



New and little-known bees of the genus *Epeolus* Latreille, 1802 (Hymenoptera, Apidae, Nomadinae) from Mongolia

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Abstract

A review of nine species of the bee genus *Epeolus* Latreille, 1802 (Hymenoptera: Apidae, Nomadinae) currently known from Mongolia is given. Two new species, *E. leleji* sp. nov. and *E. mongolicus* sp. nov. are described. The following five known species are newly recorded from Mongolia: *E. alpinus* Friese, 1893, *E. cruciger* (Panzer, 1799), *E. melectiformis* Yasumatsu, 1938, *E. nudiventris* Bischoff, 1930, and *E. ruficornis* Morawitz, 1875. A lectotype is designated for *Epeolus tarsalis* Morawitz, 1874.

Keywords

Anthophila, Apiformes, cleptoparasites, fauna, new species, Palaearctic, taxonomy

Introduction

Mongolia is a large, landlocked country in eastern Central Asia, covering 1,564,100 km². Politically, Mongolia is divided into 21 provinces named “aimags” in addition to the capital, Ulaanbaatar (Fig. 1). This territory, as part of the Central Asian region, is an important centre of bee diversity in the Palaearctic (Michener 1979).

In recent years, significant progress has been made towards a better knowledge of the Mongolian species of some genera: *Colletes* Latreille, 1802 (Kuhlmann and Proshchalykin 2013; Proshchalykin and Kuhlmann 2015), *Hylaeus* Fabricius, 1793 (Colletidae) (Dathe and Proshchalykin 2016), and *Sphecodes* Latreille, 1804 (Halictidae) (Astafurova and Proshchalykin 2015; Astafurova et al. 2015). In total, 348 bee species are currently known from Mongolia (Ascher and Pickering 2021). However, taxonomic information about most Mongolian genera is still fragmentary. We begin here with a reference to the genus *Epeolus* Latreille, 1802.

The genus *Epeolus* includes 109 species spread across much of the globe: they occur throughout the Holarctic zone, from the west coast of the United States and eastwards to Europe and as far as Japan. About 65 species are known from North and Central America, about 35 from the Palaearctic region, of which 17 species are found in Europe (Michener 2007; Onufenko 2018; Bogusch and Hadrava 2018). The *Epeolus* fauna of Mongolia is particularly under-recorded. Only two species, *Epeolus tarsalis* Morawitz, 1874 and *E. variegatus* (Linnaeus, 1758), have been recorded from this country, though without precise localities (Friese 1895).

In the present paper, based on a comprehensive study of specimens deposited in various collections, we report seven additional species, with two species described as new and five species recorded from Mongolia for the first time, resulting in a total number of nine *Epeolus* species known from this country. In addition, we designate a lectotype for *Epeolus tarsalis* Morawitz, 1874 in order to clarify the status and diagnosis of type specimens.

A key to Mongolian *Epeolus* has not been included in this paper, it is forthcoming in a subsequent publication uniting this and the Eastern Palaearctic fauna due to their extensive species sharing and the need for some additional work in these regions.

Materials and methods

The results presented in this paper are based on 277 specimens collected in Mongolia and currently housed in the Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia, ZISP); Oberösterreichisches Landesmuseum, Biologezentrum (Linz, Austria, OLBL) and the personal collection of Maximilian Schwarz (Ansfelden, Austria, PCMS).

The taxonomy, synonymy and distribution of species follow those of Friese (1895), Levchenko et al. (2017) and Bogusch and Hadrava (2018). Morphological terminology follows that of Engel (2001) and Michener (2007). The density of integumental punctures is described using the following formula: puncture diameter (in μm) / ratio of distance between punctures to average puncture diameter, e.g., 15–20 μm / 0.5–1.5. Abbreviations F, T, and S are used for flagellomere, metasomal tergum and metasomal sternum respectively. The species are listed alphabetically. The records are first sorted alphabetically according to the aimags, and then chronologically according to the locality. Hard brackets are used when certain data are added to specimen label

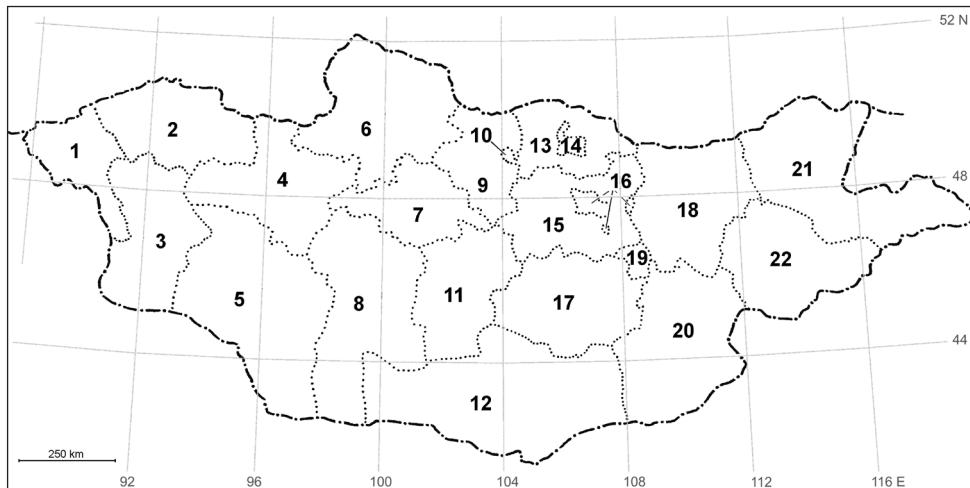


Figure 1. Administrative map of Mongolia (from Rosa et al. 2020). Aimags **1** Bayan-Ulgii **2** Uvs **3** Khovd **4** Zavkhan **5** Govi-Altaï **6** Khuvsgul **7** Arkhangai **8** Bayankhongor **9** Bulgan **10** Orkhon **11** Uvurkhangai **12** Umnugovi **13** Selenge **14** Darkhan-Uul **15** Tuv **16** Ulaanbaatar **17** Dundgov **18** Khentii **19** Govi-Süber **20** Dornogovi **21** Dornod **22** Sukhbaatar.

information (e.g. current name of a particular locality). We have used the following abbreviations for collectors: EN – E. Narchuk; ES – E. Sugonyaev; JH – J. Halada; IK – I. Kerzhner; KM – M. Kozlov; MH – M. Halada; MK – M. Kadlecová; PK – P. Kozlov; PT – P. Tymer.

Specimens were studied with an Olympus SZ51 stereomicroscope and photographs taken with a combination of a stereomicroscope (Olympus SZX10) and digital camera (Olympus OM-D). Final images are stacked composites using Helicon Focus 6. All images were post-processed for contrast and brightness using Adobe Photoshop.

New distributional records are noted with an asterisk (*).

Taxonomy

Genus *Epeolus* Latreille, 1802

Epeolus Latreille, 1802: 427. Type species: *Apis variegata* Linnaeus, 1758, monobasic.

Epeolus alpinus Friese, 1893

Epeolus alpinus Friese, 1893: 34, ♀, ♂ (type locality: Goeschenen, Switzerland).

Epeolus variegatus Thomson, 1872 (nom. praeocc., nec Linnaeus 1758): 212, ♀ (type locality: unknown).

- Epeolus glacialis* Alfken, 1913: 36, nomen novum for *E. variegatus* Thomson, 1872.
Epeolus montanus Bischoff, 1930: 9, ♀, ♂ (type locality: Warnemünde, Germany).
Epeolus pilosus Bischoff, 1930: 9–10, ♀, ♂ (type locality: Rositten [=Rybachijs], Kaliningrad Prov., Russia).
Epeolus alpinus Bischoff, 1930 (nom. praeocc., nec Friese 1893): 9–10, ♀ (type locality: Saas, Switzerland).

Material examined. Dornod, 15 km W of Choibalsan, Kerulen River, 770 m, 24.VII.2007, (1 ♀), JH [PCMS]; Khuvskul, Terkhiyn-Tsaggan Lake, 47°11'N, 99°43'E, 2100 m, 22.VII.2005, (6 ♀, 2 ♂), JH & PT [PCMS]; Tuv, 100 km E of Ulaanbaatar, 20 km NE of Tereltz, Tuul River, 15–21.VII.2003, (6 ♀, 4 ♂), JH [OLBL/PCMS]; Khangaun Mts, 5 km N of Khunt, 20.VII.2005, (1 ♀), JH [PCMS]; 75 km W Ulaanbaatar, dunes, 2.VIII.2005, (1 ♀), JH [PCMS]; 50 km N of Ulaanbaatar, E of Mandal, 1180 m, 8–13.VIII.2007, (2 ♀), JH [PCMS]; Selenge, 90 km N of Ulaanbaatar, Segnez River, 1450 m, 6–8.VII.2003, (3 ♀, 2 ♂), JH [PCMS]; Ulaanbaatar, Tola River, Urga [=Ulaanbaatar], 30.VI–5.VII.1905, (10 ♀, 27 ♂), PK [ZISP]; Zuunmod env., 47°11'N, 106°59'E, 1630 m, 27.VII.2004, (3 ♀), MK [OLBL/PCMS]; Uvurkhangai, Kholt [375 km SW Ulaanbaatar], Northern Gobi, 15–16.VII.1926, (10 ♀), PK [ZISP]; 12 km E of Aravaykheer, 46°22'N, 102°49'E, 1800 m, 3.VII.2004, (1 ♀), JH [PCMS]; Zavkhan, 40 km SW of Uliastay, dunes, 18.VII.2005, (1 ♂), JH [PCMS].

Distribution. *Mongolia (Dornod, Khuvskul, Tuv, Selenge, Ulaanbaatar, Uvurkhangai, Zavkhan); North Africa, Europe, Turkey, Iran, Russia (eastern part to Far East).

Epeolus cruciger (Panzer, 1799)

- Nomada crucigera* Panzer, 1799: 20, ♂ (type locality: Austria).
Epeolus rufipes Thomson, 1870: 91, ♀ (type locality: S-Sweden).
Epeolus similis Höppner, 1899: 355–356, ♀, ♂ (type locality: Freisenbüttel, Germany).
Epeolus cruciger var. *elegans* Müller, 1921: 168, ♀ (type locality: Arnswalde, Germany).
Epeolus cruciger var. *rufiventris* Müller, 1921: 168, ♀ (type locality: Arnswalde, Germany).
Epeolus marginatus Bischoff, 1930: 11, ♀, ♂ (type locality: Warnemünde, Germany).

Material examined. Dornod, 13 km W of Dash-Balbar, Uldza River, 24.VIII.1975, (1 ♀), EN [ZISP]; Khentii, 8 km N Binder, 3–5.VII.1976, (1 ♂), KM [ZISP]; Khovd, 20 km N Bulgan, Ulyastain-Gol River, 30.VI.1980, (1 ♂), IK [ZISP]; Khuvskul, Dzhargalant, Ider River, 19.VII.1975, (2 ♀, 2 ♂), ES [ZISP]; idem, 20.VII.1975, (2 ♀), EN [ZISP]; 17 km N of Shine-Eder, 21.VII.1975, (1 ♂), ES [ZISP]; 25 km SSW of Muren, 23.VII.1975, (1 ♀), KM [ZISP].

Distribution. *Mongolia (Dornod, Khentii, Khovd, Khuvskul); Europe, Turkey, Iran, Russia (eastern part to Far East).

***Epeolus leleji* sp. nov.**

<http://zoobank.org/C020E9AD-B666-46A7-B076-8AB5DA1360F2>

Figures 2–4

Material examined. *Holotype*: ♂, SE Mongolia, Sukhbaatar, 100 km SSW of Baruun-Urt, 1100 m, 30.VII.2007, leg. M. Halada [OLBL/PCMS]. *Paratypes*: 1 ♀, 1 ♂, the same label [ZISP]; 1 ♀, 200 km SSE of Baruun-Urt, Moltsoy Els, 1250 m, 27.VII.2007, leg. M. Kadlecová [OLBL/PCMS]; 5 ♀, Dornogovi, 28 km SE of Chatan-Bulag, steppe, 3.VIII.2007, M. Halada leg. [OLBL/PCMS]; Umnugovi, 1 ♀, 70 km S of Saynshand, 1100 m, 5.VIII.2007, leg. M. Kadlecová [OLBL/PCMS].

Diagnosis. This species differs from other Palaearctic species of the genus by having forewings with two submarginal cells (versus three cells in other species, except *E. bischoffi* Mavromoustakis, 1954) (Fig. 2A, B). The new species are clearly distinguished from *E. bischoffi* by lack of long black dense hair on the whole body, position of labral teeth closer to apical margin, the reddish female mesosoma (black in *E. bischoffi*) and many other characters.

Description. Male (Figs 2, 3). Total body length 6.0 mm; forewing length (without tegula) 3.5 mm. Structure and sculpture. Head (Fig. 3B) transverse, ca 1.35 times as wide as long. Labrum (Fig. 3C) 1.6 times as wide as long; rounded basally and laterally, with two small sub-apical teeth, medially (between teeth) slightly depressed, apical margin straight; integument shiny, coarsely and densely punctate (15–30 µm / confluent–1). Frons with developed frontal keel. Upper part of frons and vertex shiny, smooth between punctures (15–25 µm / confluent–1.5). Antennae short, F1 ca 1.0 times as long as wide, F2 and F3 0.8 times as long as wide. Mesoscutum shiny and smooth between coarse punctures (20–40 µm / confluent–1). Axilla with short acute tooth not attaining posterior margin of mesoscutellum. Mesoscutellum with medial longitudinal impression; posterior margin scarcely extending over propodeum. Metanotum medially with small prominence, extending over propodeum (slightly visible under tomentum). Mesepisternum with confluent punctures (15–20 µm). Propodeal triangle finely rugulose; rest vertical part of propodeum smooth. Metasomal tergal discs shiny and smooth between tiny punctures (ca 15 µm / 0.5–1.5); marginal zones semi-transparent, smooth, with tiny and dense punctures. Pygidial plate (T7) shiny, 1.2 times as long as basal width, narrowed toward apex, with shallow punctures; apical margin slightly curved. Sterna shiny, with dense punctures. Coloration: Head black, but mandibles yellow-red with dark apex; labrum and clypeus (apically) yellow; antennae reddish with brown scape and pedicel. Mesosoma mostly black; pronotal lobe and axilla reddish; mesoscutellum with two reddish spots on the sides of medial impression; legs reddish, spurs pale (ivory); wings hyaline, stigma light brown, veins brown. Tergal discs dark brown, reddish brown laterally and along marginal zone; marginal zones yellowish. Pygidial plate (T7) reddish (Fig. 3D). Visible sterna brownish with yellow marginal zones. Pubescence: Labrum with white plumose pubescence, on apical margin with thin simple setae. Face and genae with dense (obscuring integument) whitish tomentum (sparser on frons). Vertex with relatively sparse short pubescence.

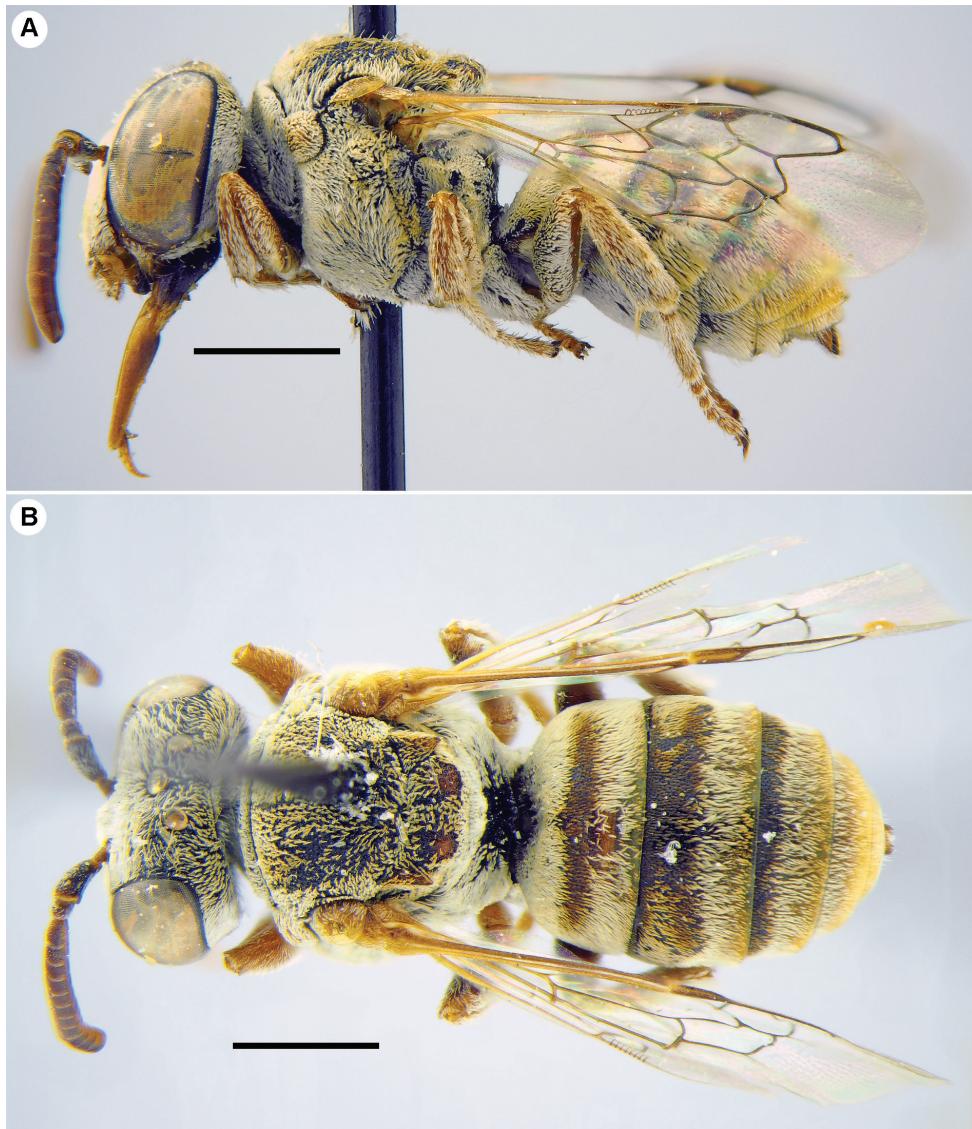


Figure 2. *Epeolus leleji* sp. nov., holotype, male **A**, **B** habitus, lateral view (**A**); dorsal view (**B**). Scale bars: 1.0 mm.

Pronotum and metanotum with white tomentum obscuring integument. Mesoscutum and mesoscutellum with creamy tomentum denser and lighter (whitish) peripherally. Lateral and ventral parts of mesosoma entirely covered with white tomentum. Legs with dense white pubescence. Tergal marginal zones with uninterrupted white tomentum bands; T1 with wide basal band connected with apical (marginal) band laterally, T2 only with lateral white tomentum spots connected with apical (marginal) band; tergal discs with light brownish adpressed pubescence not obscuring integument. Visible sterna with white tomentum (Fig. 3A).



Figure 3. *Epeolus leleji* sp. nov., holotype, male **A** habitus, ventral view **B** head, frontal view **C** labrum, frontal view **D** T4–T7, dorsal view. Scale bars: 1.0 mm (**A**); 0.5 mm (**B–D**).

Female (Fig. 4). Total body length 6 mm; forewing length (without tegula) 3.5–4.0 mm. Structure and sculpture similar to those of the male. F1 1.6–1.8 times as long as wide, F2 and F3 ca 1.2 times as long as wide. Mesoscutum shiny and smooth between coarse punctures (20–30 μm / confluent–0.5). T6 mostly hidden under T5, pygidial plate truncate on apex. S5 wide, straight as seen in lateral view. Processes on sides of S6 normal, with short projections. Coloration of head and mesosoma similar to those of the male, but antennae entirely reddish-brown and mesoscutellum entirely reddish. Mesosoma reddish; pygidial plate yellow with brownish edging. Pubescence similar to that of the male, T5 with white tomentum, pseudopygidial area short with silver-like pubescence.

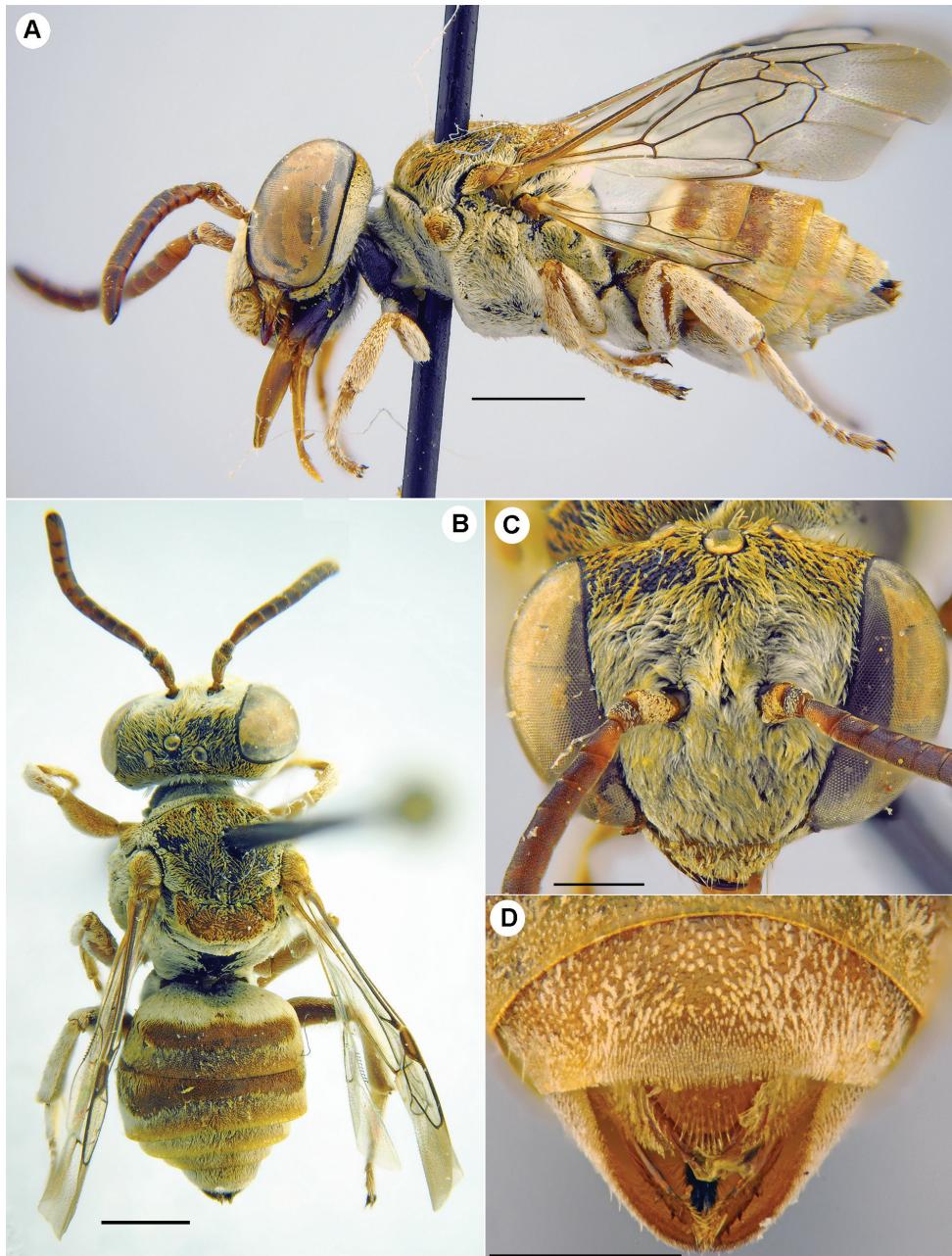


Figure 4. *Epeolus leleji* sp. nov., paratype, female **A, B** habitus, lateral view (**A**); dorsal view (**B**) **C** head, frontal view **D** apex of metasoma, ventral view. Scale bars: 1.0 mm (**A, B**); 0.5 mm (**C, D**).

Etymology. The new species is named in honor of Prof. Arkady Lelej (Vladivostok, Russia), an outstanding hymenopterist and our friend.

Distribution. Mongolia (Dornogovi, Sukhbaatar, Umnugovi).

Remarks. It is noteworthy that two other cleptoparasitic genera, *Nomada* Scopoli, 1770 (Apidae) and *Sphecodes* (Halictidae), also have a small group of species with two submarginal cells (Proshchalykin and Lelej 2010; Astafurova et al. 2020).

Epeolus melectiformis Yasumatsu, 1938

Epeolus melectiformis Yasumatsu, 1938: 224, ♀, ♂ (type locality: Ookawa-mura, Tosa, Shikoku, Japan).

Material examined. Arkhangai, Chuluut Gol River, 47°48'N, 100°19'E, 1940 m, 23.VII.2005, (1 ♀, 1 ♂), PT [OLBL/PCMS]; 100 km NE of Tsetserleg, Ogui Lake, 29.VII.2005, (2 ♂), JH [OLBL/PCMS]; Bulgan, 170 km W of Ulaanbaatar, dunes, 1070 m, 16.VIII.2007, (1 ♀), JH [OLBL/PCMS]; Dornod, 33 km SE Khalk-Gol, Khalkin-Gol River, 31.VII.1976, (5 ♀), KM [ZISP]; 100 km W of Choibalsan, 820 m, 23.VII.2007, (1 ♀, 2 ♂), MH [OLBL/PCMS]; 15 km W of Choibalsan, Kerulen River, 770 m, 24.VII.2007, (17 ♂), JH [OLBL/PCMS]; 50 km SW Choibalsan, 960 m, 25.VII.2007, (2 ♂), JH [OLBL/PCMS]; Khentii, 100 km NE of Ondorkhaan, Kerulen River, 970 m, 22.VII.2007, (22 ♂), MK [OLBL/PCMS]; Khovd, 75 km WSW Salkhit, 24.VII.1971, (1 ♀), IK [ZISP]; Modon-Obr Mts, 30 km ENE of Tsagan-Ula, 25.VII.1971, (2 ♂), KM [ZISP]; Khuvsugul, 20 km SE of Toson-Tsengel, 25.VII.1975, (1 ♀), KM [ZISP]; Selenge, Ero-Gol River near Dulan-Khan, 4.VIII.1975, (1 ♀), KM [ZISP]; Sukhbaatar, 200 km SSE of Baruun-Urt, Moltsoy Els, 1250 m, 27.VII.2007, (14 ♂), MH [PCMS]; 210 km SSE of Baruun-Urt, 29.VII.2007, (2 ♀, 2 ♂), JH [OLBL/PCMS]; 100 km SSW of Baruun-Urt, 1100 m, 30.VII.2007, (10 ♀, 8 ♂), MH [PCMS]; idem, (1 ♀), PT [OLBL/PCMS]; Tuv, Khangaun Mts, 5 km N of Khunt, 20.VII.2005, (2 ♂), JH [PCMS]; 75 km W of Ulaanbaatar, dunes, 2.VIII.2005, (1 ♂), JH [OLBL/PCMS]; Ulaanbaatar, Tola River, Urga [=Ulaanbaatar], 23.VII.1905, (1 ♀, 1 ♂), PK [ZISP].

Distribution. *Mongolia (Arkhangai, Bulgan, Dornod, Khentii, Khovd, Khuvsugul, Selenge, Sukhbaatar, Tuv, Ulaanbaatar); Russia (Buryatia, Far East), Japan (Honshu, Shikoku, Kyushu, Ryukyu).

Epeolus mongolicus sp. nov.

<http://zoobank.org/02AAC04F-71F7-46BE-9DEF-8272BC1D7AB9>

Figures 5, 6

Material examined. **Holotype:** ♀, W Mongolia, Zavkhan, 40 km SW of Uliastay, dunes, 18.VII.2005, JH (OLBL/PCMS). **Paratypes:** 11 ♀, with the same labels (OLBL/PCMS, 2 ♀ – ZISP); 3 ♀, Bulgan, 170 km W of Ulaanbaatar, dunes, 1070 m, 16.VIII.2007, MK (OLBL/PCMS); 4 ♀, 160 km W Ulanbaatar, dunes, 1220 m, 16.VIII.2007, JH (OLBL/PCMS).

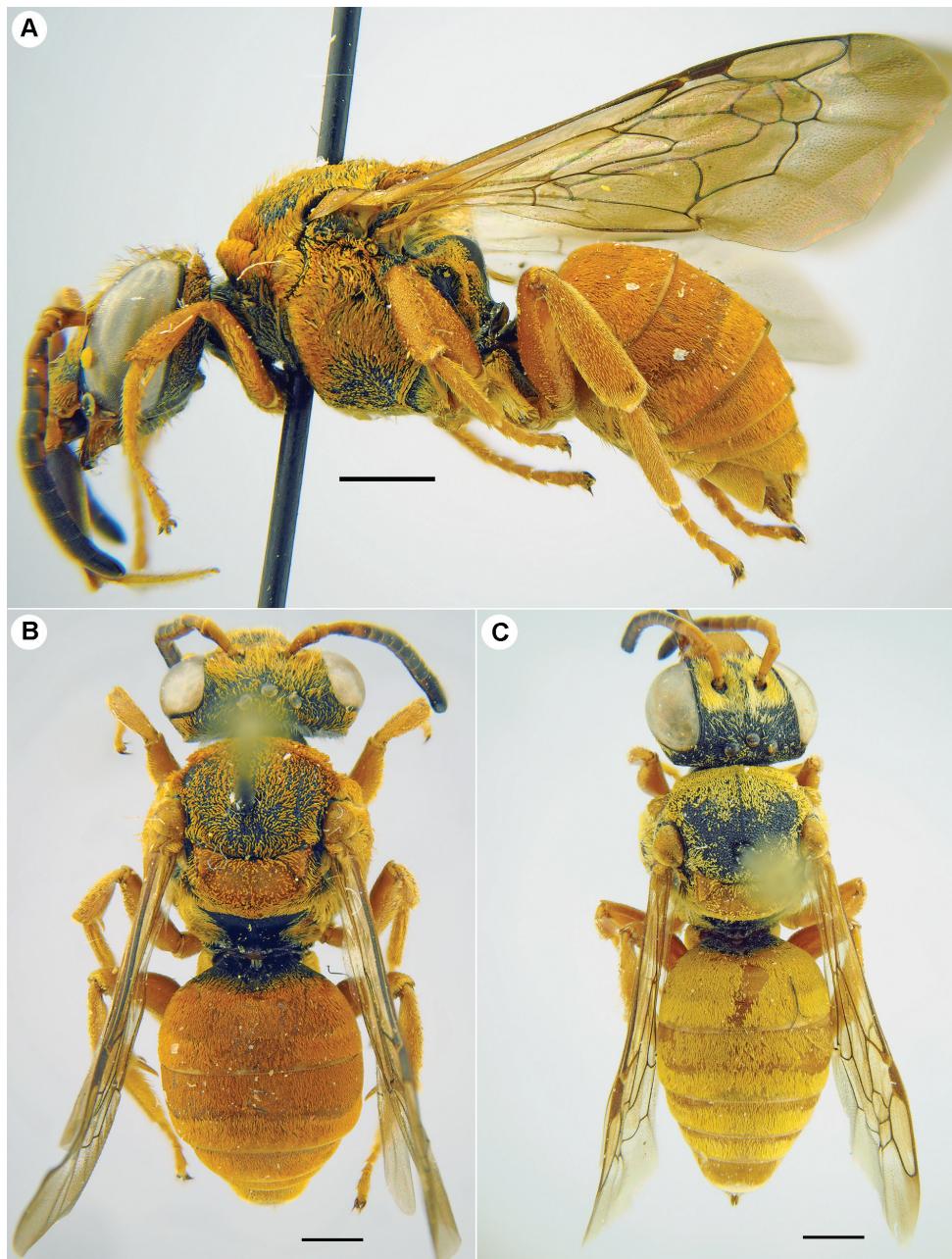


Figure 5. *Epeolus mongolicus* sp. nov., holotype (A, B) and paratype (C), female. A–C habitus, lateral view (A); dorsal view (B, C). Scale bars: 1.0 mm.

Diagnosis. This species is clearly distinguished from other Palaearctic species by red metasoma with spectacular bright copper-reddish (Fig. 5A, B) or gold-yellowish (Fig. 5C) tomentum entirely covering terga and well-developed on head and mesosoma. Unlike other Palaearctic species, the new species does not possess contrast col-

oration of pubescence, forming light spots or bands. The species is structurally closest to *E. alpinus* and *E. cruciger*, since it also belongs to *E. cruciger* species group, and especially resembles *E. alpinus* in having long setae on vertex and labrum with almost straight apical margin (slightly curved).

Description. Female. Total body length 6.5–8.0 mm; forewing length (without tegula) 5.5–7.0 mm. Structure and sculpture: Head (Fig. 6A) transverse, ca 1.3 times as wide as long. Labrum (Fig. 6B) 1.6 times as wide as long, rounded basally and laterally, apical margin slightly curved with small distinct medial tooth; sub-apically with two well-visible teeth, medially (between teeth) slightly depressed; integument shiny, coarsely and densely punctate (15–30 μm / confluent–1). Clypeus dull, densely and finely punctate (10–15 μm / confluent–0.5), widely shiny and impunctate along apical margin. Frons with developed frontal keel. Upper half of frons densely punctate (15–25 μm / confluent–0.5), shiny and smooth between punctures. Flagellomeres ca 1.5 times as long as wide. Mesoscutum and mesoscutellum coarsely and densely areolate-punctate (25–40 μm / confluent–0.5). Axilla pointed apically, but without distinct tooth (Fig. 6C). Mesoscutellum with medial longitudinal impression; posterior margin scarcely extending over propodeum. Mesepisternum areolate-punctate. Propodeal triangle shagreened; rest vertical part of propodeum shiny and smoother (finely tessellate to smooth). Metasomal terga densely and finely punctate (10–15 μm / 1–2), interspaces smooth and dull; marginal zones transparent under tomentum. Pseudopygidial area (Fig. 6E) short, triangular. Pygidial plate trapezoidal, truncate on apex. Processes on sides of S6 normal, with short projections. Sterna densely punctured like terga (Fig. 6F). S5 wide, straight as seen in lateral view (Fig. 6D). Coloration: Head mostly black, but mandibles yellow-red with dark apex; labrum entirely yellow-red; clypeus entirely yellow-red or black on upper half; antennae yellow-red on basal segments and ventrally. Mesosoma mostly black; mesepisternum entirely black or partially red (on upper half and ventrally and laterally; pronotal lobe, axilla, mesoscutellum, metanotum (medially) and legs (including spurs) yellow-red; wings with brownish darkening, stigma and veins brown. Metasoma yellow-reddish. Pygidial plate red with brownish edging. Pubescence: Body without contrast coloration of pubescence, only with tomentum of approximately the same color: bright copper-reddish (Fig. 5A, B) or gold-yellowish (Fig. 5C). Labrum with thin yellow setae denser and longer around sub-apical teeth. Face and genae with dense tomentum obscuring integument (sparser on upper half of frons). Upper half of frons with long thin setae. Vertex with short thick setae, dense but not obscuring integument. Mesoscutum entirely covered with tomentum (tomentum can be strongly shabby). Lateral and ventral parts of mesosoma, metanotum entirely covered with dense tomentum. Legs with sparse yellow setae. Metasomal terga entirely covered with dense tomentum obscuring integument. Pseudopygidial area with silver-like pubescence. Sterna with golden short and relatively dense setae (not entirely obscuring integument, but denser on S4 and S5).

Male. Unknown.

Etymology. The specific epithet is named after the country of origin.

Distribution. Mongolia (Bulgan, Zavkhan).

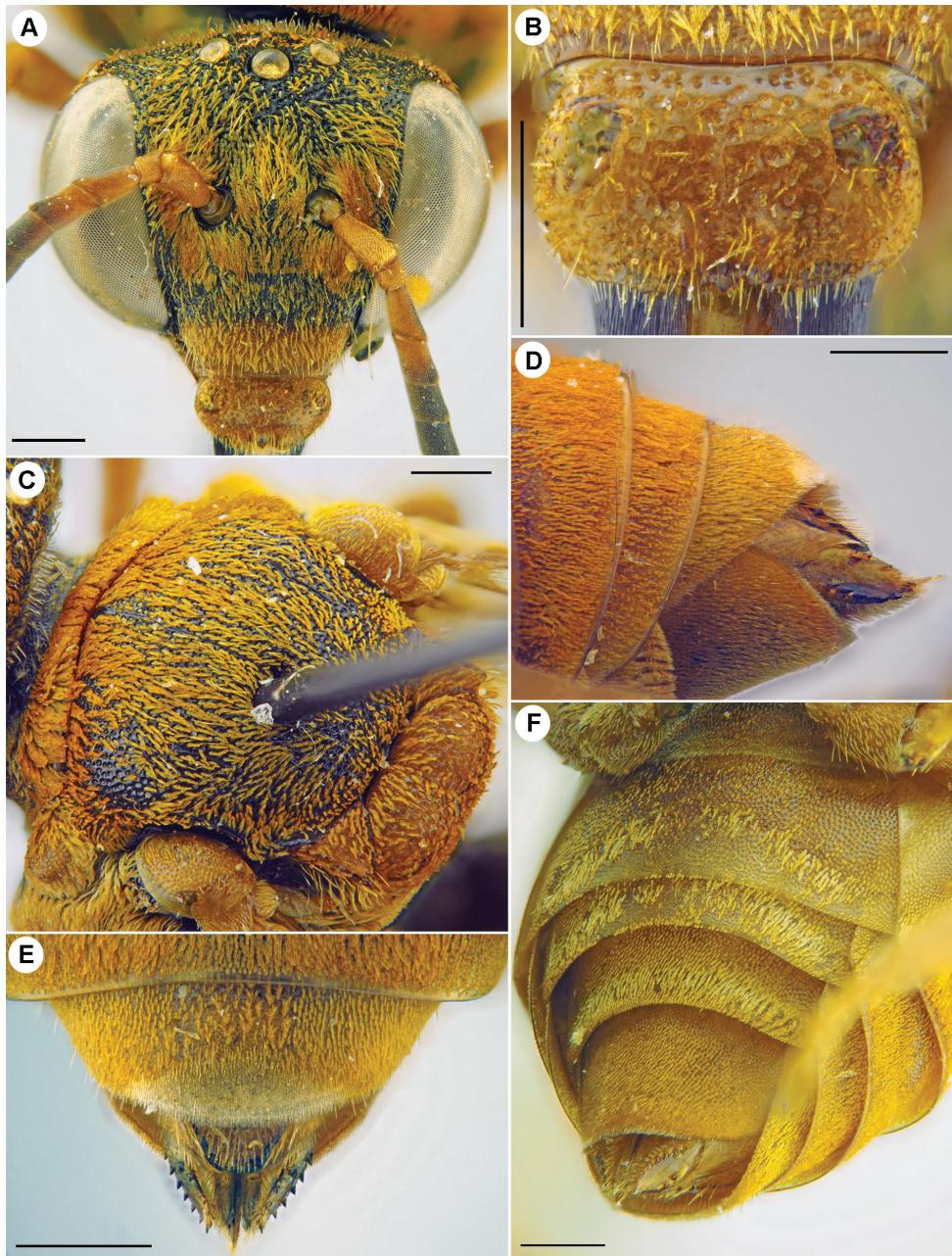


Figure 6. *Epeolus mongolicus* sp. nov., holotype, female **A** head, frontal view **B** labrum, frontal view **C** mesosoma dorso-lateral view **D, E** apex of metasoma, lateral view (**D**); ventral view (**E**) **F** metasoma, ventral view. Scale bars: 0.5 mm.

***Epeolus nudiventris* Bischoff, 1930**

Epeolus nudiventris Bischoff, 1930: 14, ♀, ♂ (type locality: Mondy, Buryatia, Russia).

Material examined. *Khovd*, 50 km SSW of Uench, Utyn-Mod, 27.VI.1980, (1 ♀), IK [ZISP].

Distribution. *Mongolia (Khovd); Russia (Buryatia).

***Epeolus ruficornis* Morawitz, 1875**

Epeolus ruficornis Morawitz, 1875: 144, ♀, ♂ (type locality: Varzaminor near Aykul Lake, Tajikistan).

Material examined. *Dornogovi*, 5, 65 km SE of Chatan-Bulag, 1020 m, 2.VIII.2007, (4 ♀, 1 ♂), MK & JH [OLBL/PCMS]; *Khovd*, 12 km SW of Altai, Bodonchin-Gol River, 22.VII.1970, (1 ♂), V. Zaytzev [ZISP]; *Govi-Altai*, 60 km SE of Bugat, Khaychi-Bulak, 19.VII.1970, (1 ♂), IK [ZISP]; *Uvurkhangai*, 159 km of SW Aravaykheer, 45°11'N, 101°26'E, 1250 m, 5.VII.2004, (1 ♂), JH [OLBL/PCMS].

Distribution. *Mongolia (Dornogovi, Khovd, Uvurkhangai); Azerbaijan, Tajikistan, Turkmenistan, China (Gansu) (Morawitz 1890, 1894).

***Epeolus tarsalis* Morawitz, 1874**

Epeolus tarsalis Morawitz, 1874: 182–183, ♀, ♂ (lectotype (**designated here**): ♂, Derbent [Dagestan Republic, Russia] // к. Ф. Моравица [Collection of F. Morawitz] // *Epeolus tarsalis* Mor. [handwritten by F. Morawitz] // Lectotypus *Epeolus tarsalis* Mor., ♂, design. Astafurova & Proshchalykin, 2021 <red label>, ZISP).

Epeolus praeustus Pérez, 1884: 324–326, ♀ (type locality: Pyrenees).

Epeolus rozenburgensis Van Lith, 1949: 105–112, ♀ (type locality: the Netherlands).

Epeolus himukanus Hirashima, 1955: 40–41, ♂ (type locality: Kyushu, Japan).

Epeolus tarsalis ssp. *tirolensis* Van Lith, 1956: 99, ♀ (type locality: Tirol, Austria).

Material examined. *Dornod*, 55 km NNE of Khavirga, 21.VIII.1975, (1 ♂), KM [ZISP]; 13 km W of Dash-Balbar, Uldzy River, 24.VIII.1975, (2 ♀, 1 ♂), EN [ZISP]; *Selenge*, Ero-Gol River near Dulan-Khan, 4.VIII.1975, (1 ♂), KM [ZISP]; 13 km E of Bayan-Gol, 7.VIII.1975, (1 ♂), EN [ZISP]; *Sukhbaatar*, 50 km SSW of Barun-Urta, 19.VIII.1975, (1 ♂), KM [ZISP]; *Tuv*, 75 km W Ulaanbaatar, dunes, 2.VIII.2005, (1 ♂), JH [OLBL/PCMS]; *Ulaanbaatar*, “Tzorgol-Khayrkhan” [SW Ulaanbaatar],

23.VII.1909, (1 ♂), PK [ZISP]; *Uvs*, Tarialan, 13.VIII.1965, (1 ♂), Dlabola (OLBL); *Zavkhan*, Songino, 28–29.VII.1965, (1 ♂), Dlabola (OLBL).

Distribution. Mongolia (*Dornod, *Selenge, *Sukhbaatar, *Tuv, *Ulaanbaatar, *Uvs, *Zavkhan); Europe, Caucasus, Russia (eastern part to Far East), Korea, Japan (Honshu, Kyushu).

Remarks. This species was previously reported from North Mongolia (Friese 1895; Pittioni 1947) without an exact locality.

Epeolus variegatus (Linnaeus, 1758)

Apis variegata Linnaeus, 1758: 577, ♀, ♂ (type locality: Sweden).

Apis muraria Christ, 1791: 188–189, ♀, ♂ (type locality: Germany).

Apis festiva Christ, 1791: 190–191, ♀, ♂ (type locality: Germany).

Epeolus pictus Nylander, 1848: 174–175, ♀, ♂ (type locality: Siberia, Russia).

Epeolus productus Thomson, 1870: 91, ♀, ♂ (type locality: Sweden).

Material examined. Bayankhongor, 56 km NW of Bayankhongor, 46°33'N, 100°12'E, 2200 m, 12.VII.2004, (1 ♀), MK [OLBL/PCMS]; 2 km S of Bayankhongor, 46°12'N, 100°43'E, 12.VII.2004, 1880 m, 10.VII.2004, (1 ♀), JH [OLBL/PCMS]; Selenge, 90 km N of Ulaanbaatar, Segnez River, 1450 m, 6–8.VII.2003, (1 ♀), JH [OLBL/PCMS]; Tuv, 50 km N of Ulaanbaatar, E of Mandal, 1180 m, 8–13.VIII.2007, (24 ♀), JH [OLBL/PCMS]; Ulaanbaatar, Tola River, Urga [=Ulaanbaatar], 14–16.VII.1905, (1 ♀), PK [ZISP].

Distribution. Mongolia (*Bayankhongor, *Selenge, *Tuv, *Ulaanbaatar), North Africa, Europe, Russia (east to Yakutia), Turkey, Georgia, Central Asia, Iran, Pakistan.

Remark. Friese (1895: 208) determined some specimens from North Mongolia (without an exact locality) as *Epeolus pictus* Nylander, 1848, but noted that these specimens differed from *E. variegatus*. However, according to Morawitz (1865: 50), *Epeolus pictus* is a synonym of *E. variegatus*, and this is supported by Bogusch and Hadrava (2018) who re-examined type specimens.

Discussion

The genus *Epeolus* in Mongolia is poorly known, and this study is the first special review of this taxon in the country. In total, nine species of *Epeolus* are now known from Mongolia (seven of these are newly recorded from the studied region, including two species that are new to science). For comparison, 17 species are known from Europe (Bogusch and Hadrava 2018), eleven from Turkey (Bogusch 2018), twelve from Russia (Levchenko et al. 2017), and only two from China (Morawitz 1890; Niu et al. 2018). Both *Epeolus alpinus* and *E. melectiformis* seem to be relatively common and widespread in Mongolia. Four species, *Epeolus alpinus*, *E. variegatus*, *E. cruciger*, and

E. tarsalis are widespread in the Palaearctic, unlike *E. melectiformis*, which is an eastern Palaearctic species distributed only from Japan to Khovd (Mongolia). *Epeorus ruficornis* and *E. nudiventris* are xerophilic Central Asian species, and Mongolia is the easternmost region of their distribution ranges. The two new species are desert Mongolian endemics distributed in South-Eastern Mongolia (*E. leleji* sp. nov.) and North-Eastern Mongolia (*E. mongolicus* sp. nov.).

Unlike other Epeolini, all *Epeorus* species are so far known as cleptoparasites of species of *Colletes* (Colletidae). The Mongolian fauna includes 38 *Colletes* species, of which more than a half are found only in Mongolia or adjacent territories of China, Kazakhstan and Siberia (Russia) (Proshchalykin 2017). Although *Colletes* are found in all aimags of Mongolia, the fauna of the steppe and desert zones is the richest one. Most *Colletes* species prefer open landscapes with dry and well-warmed soils suitable for nesting. In addition, some *Colletes* are oligoleptic, visiting a limited taxonomic range of flowering plants. It is obvious that the biodiversity of cleptoparasites is associated with their hosts. In this regard, Mongolia, like the rest of Central Asian territories, is very promising for the study of the genus *Epeorus*. It is quite certain that new records for regional faunas and species that are new to science will be found during further studies.

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