

<https://doi.org/10.25221/fee.557.3>

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A NEW REMARKABLE *HOPLITIS* SPECIES OF THE SUBGENUS *ALCIDAMEA* CRESSON, 1864 (HYMENOPTERA: MEGACHILIDAE) FROM TAJIKISTAN

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Summary. A new species of megachilid bees, *Hoplitis (Alcidamea) rasnitsyni* Proshchalykin et Fateryga, **sp. n.**, is described and illustrated based on males and females from Tajikistan. The number of species of the subgenus *Alcidamea* has been increased to 83.

Key words: megachilid bees, osmiine bees, taxonomy, Central Asia, Palaearctic region.

М. Ю. Прошалыкин, А. В. Фатерыга. Новый примечательный вид пчел рода *Hoplitis* подрода *Alcidamea* Cresson, 1864 (Hymenoptera: Megachilidae) из Таджикистана // Дальневосточный энтомолог. 2026. N 557. С. 26-32.

Резюме. Из Таджикистана по самкам и самцам описан и проиллюстрирован новый вид пчел-мегахилид *Hoplitis (Alcidamea) rasnitsyni* Proshchalykin et Fateryga, **sp. n.** Число видов подрода *Alcidamea* увеличено до 83.

INTRODUCTION

The present paper is a continuation of the ongoing research of the megachilid bees from Russia and neighboring countries (Proshchalykin, 2022; Fateryga *et al.*, 2023, 2024a, b, 2025; Proshchalykin *et al.*, 2023; Fateryga & Proshchalykin, 2024; Byvaltsev *et al.*, 2026). The genus *Hoplitis* Klug, 1807 is distributed in the Palaearctic, the Nearctic, and the Afro-tropical regions, a few species also occur in the Oriental region (Michener, 2007). *Hoplitis* is the most diverse osmiine genus in terms of number of species: 406 species have been described so far, 330 of which occur in the Palaearctic and 28 species are known from Tajikistan (Müller, 2026). The subgenus *Alcidamea* Cresson, 1864 occurs in the Palaearctic and Nearctic regions (Michener, 2007). Worldwide, there are 82 described species, 65 of which occur in the Palaearctic and nine species are known from Tajikistan (Müller, 2026). In recent years, two field expeditions were made to various regions of Tajikistan, during which numerous new specimens of bees were collected, including some species new to science.

MATERIAL AND METHODS

The material for the present study was collected in Tajikistan in 2025–2026 and deposited in the collections of the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia [ZISP] and the Federal Scientific Center of the East Asia Terrestrial Biodiversity of the Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russia (registration number 2797657) [FSCV].

Morphological terminology and definitions for body measurements follow Michener (2007) with the following specifications: i) the distance between lateral ocellus and preoccipital margin was measured in top view rather than in lateral view; ii) the diameter of an ocellus includes the ocellar border, which is often of the same color as the surrounding cuticle thereby differing from the usually light color of the central part of the ocellus; iii) the length of a segment of the labial palpus was measured from its sclerotized base to the sclerotized base of the subsequent segment; iv) the length of an antennal article was measured along its ventral margin, while its width corresponds to the maximal width of the article; v) numbering of antennal articles starts from the scapus, which is antennal article 1, and ends with the last flagellomere, which is antennal article 12 (females) or 13 (males). Measurements to the nearest 0.1 mm or 0.5 mm (for body length) were taken using an ocular micrometer of an MBS-9 stereomicroscope.

Photographs of the specimens were taken with a Canon EOS 550D digital camera and a Yongnuo YN-14EX macro flash attached to an Olympus SZX16 stereomicroscope. Focus stacking images were created with CombineZP software using the “Do Stack” algorithm. The final illustrations were processed with Adobe Photoshop CS2 software using the “Levels” tool and a “Sharpen” filter.

TAXONOMY

Hoplitis (Alcidamea) rasnitsyni Proshchalykin et Fateryga, sp. n.

<https://zoobank.org/NomenclaturalActs/A8320630-B274-40E8-8577-7F4E7CE5C7A5>

Figs 1–12

TYPE MATERIAL. Holotype: ♂, **Tajikistan**: Siyaku, 39°03'21.73"N, 68°52'14.25"E, 2450 m, 17–19.IV 2025, leg. M. Proshchalykin [ZISP]. Paratypes: same data as holotype, 1 ♀ [FSCV], 1 ♂ [ZISP]; Tajikistan, Siyaku, 39.0561°N, 68.8706°E, 2450 m, 23–24.VI 2026, 2 ♂, leg. M. Proshchalykin [FSCV]; Tajikistan, Shuroobod, 37.8520°N, 70.0895°E, 2290 m, 29.VI 2026, 1 ♀, 1 ♂, leg. A. Fateryga [ZISP], 2 ♂, leg. M. Proshchalykin [FSCV].

DIAGNOSIS. Among the central Palaearctic *Hoplitis* species of the subgenus *Alcidamea*, *H. rasnitsyni* sp. n. is a medium-sized species (Figs 1, 6). Diagnostic characters of the female are the clypeus with a very peculiar dense pilosity consisted of shorter ferruginous hairs at center and longer, rather erect whitish hairs laterally, and with the apical margin very slightly emarginate medially, having a shining, bare and impunctate marginal zone (Fig. 3), in combination with a weak longitudinal impunctate line on the vertex (Fig. 2), ferruginous tibial spurs of the hind leg tapering and curved towards an acute apex (Fig. 5), a complete dense band of appressed whitish hairs on the marginal zone of terga 1–5 (Fig. 4), and a lemon-yellow scopa (Fig. 1). Diagnostic characters of the male are a very characteristic antenna, with the articles 5–9 ventrally produced, forming a saw-like structure (Fig. 8), and the last article of antenna with a narrowing distal part pointed at the apex and curved backwards in dorsal view (Fig. 7), in combination with a complete dense band of appressed whitish hairs

on the marginal zone of terga 1–5 (Fig. 10), a strong lateral tooth of tergum 6 (Fig. 9), tergum 7, which is medially with a sub-apical pit and apically produced as a strong tooth (Fig. 7), sternum 1 with a roundly rectangular process directed downwards (Fig. 6) and very slightly emarginate apically in anterior view, the marginal zone of sterna 2–5 with a band of appressed ciliate hairs (Fig. 11), and the gonoforceps with a dorsal concavity in the apical third, which is outlined by a carina (Fig. 12).



Figs 1–5. *Hoplitis rasnitsyni* Proshchalykin et Fateryga, sp. n., ♀, paratype: 1 – habitus in lateral view; 2 – head and mesosoma in dorsal view; 3 – head in frontal view; 4 – metasoma in dorsal view; 5 – part of hind leg with tibial spurs. Scale bars = 1 mm.

DESCRIPTION. *Female.* Body length 8 mm. *Head:* Head about $0.7\times$ as long as wide. Distance between lateral ocellus and preoccipital margin about $2.2\times$ as long as ocellar diameter. Second segment of labial palpus about $1.3\times$ as long as first segment and about $0.4\times$ as long as compound eye. Mandible three-toothed, completely black. Clypeus densely punctured with interspaces much less than puncture diameter, densely covered with short ferruginous hairs directed rather apically at center, and longer, rather erect whitish hairs laterally; apical margin of clypeus very slightly emarginate medially, with shining, bare and impunctate marginal zone. Frons with whitish erect hairs two times longer than laterally on clypeus; vertex and gena with much shorter and mostly appressed hairs. Vertex densely punctured with interspaces rarely surpassing diameter of half puncture, medially with weak longitudinal impunctate line. Antennal article 3 almost $1.2\times$ as long as apically wide and about $1.4\times$ as long as article 4. Antenna completely black. *Mesosoma:* Tegula black except brown outer margin. Scutum and scutellum densely punctured with interspaces rarely surpassing diameter of half puncture. Basal area of propodeum shagreened on upper part and polished and shining on lower part. Posterior surface of propodeum densely finely punctured, with shagreened interspaces rarely surpassing diameter of half puncture. Propodeal pit polished. Scutellum with long erect whitish hairs similar to those on frons; remaining parts of mesosoma with slightly shorter erect whitish hairs, sparse on scutum and dense on lateral and posterior sides of mesosoma. Tibial spur of foreleg yellowish, slightly curved twice and moderately acute apically, with membranous appendage along nearly whole length. Tibial spurs of hind leg ferruginous, with serrate inner side, tapering and curved at 45 degrees towards acute apex; outer spur shorter than inner spur. *Metasoma:* Punctuation of tergal discs moderately dense, with interspaces reaching diameter of one puncture. Marginal zone of terga 1–5 covered with dense band of appressed whitish hairs. Tergal discs 1–4 with sparse erect pilosity of whitish hairs. When seen from behind, longest erect hairs on median half of tergum 1 about as long as those on scutum. Disc of tergum 6 covered with sparse and short appressed golden pilosity. Scopa lemon-yellow.

Male. Body length 8–9 mm. *Head:* Head about $0.65\times$ as long as wide. Distance between lateral ocellus and preoccipital margin about $2.0\times$ as long as ocellar diameter. Second segment of labial palpus about $1.3\times$ as long as first segment and $0.45\times$ as long as compound eye. Mandible two-toothed and completely black. Clypeus rather flat in profile, its punctuation very fine and dense, without visible interspaces, densely covered with whitish hairs about as long as antennal article 1; apical margin of clypeus crenulate, with shining, bare and impunctate marginal zone. Frons pubescent similarly to clypeus; vertex with much sparser hairs of same length; gena with much shorter erect whitish hairs. Antennal article 1 about $2.3\times$ as long as maximally wide. Antennal article 3 about $0.6\times$ as long as apically wide and about as long as article 4; antennal articles 5–8 ventrally produced along their whole length forming saw-like structure, with size of ventral process increasing from article 5 to article 8; antennal article 9 with even longer but narrower ventral process, located mostly at its distal end. Last article of antenna about $2.1\times$ as long as basally wide, with narrowing distal part pointed at apex and curved backwards in dorsal view. Antenna black, except brown distal half of last article. *Mesosoma:* Tegula black in inner half and brown in outer half. Scutum and scutellum densely punctured with interspaces rarely surpassing diameter of half puncture. Basal area of propodeum shagreened on upper part and polished and shining on lower part. Posterior surface of propodeum densely finely punctured, with shagreened interspaces rarely surpassing diameter of half puncture. Propodeal pit polished. Scutellum with long erect whitish hairs similar to those on frons; remaining parts of mesosoma with slightly shorter erect whitish hairs, sparse on scutum and dense on lateral and posterior sides of mesosoma. Tibial spur of foreleg yellowish, slightly curved twice and moderately acute apically, with membranous appendage along nearly whole length. Tibial spurs of hind leg ferruginous, with serrate inner

side, tapering and curved at 45 degrees towards acute apex; outer spur shorter than inner spur. Distal part of tibia and tarsus of foreleg, tarsus of mid leg except for basal part of basitarsus, and hind tarsomere 5 ferruginous or reddish-brown. *Metasoma*: Punctuation of



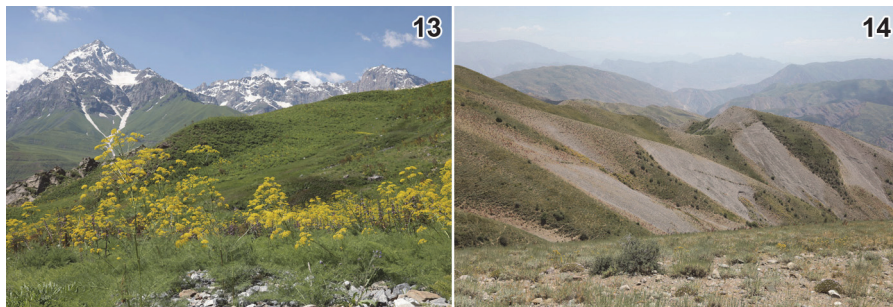
Figs 6–12. *Hoplitis rasnitsyni* Proshchalykin et Fateryga, sp. n., ♂, holotype: 6 – habitus in lateral view; 7 – head and mesosoma in dorsal view; 8 – head in frontal view; 9 – apex of metasoma in dorsal view; 10 – metasoma in dorsal view; 11 – metasoma in ventral view; 12 – genitalia in dorsal view. Scale bars = 1 mm.

tergal discs 1–5 dense, with interspaces hardly reaching diameter of half puncture. Marginal zone of terga 1–5 covered with dense band of appressed whitish hairs. Tergal discs 1–6 with sparse erect pilosity of whitish hairs. When seen from behind, longest erect hairs on median half of tergum 1 about as long as those on scutum. Tergum 6 laterally with strong tooth. Disc of tergum 6 with coarse punctures, larger than those on terga 1–5, interspaces shining and sometimes exceeding diameter of one puncture. Marginal zone of tergum 6 polished, shining, bare, impunctate, and brown. Tergum 7 medially with sub-apical pit, apically produced as strong tooth; this tooth narrowly blunt in dorsal view and rounded in lateral view. Apical margin of sternum 1 with roundly rectangular process directed downwards and very slightly emarginate apically in anterior view; anterior surface of this process convex and ventral surface concave; process bare and shining, without punctures. Apical margin of sterna 2–3 almost straight and of sterna 4–5 weakly rounded and medially emarginate. Marginal zone of sterna 2–5 with band of appressed ciliate hairs. Marginal zone of sternum 2 narrowly brown, that of sterna 3–5 rather broadly yellowish-brown. Sternum 6 apically membranous and broadly rounded. Sternum 7 membranous, apically roundly emarginate. Gonoforceps approximately as broad as penis valve, bent inwards in its apical third where concave dorsally; concavity outlined by carina, especially well developed along inner margin; sub-apical part of gonoforceps with few rather short hairs. Penis valve bare.

HABITATS. *Hoplitis rasnitsyni* sp. n. was collected in a mountain meadow at the Siyaku Place (Fig. 13) and a mountain steppe at the Shuroobod Pass (Fig. 14).

DISTRIBUTION. Tajikistan.

ETYMOLOGY. The new species is dedicated to Alexandr P. Rasnitsyn, a well-known Russian entomologist and paleontologist, in recognition of his great contributions to the systematics of the order Hymenoptera and in the occasion of his 90th birthday anniversary.



Figs 13–14. Habitats of *Hoplitis rasnitsyni* Proshchalykin et Fateryga, sp. n. in Tajikistan: 13 – Siyaku Place; 14 – Shuroobod Pass.

ACKNOWLEDGMENTS

We thank Rustam Muratov, Faizali Khakimov (Dushanbe, Tajikistan) and Uvaido Kudratbekov (Buved, Tajikistan) for help during the field work in Tajikistan and Andreas Müller (Zurich, Switzerland), who confirmed that this species is indeed new and recommended to describe it.

The research was carried out within the state assignments of the Ministry of Science and Higher Education of the Russian Federation, No. 124012400285-7 (for MP) and No. 124030100098-0 (for AF).

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