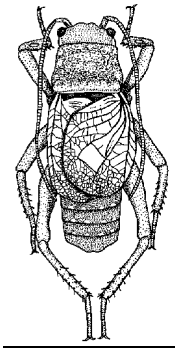

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NEW AND LITTLE KNOWN BEES OF THE GENUS *SPHECODES* LATREILLE (HYMENOPTERA: HALICTIDAE) FROM MONGOLIA

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In addition to a previously published study about Mongolian *Sphecodes* bees we report here on nine little known species. Currently eleven species of *Sphecodes* are known from this region with seven of them recorded for the first time: *S. crassus* Thomson, 1870, *S. geoffrellus* (Kirby, 1802), *S. miniatus* Hagens, 1882, *S. monilicornis* (Kirby, 1802), *S. nippon* Meyer, 1922, *S. pellucidus* Smith, 1845, and *S. puncticeps* Thomson, 1870. *Sphecodes kozlovi* **sp. n.** is described from Eastern Mongolia (Dornod Aimag, Khentii Aimag).

KEY WORDS. Apoidea, Apiformes, Palaearctic region, biodiversity, new species, new records.

Ю. В. Астафурова[1)], М. Ю. Прощалыкин[2)]. Новый и малоизвестные пчелы рода *Sphecodes* Latreille (Hymenoptera, Halictidae) из Монголии // Дальневосточный энтомолог. 2015. N 289. С. 1-9.

Приводится список малоизвестных для Монголии 9 видов пчел из рода *Sphecodes*. Из них 7 видов: *S. crassus* Thomson, 1870, *S. geoffrellus* (Kirby, 1802), *S. miniatus* Hagens, 1882, *S. monilicornis* (Kirby, 1802), *S. nippon* Meyer,

1922, *S. pellucidus* Smith, 1845 и *S. puncticeps* Thomson, 1870 указываются впервые для фауны Монголии. Из Восточной Монголии (Дорнод и Хэнтий аймаки) описывается *Sphecodes kozlovi* **sp. n.**

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INTRODUCTION

The genus *Sphecodes* Latreille, 1804 currently includes 319 described species and widespread on all continents except Australia, where it is known only from the northeast. *Sphecodes* is distributed in the Holarctic Region north to the subarctic. To the south the genus extends through the Antilles and continental tropics south to southern Chile and Argentina (at least to the province of Neuquén). In the Eastern Hemisphere, *Sphecodes* is distributed in the Afrotropical, Oriental and Indo-Australian Regions (Michener, 2007; Ascher & Pickering, 2015). About 50 species are known from the Palaearctic Region (Pesenko, 2007), 33 species from central Europe (Bogush & Straka, 2012), and 18 species from Russian Far East (Astafurova & Proshchalykin, 2014) but little has been known about the *Sphecodes* fauna of Mongolia.

The country of Mongolia is located in central Asia, bordered by Russia to the north and China along the remainder. Mongolia is the third largest country in Asia, covering 1,564,100 sq. m. Mongolia has three major mountain ranges. The highest is the Altai Mountains, which stretch across the western and the southwestern regions of the country on a northwest-to-southeast axis. The Khangai Mountains, also trending northwest to southeast, occupy much of central and north-central Mongolia. The Khentii Mountains near the Russian border to the northeast of Ulaanbaatar, are lower still. Much of eastern Mongolia is occupied by a plain, and the lowest area is a southwest-to-northeast trending depression that reaches from the Gobi Desert region in the south to the eastern frontier. The country is divided into provinces –"aimags" (Fig. 1).

There were no special research of the *Sphecodes* of Mongolia. There are only three papers on bees (Meyer, 1920; Bogusch & Straka, 2012; Ascher & Pickering, 2015) where four species of *Sphecodes* are recorded from Mongolia (*S. cristatus* Hagens, 1882, *S. ephippius* (Linnaeus, 1767), *S. gibbus* (Linnaeus, 1758), and *S. pinguiculus* Pérez, 1903). The results presented in this paper are based on 49 specimens collected by P.K. Kozlov, E.P. Narchuk, I.M. Kerzhner, E.S. Sugonyaev, M.A. Kozlov and A.V. Gorokhov in Mongolia, that are currently housed in the Zoological Institute, Russian Academy of Sciences, St. Petersburg (ZISP). We have used the following abbreviations for collectors: AG – A.V. Gorokhov; EN – E.P. Narchuk; ES – E.S. Sugonyaev; IK – I.M. Kerzhner; MK – M.A. Kozlov; PK – P.K. Kozlov. New distribution records are marked with an asterisk (*). The distribution of *Sphecodes* follows K. Warncke (1992), P. Bogush and J. Straka (2012), Yu. Astafurova and M. Proshchalykin (2014).

Morphological terminology generally follows C. Michener (2007), e.g., we have used the abbreviations T1, T2, T3, etc., to denote the first, second, third, etc.,

metasomal terga; S1, S2, S3, etc. to denote the first, second, third, etc., metasomal sterna; and F1, F2, F3, etc., to denote the first, second, third, etc. flagellomere. Integumental sculpture is described by 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. Photographs were made using a combination of stereomicroscope Leica M205A and digital camera Leica DFC500. Illustrations were obtained by montaging an image series, covering different focal planes, into a single infocus image with the Helicon Focus 6. The final illustrations were post-processed for contrast and brightness using Adobe® Photoshop® software.

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Fig. 1. Administrative map of Mongolia showing provinces (aimag) (from Kuhlmann & Proshchalykin, 2013).

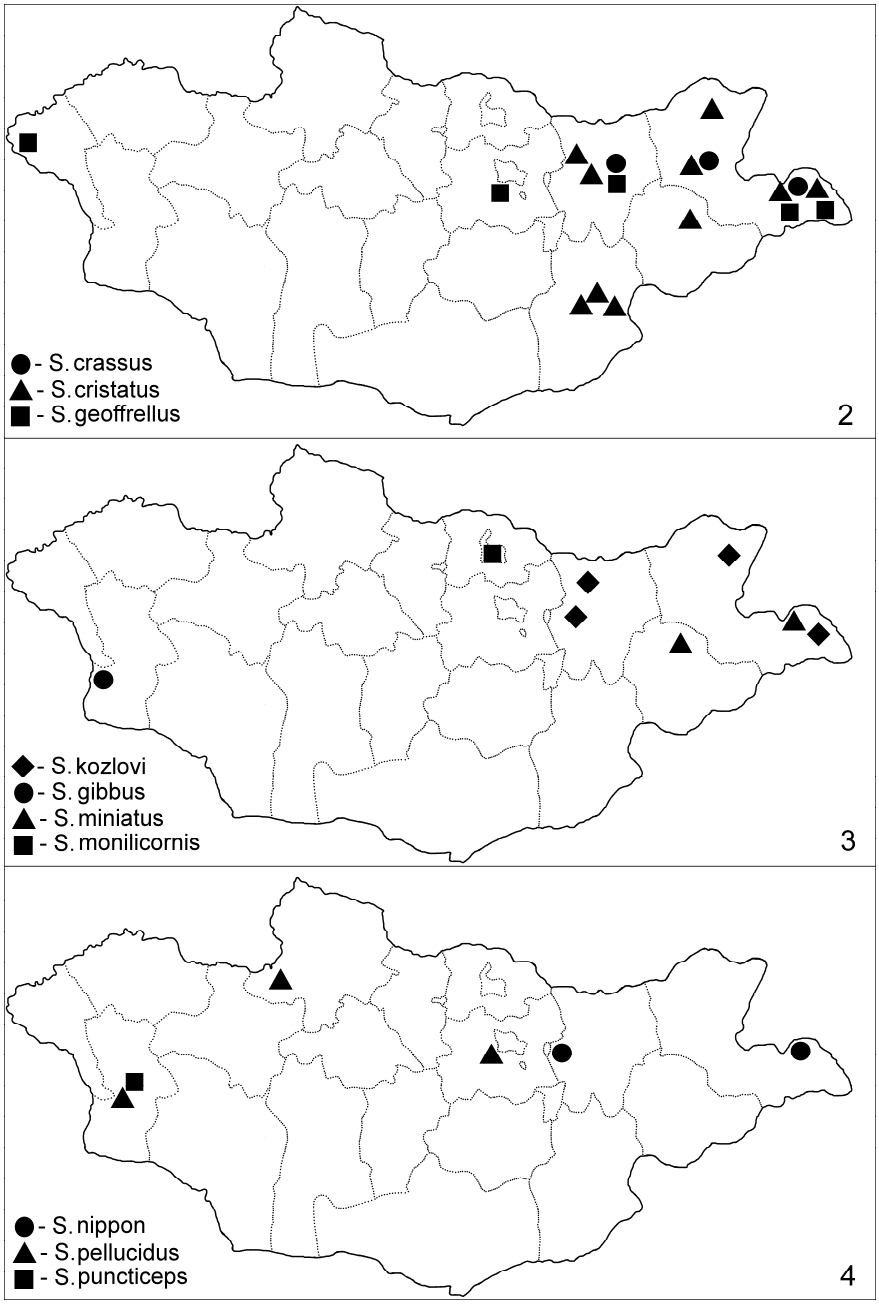
LIST OF THE SPECIES

Sphecodes crassus Thomson, 1870

Sphecodes crassus Thomson, 1870: 100 (type locality: S Sweden).

SPECIMENS EXAMINED. **Mongolia:** *Khentii Aimag*: 10 km E Dumd-Bayan, 27.VIII 1975, 1 ♂ (MK); *Dornod Aimag*: Derhin-Tsagan-Obo Mts., 60 km ENE Bayan-Burda, 12.VI 1976, 1 ♀ (MK); Choybalsan, Hukh Nur Lake, 24-25.VI 1976, 1 ♀ (IK).

DISTRIBUTION. *Mongolia (Khentii Aimag, Dornod Aimag) (Fig. 2), Russia (European part, Siberia, Far East), Europe (north to 64°), Turkey, Iran, North Africa, Japan.



Figs 2–4. Distribution of *Sphecodes* species in Mongolia.

***Sphecodes cristatus* Hagens, 1882**

Sphecodes cristatus Hagens, 1882: 218 (type locality: Germany); Bogusch & Straka 2012: 9 (Mongolia: no locality).

SPECIMENS EXAMINED. **Mongolia:** *Dornogovi Aimag*: 40 km W Erdene, 14.VIII 1975, 1 ♀ (EN); 70 km ENE Sain-Shand, Dolotyn-Huduk, 17-18.VIII. 1975, 2 ♂ (MK); 40 km ESE Sain-Shand, 15.VIII 1983, 1 ♀, 2 ♂ (ES); *Dornod Aimag*: 13 km W Dashbalbar, 23-24.VII 1975, 1 ♂ (MK); 60 km SSW Choibalsan, 20.VIII 1975, 1 ♂ (EN); 7 km S Ereentsav, 22.VIII 1975, 2 ♂ (EN); Tsaagan Lake, 23.VIII 1975, 1 ♂ (EN); Khalkhyn Gol [Khalkh River], 70 km E Bayan-Nur Lake, 1.VII.1976, 1 ♂ (IK); eastern lakeside of Buir Nur Lake, 7.VI 1976, 1 ♀ (IK); 27.VII 1976, 1 ♀ (MK); Choybalsan, Hukh Nur Lake, 24-25.VI 1976, 3 ♀ (IK); Tamsagbulag, 25.VII 1976, 1 ♂ (MK); Khalkhyn Gol [Khalkh River], 33 km SE Khalhk Gol, 31.VII 1976, 2 ♂ (IK); *Sukhbaatar Aimag*: 80 km NNE Barun-Urt, 19.VII 1975, 3 ♂ (MK); *Khentii Aimag*: Tola River, Urga, 23.VII 1905, 1 ♂ (PK); "Bichikte-Michigun, Halha", 1-7.IX 1925, 1 ♀ (PK); Kerulen River, 45 km E Bayan-Obo, 28.VII 1971, 1 ♂ (MK).

DISTRIBUTION. Mongolia (*Dornogovi Aimag, *Dornod Aimag, *Sukhbaatar Aimag, *Khentii Aimag) (Fig. 2), Russia (European part, Siberia, Far East), South Kazakhstan, Europe (north to Sweden), Turkey.

***Sphecodes geoffrellus* (Kirby, 1802)**

Melitta geoffrella Kirby, 1802: 45 (type locality: England).

SPECIMENS EXAMINED. **Mongolia:** *Bayan-Ulgii Aimag*: Hoton Nuur Lake (Altay Mts.), 16-17.VII 1978, 1 ♀ (MK); *Dornod Aimag*: Derhin-Tsagan-Obo Mts., 60 km ENE Bayan-Burda, 12.VI, 3.VIII 1976, 2 ♀, 1 ♂ (MK); Numergin-Gol River, 32 km SE Salhit Mts., 16.VI 1976, 1 ♀ (MK); eastern lakeside of Buir Nur Lake, 27.VII 1976, 1 ♀ (IK); *Khentii Aimag*: 10 km E Dumd-Bayan, 27.VIII 1975, 1 ♂ (MK); *Tuv Aimag*: Songino, 19.VIII 1976, 2 ♀ (IK).

DISTRIBUTION. *Mongolia (Bayan-Ulgii Aimag, Dornod Aimag, Khentii Aimag, Tuv Aimag) (Fig. 2), Russia (European part, Siberia, Far East), Europe (north to 66°), Turkey, Near East, North Africa, Japan.

***Sphecodes gibbus* (Linnaeus, 1758)**

Sphex gibba Linnaeus, 1758: 571 (type locality: Germany).
Sphecodes gibbus: Meyer 1920: 113 (SE Mongolia: no locality).

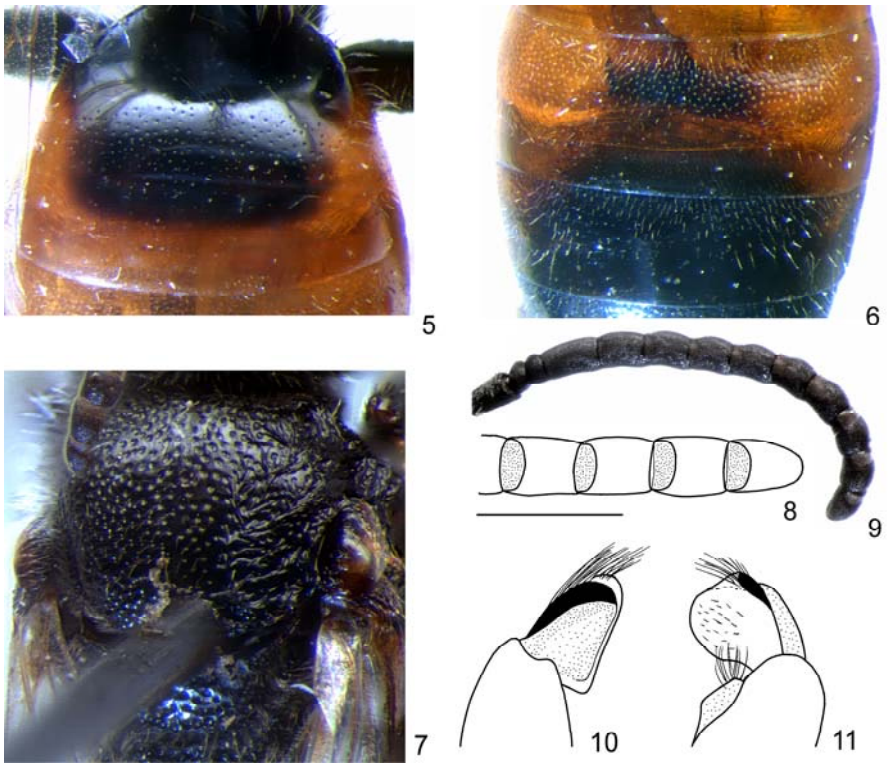
SPECIMENS EXAMINED. **Mongolia:** *Khovd Aimag*: 25 km N Bulgan, Ulastayn-Gol [River], 31.VII 1970, 2 ♂ (MK).

DISTRIBUTION. Mongolia (Khovd Aimag) (Fig. 3), Russia (European part, Ural, Siberia), China, Central Asia, Pakistan, India, Europe (north to 63°), Israel, Turkey, North Africa.

***Sphecodes kozlovi* Astafurova et Proshchalykin, sp. n.**

TYPE MATERIAL. Holotype, male. **Mongolia:** *Khentii Aimag*: 8 km NW Umne-Delger, 27.VIII 1975 (MK) [ZISP]. Paratypes: **Mongolia:** *Khentii Aimag*: 10 km NNW Binder, Onon River, 26-27.VIII 1975, 1 ♂ (EN); *Dornod Aimag*: Numergin-Gol River, 32 km SE Salhit Mts., 16.VI 1976, 1 ♂ (MK); 30 km NNE Havirga, 21.VIII 1975, 1 ♂ (EN) [ZISP].

DESCRIPTION. MALE. Structure. Body length 8.0−10.0 mm. Head transverse, 1.2 times wider than long. Vertex with a weakly longitudinal carina. Genal area 1.35 narrower than eye in lateral view. Antenna attaining middle of scutum; F1 short, strongly transverse, 0.5 times as long as wide; F2 longest, 1.5 times longer than wide; other flagellomeres 1.2−1.3 longer than wide. Undersides of F3−F11 with semicircular felt-like areas (depression with very short hairs). Felt-like area on F3 covers about 1/7 underside, on F4–F6 about 1/5–1/4 and on the following segments



Figs 5–11. *Sphecodes kozlovi* sp. n., male. 5 – T1; 6 – T2–T3; 7 – scutum; 8 – F8–F11, ventral view; 9 – antenna; 10 – gonostylus and upper part of gonocoxite, dorsal view; 11 – gonostylus and upper part of gonocoxite, lateral view.

about 1/4–1/3 (Figs 8, 9). S7 slender, arrow-shaped. S8 diamond-shaped: narrow-triangulary produced posteriorly and wide-triangulary anteriorly. Gonocoxite without dorsal depression. Gonostylus as in Figs 10, 11. Sculpture. Face dense punctate, with confluent punctures. Vertex and genal areas rugose. Scutum with confluent, deep, round punctures (25−50 μm / less 1) (Fig. 7). Scutellum with punctures confluent (areolate). Mesepisternum reticulate-rugose. Basal part of propodeum (propodeal triangle) coarsely reticulate-rugose, and rest of propodeum similarly sculptured. Metasomal terga coarse punctate; T1 with punctures a few diameter apart, finer than on other terga (Fig. 5); T2−T4 with dense punctures (15−25 μm / 0.5−2) (Fig. 6); marginal zones impunctate; T7 shagreened, densely and coarsely punctate. Coloration. Body black except the following: mandible red-brown apically; flagellar segments brown beneath; legs dark brown, tarsi reddish; stigma and veins yellowish-brown. T1 apically and laterally reddish-brown, T2 whole or only apically and laterally reddish-brown, T3 whole black or laterally reddish-brown (Fig. 6). Vestiture. Face below antennal sockets with dense and long plumose white hairs.

FEMALE. Unknown.

DIAGNOSIS. The new species is very similar to *S. simillimus* Smith and *S. pellucidus* Smith in structure, body sculpture, and form of male genitalia, but differs from both of this species by distinctly punctate T1. From *S. simillimus* new species also differs by sculpture of T2 and T3 with coarsely and densely punctures (in *S. simillimus* T2 and T3 with finely and very sparsely punctures or sometimes almost impunctate). From *S. pellucidus* it differs by vertex with a longitudinal carina (like as *S. simillimus*, but weaker developed) and weakly developed felt-like areas on flagellomeres (its cover no more than 1/3 underside, whereas in *S. pellucidus* its cover more than 1/2 underside).

ETYMOLOGY. This species is dedicated to the outstanding Soviet and Russian hymenopterist and popularizer of zoology Mikhail Alekseevich Kozlov (Михаил Алексеевич Козлов, 1936–2006). M.A. Kozlov was participant and organizer of seven long-term expeditions to Mongolia (1968−1971, 1976, 1978, 1980, 1990), where he collected abundant materials on different groups of insects. Many of them had been described as a new for sciences (Medvedev et al., 2007).

DISTRIBUTION. Mongolia (Dornod Aimag, Khentii Aimag) (Fig. 3).

***Sphecodes miniatus* Hagens, 1882**

Sphecodes miniatus Hagens, 1882: 223 (type locality: Germany).

SPECIMENS EXAMINED. **Mongolia:** *Dornod Aimag*: eastern lakeside of Buir Nur Lake, 27.VII 1976, 1 ♀ (MK); *Sukhbaatar Aimag*: 80 km NNE Barun-Urt, 19.VII 1975, 1 ♀ (MK).

DISTRIBUTION. *Mongolia (Dornod Aimag, Sukhbaatar Aimag) (Fig. 3), Russia (European part, Ural, Far East), Europe (north to south Sweden).

***Sphecodes monilicornis* (Kirby, 1802)**
Melitta monilicornis Kirby, 1802: 47 (type locality: England).

SPECIMENS EXAMINED. **Mongolia:** *Darkhan Aimag*: 25 km E Darkhan, 30.VII–1.VIII 1975, 1 ♂ (MK).

DISTRIBUTION. *Mongolia (Darkhan Aimag) (Fig. 3), Russia (European part, Ural, Far East), Europe (north to 64°), Turkey, Caucasus, Central Asia, North Pakistan, North Africa.

***Sphecodes nippon* Meyer, 1922**
Sphecodes nippon Meyer, 1922: 171 (type locality: Japan).

SPECIMENS EXAMINED. **Mongolia:** *Khentii Aimag*: Kerulen River, 45 km E Bayan-Obo, 28.VII 1971, 1 ♂ (MK); *Dornod Aimag*: eastern lakeside of Buir Nur Lake, 27.VII 1976, 1 ♀ (MK).

DISTRIBUTION. *Mongolia (Khentii Aimag, Dornod Aimag) (Fig. 4), Russia (Far East), Japan.

***Sphecodes pellucidus* Smith, 1845**
Sphecodes pellucidus Smith, 1845: 1014 (type locality: England).

SPECIMENS EXAMINED. **Mongolia:** *Tuv Aimag*: Songino, 25.VII 1905, 1 ♂ (PK); 19.VIII 1976, 1 ♂ (IK); *Khovd Aimag*: Orog-nuur [Lake], 25.V–2.VII 1926, 1 ♀ (PK); 25 km N Bulgan, Ulastayn-Gol [River], 31.VII 1970, 2 ♂ (MK); *Khuvsgul Aimag*: Buren-Khan, Delger-Muren River, 28–29.VI 1968, 1 ♀.

DISTRIBUTION. *Mongolia (Tuv Aimag, Khovd Aimag, Khovd Aimag) (Fig. 4), Russia (European part, Siberia, Far East), Europe (north to 66°), Turkey, North Africa, North China.

***Sphecodes puncticeps* Thomson, 1870**
Sphecodes puncticeps Thomson, 1870: 99 (type locality: Sweden).

SPECIMENS EXAMINED. **Mongolia:** *Khovd Aimag*: Tsagan-Bogdo-Ulaa Ridge, 28.VII 1985, 1 ♀ (AG).

DISTRIBUTION. *Mongolia (Khovd Aimag) (Fig. 4), Russia (European part, Far East), Europe (north to Finland and Sweden), Israel, Turkey, North Africa, Central Asia.

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