca 1.2 x longer than the second tarsomere.

Abdomen: male tergites I-IV greyish, with rather thick and distinct marginal bristles. Tergite V orange in the 1/2 apical part. Epandrium totally yellowish-brown. In the female marginal half of segment V rather yellowish, the remainder yellowish-brown in colour. Sternites I-V yellowish-brown and dusted pale grey in both sexes.

Male terminalia: epandrium medium sized and elliptical. Cerci thin, elongated (more than 1/2 of the height of the epandrium) and relatively long-haired (Figs 1-2). The separated apical part shorter than 1/3 of its total length. Dististylus V-shaped in the lateral view: lateral lobe narrowed, inner apical part with a few distinct thorns only. Median lobe narrowed and knob-like apically, and covered with several thorns (Figs 3-4). Basistylus very characteristic, long and with the broad, shovel-like apex covered by several thorns (Fig. 5). Postgonite shorter than high, apically pointed, with two strong bristles, the first one distinctly shorter than the length of the second one (Fig. 6). Hypandrium U-shaped, well sclerotized and with two-three setae on the lateral surfaces. Thin and long distiphallus regularly twisted in the half part and slightly broadened apically.

Female terminalia: not dissected, sternite VIII finger-like.

**Type material**

**Holotype:** ♂, Tazeka, 4.[19]56, M cm ATLAS, (Reymond) (MNHN); paratype: 1 ♀, Tazeka, 4.[19]56, M cm ATLAS, (Reymond) (MNHN). The types are deposited at the Muséum National d'Histoire Naturelle in Paris (MHNH, France).

**Distribution**


**Biology**

Unknown.
Figs 1-6. Gymnomus atlasicus sp. n., holotype male: 1, 2 – cerci: 1 – dorsal aspect, 2 – lateral aspect; 3, 4 – left dististylus: 3 – ventral aspect, including apical part of basistylus, 4 – dorsal aspect; 5 – left basistylus: ventral aspect; 6 – left postgonite: dorsal aspect.
Gymnomus ventricosus (BECKER, 1907)

Blepharoptera ventricosa BECKER, 1907: 258.
Amoebaleria ventricosa (BECKER, 1907): CZERNY 1924: 135.
Scoliocentra (Gymnomus) ventricosa (BECKER, 1907): GORODKOV 1984: 29.
Gymnomus ventricosus (BECKER, 1907): PAPP & WOŹNICA 1993: 207.

Diagnosis
First flagellomere blackish-brown, cheek dusted silver, genal setulae in one row, and one dorsal subapical bristle on hind femur distinguish this species from the others. This species is similar to European G. czernyi PAPP & WOŹNICA but can be easily distinguished by only a single row of genal setulae and one subapical dorsal bristle on the hind femur (see key below).

Description
Measurements: body length: 7.65 mm. Head ratio ca 1.16.

Head: Face yellowish-brown, frons honey-coloured. Gena dusted silver. Scape and pedicel reddish, first flagellomere round and blackish-brown. Genal setulae in one row, first orbital bristle about 0.5x the second one. Flag-cheek ratio: 0.55, flag ratio: 0.65.

Thorax: mesonotum greyish-brown. Dorsocentral bristles not arising from spots, a thin dark brown strip present between the dorsocentrals. Scutellum disc brownish, grey on margins, postscutellum grey. Anepimeron brownish-grey with several (ca 15) setulae in the anterior corner. Katepisternum almost totally covered with hairs, with one big black katepisternal bristle.


Legs: predominantly orange-red and short haired. Fore femur greyish dusted dorsally. Apical part of all tibiae and tarsomeres dark brown. Hind femur with one dorsal subapical bristle.

Abdomen: grey, marginal areas slightly paler. Two last segments reddish-brown, cerci dark brown.

Female terminalia: not dissected, sternite VIII united and elongated.

Type material
Holotype ♀, Tibet; Kozlov, V.01; ventricosa Becker; J. Tochu Thal blauer Fluss, Kozlov. Juli 1900. Tibet; holotypus Blepharoptera ventricosa BECKER, 1907 (ZIN, Zoological Institute of Russian Academy of Sciences in St. Petersburg, Russian Federation).

Distribution
Tibet.
**Biology**

Unknown.

**Discussion**

Of all the known Palaearctic *Gymnomus* species, only *ventricosa* BECKER, 1907, described from one female collected in Eastern Tibet was not examined earlier (PAPP & WOŹNICA 1993). The holotype in the collection of the Zoological Institute of the Russian Academy of Sciences in St. Petersburg (ZIN, Russian Federation) is examined and redescribed here for the first time. The taxonomic status within the genus *Gymnomus* proposed by PAPP & WOŹNICA (1993) is now confirmed.

**Key to the Palaearctic species of the genus Gymnomus LOEW**

1. Postpronotal bristle absent, cheek-eye ratio >1.25..................... *troglodytes* LOEW, 1862
   - Postpronotal bristle present, cheek-eye ratio <1.0..................................................... 2
2. Hind femur without dorsal subapical bristles.......................................................... *mariei* (SÉGUY, 1934)
   - Hind femur with dorsal subapical bristles........................................................................ 3
3. Postpronotum yellow to yellowish-brown, in contrast to the bluish-grey disc of the mesonotum................................................................. 4
   - Postpronotum brownish to bluish grey, concolorous with the disc of the mesonotum... 10
4. Abdomen completely yellowish-orange, hind femur with 3-5 dorsal subapical bristles............................................................... *amplicornis* (CZERNY, 1924)
   - Abdomen darkened (at least tergites I-IV distally).................................................. 5
5. A second but small additional vibrissa present, first tarsomere of hind leg only slightly longer than the second segment (males only)............... *primitivicus* WOŹNICA, 2008
   - Only one vibrissa present, first tarsomere of hind leg distinctly longer than the second one.......................................................... 6
6. First orbital bristle not longer than half the height of the second one.......................................................... *sabroskyi* (GILL, 1962)
   - First orbital bristle much longer than 0.65 of the height of the second one........... 7
7. Legs distinctly elongated (as in *troglodytes*).............. *gorodkovi* PAPP & WOŹNICA, 1993
   - Legs normally developed (as in *amplicornis*)......................................................... 8
8. Anterior corner of anepisternum with a few (6-9) short hairs only, one row of genal setulae present.............................................. *warchalowskii* WOŹNICA
   - Anterior corner of anepisternum with some (ca 20 or more) short hairs, genal setulae in two or more rows.................................................. 9
9. Face dark brown, palpus reddish-orange, cheek-eye ratio varies from 0.75 to 0.80, 20-25 hairs in anterior corner of anepisternum....................... *renatae* WOŹNICA, 2008
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10. Abdomen pale orange to yellowish-brown, in contrast to the grey disc of the mesonotum.

11. Postpronotum and scutellum brownish-grey, in contrast to the greyish disc of the mesonotum, anterior orbital bristle at least 0.60 of the height of the posterior bristle, 1 row (2 if irregular) of genal setulae.

12. Two to three dorsal subapical bristles on hind femur, orbital bristle at most 0.65 of the length of the posterior bristle, a thin dark brown stripe present between the dorsocentral bristles, one rather irregular row of genal setulae.

13. First flagellomere dark brown to blackish.


15. Hind femur with 3-7 dorsal subapical bristles.

16. Postpronotum brownish-grey, scutellum brownish, 5-7 dorsal subapical bristles on hind femur, flag-cheek ratio ca 0.70.

17. Cheek-eye ratio varies from 0.75 to 0.80.

18. First flagellomere reddish-brown, ca 20 hairs in anterior part of anepisternum, mesonotum dark grey, (proepimeron with one additional small setula) postsutural dorsocentral bristles emerging from brown, almost fused stripes.

- First flagellomere orange, ca 12 hairs in anterior part of anepisternum, mesonotum brownish-grey (proepimeron without an additional setula), dorsocentrals emerging from well-separated brown spots only.
19. First flagellomere brown, postpronotum dirty yellow in contrast to the grey disc of the mesonotum, one dorsal subapical bristle on hind femur. asiaticus WoźniC, 2007

- First flagellomere orange, postpronotum concolorous with the grey disc of the mesonotum, 2-3 dorsal subapical bristles on hind femur. martineki Papp & WoźniC, 1993

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