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FIRST RECORD OF *ANDRENA GENALIS* MORAWITZ, 1880 (HYMENOPTERA: ANDRENIDAE) FROM RUSSIA WITH DESCRIPTION OF HITHERTO UNKNOWN MALE

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Summary. A male of *Andrena genalis* Morawitz, 1880 is described for the first time. The specimen comes from the Altai Republic, so this species is newly recorded from Russia. Photographs of the male and notes on records and distribution of this little known species are given. The known *Andrena* fauna of Russia includes 233 species.

Key words: Apoidea, Anthophila, bees, distribution, Siberia, Central Asia.

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Резюме. Впервые описан самец *Andrena genalis* Morawitz, 1880. Экземпляр был собран в Республике Алтай, таким образом, этот вид впервые приводится для фауны России. Представлены фотографии самца и замечания по находкам и распространению этого малоизученного вида. В результате известная фауна пчел рода *Andrena* в России насчитывает 233 вида.

INTRODUCTION

Andrena Fabricius, 1775 is the one of the largest bee genera, numbering about 1700 species worldwide and about 1250 among them are known from the Palearctic region (Gusenleitner & Schwarz, 2002; Wood, 2024). Currently 232 species of *Andrena* are known from Russia (Proshchalykin *et al.*, 2023; Wood, 2024), but the Russian *Andrena* fauna remains understudied, especially in the Asian part of the country. At the same time, new records on various bee groups in Russia have been published recently (Proshchalykin *et al.*, 2017; Proshchalykin & Kuhlmann, 2020, 2023; Astafurova & Proshchalykin, 2023; Fateryga & Proshchalykin, 2024; Fateryga *et al.*, 2024).

Working with materials collected by Grigory Potanin's expedition (1863–1864), Ferdinand Morawitz (1880) described two remarkably similar species of *Andrena* from “nordwestlichen Mongolei”: *A. genalis* Morawitz, 1880 and *A. scutellaris* Morawitz, 1880. Both of them have a very broad head and the males of these species remained unknown for a long time. In 1980 Anna Osytshnjuk labelled the only one known female of *A. genalis* as “Lectotypus”, but did not publish this designation. Xu & Tadauchi (1997: 168) gave a very detailed re-description of this species, after studying this specimen, as did Gusenleitner and Schwarz (2001: 128).

New records of *A. genalis* were first published by Wu (1985: 139): “Xinjiang (Zhaosu, Alasan, 2430 m)”. Later Xu and Tadauchi (2012: 99) probably referred to this specimen: “China, Xinjiang Uygur Autn. Region: 1 female, Alashan, Shaosu, 2,430 m, 31.VII.1978 (X–z. Zhang)”. Records of *A. genalis* in Kyrgyzstan (Engil'chek glacier, Sarydzhas Range) were reported by Osytshnjuk *et al.* (2005: 118), without any information on the material studied and its location. Specimens are more likely to be kept in the collection of the I.I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kiev (E. Scheuchl, personal communication) or in the Zoologische Staatssammlung, Munich, Germany (T.J. Wood, personal communication). The male of *A. scutellaris* was also described in this monograph (Osytsnjuk *et al.*, 2005: 123).

Finally, Astafurova *et al.* (2021: 28) examined the holotype of *A. genalis*, provided high quality photographs of the female, and found out that the type locality is actually “China, Xinjiang, Nanshankou”. However, at the present time the male of this little known species remains unknown and only four records from the Tian Shan Mountains have been published, two of which are unclear.

MATERIAL AND METHODS

The studied specimen is deposited at the Zoological Institute, Russian Academy of Sciences, St. Petersburg (ZISP). Morphological terminology follows Michener (2007). Abbreviations F, T, and S are used for flagellomere, metasomal tergum and metasomal sternum, respectively.

Photographs were made using a combination of a stereomicroscope Olympus SZX10 and a digital camera (Olympus OM-D). Illustrations were obtained by making montages assembled from image series that cover different focal planes with Helicon Focus 7.7. The final illustrations were post-processed for contrast and brightness using Adobe® Photoshop® software.

RESULTS

Andrena (Andrena) genalis Morawitz, 1880

Figs 1–9

Andrena genalis Morawitz, 1880: 363, ♀ (holotype: ♀, “nordwestlichen Mongolei” [Nanshankou, Xinjiang, China]; ZISP), examined.

MATERIAL EXAMINED. **Russia:** Altai, Ongudai, 13.VII 1901, 1 ♂, W. Steinfeld // κ. Вольмана [collection of Wolmann] // *Andrena genalis*, ♂, D.A. Sidorov det. 2024 [ZISP]. Specimen has front legs only.

DIAGNOSIS. The male of *Andrena genalis* is very similar to the male of *A. scutellaris* (examined by description in Osytshnjuk *et al.*, 2005: 123) in general structure and distribution. However, it differs in coloration and sculpture: the mesoscutum medially is dull and granulate (vs shiny and smooth in *A. scutellaris*), pubescence mostly dark, the rest of hairs are yellowish (vs greyish). The terminalia of both species seems to be very similar, though genitalia of *A.*

scutellaris illustrated only as contour drawings (Osytshnjuk *et al.*, 2005: 97, fig. 207). Nevertheless, the genitalia of *A. genalis* could be distinguished by broad and apically rounded gonocoxite dorsal tooth and less elongated gonostyle.



Figs 1, 2. *Andrena genalis* Morawitz, 1880, male, habitus. 1 – dorsal view; 2 – lateral view. Scale bars: 2.0 mm.

The females of these two species clearly differ by coloration of pale pubescence (dirty yellow to reddish in *A. genalis* vs pale yellow to white in *A. scutellaris*) and large admixture of dark to black hairs on the head and the mesoscutum in *A. genalis*.

Andrena genalis is also similar in coloration with European species *A. fulva* (Müller, 1766) (Xu & Tadauchi, 1997, as *A. armata* Gmelin, 1790; Gusenleitter & Schwarz, 2001, 2002), but the female clearly differs by the very broad head with distinct malar space and short compound eyes, and the male differs by the long malar space, the smooth and shiny genal area in anterior half (vs entirely dull and shagreened in *A. fulva*), the mandible without tooth-like projection at the base, and pale pubescence dirty white (vs yellowish).



Figs 3–9. *Andrena genalis* Morawitz, 1880, male. 3, 4 – head, ventro-frontal (3) and frontal (4) views; 5 – mesosoma, dorsal view; 6 – metasoma, dorso-lateral view; 7 – genitalia, dorsal view; 8 – S7, dorsal view; 9 – S8, dorsal view. Scale bars: 1.0 mm (3–6); 0.5 mm (7–9).

DESCRIPTION OF HITHERTO UNKNOWN MALE. *Structure and sculpture.* Very similar to the female (see Xu & Tadauchi, 1997: 168; Osytsnjuk *et al.*, 2005: 117; Astafurova *et al.*, 2021: 28) in general structure, sculpture and coloration. Body length: 10.0 mm. Head. Very wide for the subgenus *Andrena* s. str., 1.3 times wider than long (Fig. 4). Compound eyes relatively small, about 1/2 of the height and 1/8 of the width of the face (frontal view), the distance between the inner edges increases downwards. Face rather flat, relief weakly expressed. Mandibles typical for the subgenus – long, strongly crossing apically, red-brown at the ends, without tooth-like projection at the base of the mandible. Process of labrum trapezoidal, with thickened apex, rounded beyond the apex, swollen at the edges (Fig. 3). Malar area about 1/2 of the width (Fig. 2). Clypeus base weakly domed, the lower half curves back, apex is slightly concave in center. Gena broad, without carina or clear angle on posterior edge, slightly expands downwards. Flagellomeres equally long, only F1 slightly longer than subsequent segments (Fig. 4). Face below the antennae shiny, weakly shagreened, confluent and finely punctate; above the antennal sockets dull, with coarse, parallel, non-branching wrinkles, surface between wrinkles granulate. Malar area smooth and polished (Fig. 3). Clypeus without impunctate middle line, unlike in the female. Gena shiny on anterior half, with fine and sparse punctures, separated by 1-2 puncture diameters, posteriorly shagreened and denser punctate. Vertex behind ocelli granulate. Hairs on head generally long and sparse, brownish, around antennae and upper edge of head with dirty yellow hairs mixed with individual dark ones (Figs 1–4). Mesosoma. Mesoscutum, scutellum, mesepisternum and propodeum dull, granulate, indistinctly punctured with shallow dots. Propodeal triangle small, narrow, slightly concave basally (unlike the female) with weak wrinkles on granulate surface (Fig. 5). Mesosoma with brownish pubescence ventrally and laterally; dorsally and on posterior surface of propodeum covered in dirty yellow hairs, mixed with single dark ones, especially between the wings (Figs 1, 2, 5). Legs proximally covered in brownish long hairs, tarsi distally with long dirty yellow hairs on outside surface and short reddish-golden ones on inside surface (Fig. 1). Metasoma. Terga with marginal areas slightly depressed, lateral convex areas on T2 distinct, linearly edged. Tergal discs weakly shagreened to smooth, shiny, with scattered fine punctures; marginal areas smooth and polished with sparse very fine punctures. T1 entirely and T2 anteriorly in dense long and dirty yellow hairs; T2 posteriorly, T3 and T4 with sparse and short dark hairs; apical margins almost glabrous. T5–T7 with rather long yellowish hairs (Figs 1, 2, 6). Sterna with sparse pale hairs. S7 simple, of the usual shape for the subgenus, with one narrowly pointed central process, almost glabrous (Fig. 8). S8 also typical for the subgenus; with straight apical process, on the apex truncated and covered in yellowish hairs (Fig. 9).

Genitalia typical for the subgenus (Fig. 7). Gonocoxite with dorsal teeth small, evenly narrowed, rounded apically. Gonostylus almost flat (lateral view), expanded and uniformly rounded apically, clearly carinated along the inner margin (dorsal view). Pubescence of gonostylus sparse, elongated to the outer margin. Penis valve wide, visible base equal in width to the distance between the outer margin of gonocoxal teeth, apically narrowed; lateral folds on the base well-defined, curved in, forming narrow slit (lateral view); lower fold slightly narrower than the upper one.

Coloration. Body black to dark-brown, antennae black on dorsal surface and dark brown on ventral surface, wings weakly brownish with veins dark brown, front legs (middle and hind legs not preserved) dark red-brown with tarsal segments appears lighter, metasomal terga black with marginal areas lightened golden brown.

DISTRIBUTION. Kazakhstan: near Almaty (the collection of Oberösterreiches Landesmuseum, Linz, Austria, T.J. Wood, personal communication, new record); Kyrgyzstan: Engilchek, Sarydzhas (Osytsnjuk *et al.*, 2005); China: Xinjiang: Zhaosu County, Alasan (Wu, 1985; Xu & Tadauchi, 2012), Hami Prefecture, Nanshankou (Astafurova *et al.*, 2021); Russia: Altai Republic, Ongudai (new record).

DISCUSSION

Although several publications (Wu, 1985; Xu & Tadauchi, 1997, 2012; Osytsnjuk *et al.*, 2005) mentioned Mongolia in distribution of *Andrena genalis* (apparently following Morawitz, 1880), this species is unknown from Mongolia to date.

Unexpected record of *Andrena genalis* in southern Siberia challenges previous data on its distribution only in the Tian Shan Mountains. The new record in Ongudai, Russia, is about 900 km north of previously known habitats of this species. It is likely that *Andrena genalis* is a very rare but widespread species in the high mountains of Central Asia, as far as *A. scutellaris* (Osytsnjuk *et al.*, 2005: 123). Further fieldwork may reveal the true distribution of this species and its ecological affiliations.

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