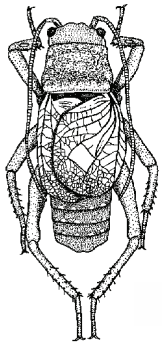

Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch of the Russian Entomological Society and Laboratory of Entomology, Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok

Number 382: 1-9 ISSN 1026-051X May 2019

https://doi.org/10.25221/fee.382.1
http://zoobank.org/References/74E98099-3056-4038-B41E-B884D82E2A1C

NEW AND LITTLE KNOWN SPECIES OF SPIDER WASPS (HYMENOPTERA: POMPILIDAE) FROM THE RUSSIAN FAR EAST

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Summary. A new species, *Stigmatodipogon khinganicus* Kochetkov et Loktionov, **sp. n.**, and the hitherto unknown female of *Anoplius sundukovi* Loktionov et Lelej, 2014 are described and illustrated from Amurskaya oblast. *Deuteragenia albithrix* (Shimizu et Ishikawa, 2002) is newly recorded from Russia. Data on prey of *A. sundukovi* Loktionov et Lelej, 2014 (spider *Dolomedes* sp., Pisauridae) is given for the first time.

Key words: Pepsinae, Pompilinae, taxomomy, new species, new record, prey, spiders, Russia.

Д. Н. Кочетков, В. М. Локтионов. Новые и малоизвестные виды дорожных ос (Hymenoptera: Pompilidae) с Дальнего Востока России // Дальневосточный энтомолог. 2019. N 382. С. 1-9.

Резюме. Из Амурской области описаны новый вид дорожных ос *Stigmatodipogon khinganicus* Kochetkov et Loktionov, **sp. n.** и ранее неизвестная самка

Anoplius sundukovi Loktionov et Lelej, 2014. Впервые для фауны России указывается *Deuteragenia albithrix* (Shimizu et Ishikawa, 2002). Впервые даны сведения о добыче *A. sundukovi* (паук *Dolomedes* sp. из сем. Pisauridae).

INTRODUCTION

The family of spider wasps is recently revised; it numbers 246 species from 37 genera and three subfamilies in Russia (Loktionov & Lelej, 2017a, b). Of them, 121 species from 25 genera are destributed in the Russian Far East.

This paper is based on a new material collected in 2016 and 2018 years in the Khinganskiy State Nature Reserve (Amurskaya oblast), and some additional material deposited in the Federal Scientific Center of East Asia Terrestrial Biodiversity, Vladivostok, Russia. As a result of study a new species and the hitherto unknown female of another species are described and illustrated from the Russian Far East, as well as one species is newly recorded from Russia.

MATERIAL AND METHODS

All materials used in the paper as well as type materials of a new species are deposited in the Federal Scientific Center of East Asia Terrestrial Biodiversity, Vladivostok, Russia [EATB] (formerly the Institute of Biology and Soil Science). In this paper we follow the classification of the tribe Deuterageniini Šustera proposed by Lelej and Loktionov (2012).

Next abbreviations are used in the text: F, S and T are used for flagellomeres, metasomal sterna and terga respectively; POD – postocellar (interocellar) distance between posterior ocelli which is measured from above; OOD – ocellocular distance between posterior ocellus and compound eye which is measured from above; UID –upper interocular distance; MID – middle interocular distance; LID – lower interocular distance. Photographs were taken with an Olympus SZX16 stereomicroscope and an Olympus DP74 digital camera, and stacked using Helicon Focus software. The final illustrations were post-processed for contrast and brightness using Adobe® Photoshop® software.

RESULTS

Deuteragenia albithrix (Shimizu et Ishikawa, 2002)

Figs 1–2

Dipogon (*Deuteragenia*) *albithrix* Shimizu & Ishikawa, 2002: 367, ♀♂ (holotype – ♀, Japan, Tokyo, Okutama, Hikawa, X.1952 (S. Tada), deposited in Tokyo Metropolitan University, Japan).

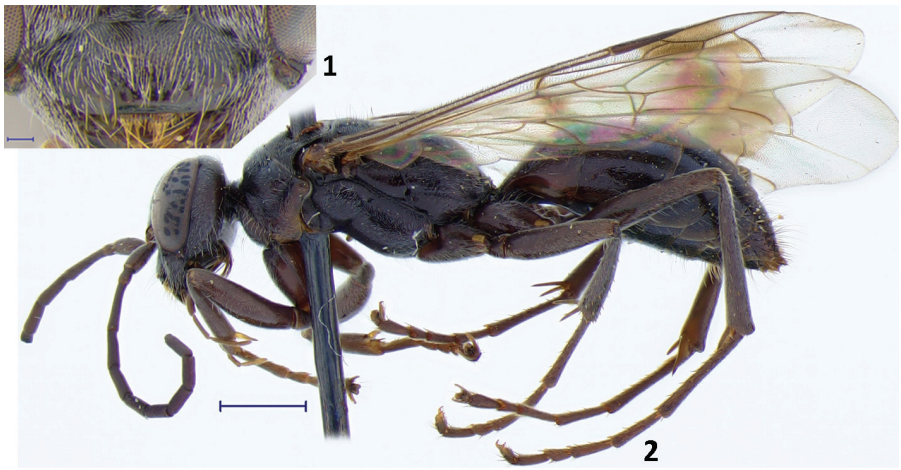
Deuteragenia albithrix: Lelej & Loktionov, 2012: 8.

MATERIAL EXAMINED. Paratype: **Japan**: Hirasawa, Inashi (Nagano), 19.IX 1978, 1♀ (M. Arima). Other material: **Russia**: Primorskii krai, Dersu, 24, 27.VIII 1991, 2♀ (P. Nemkov).

DIAGNOSIS. This species can be easily separated from other congeners of *Deuteragenia vechti* species-group by the propodeum rugulose posterolaterally in both sexes; the fore wing with a weak inner band, the clypeus with a very narrow apical rim and a rounded glabrous ridge and T1 petiolate in females; the hypopygium narrow and rod-shaped, compressed laterally and broadly flattened along midline ventrally in males (Shimizu & Ishikawa, 2002).

DISTRIBUTION. Japan (Hokkaido, Honshu, Kyushu) (Shimizu & Terayama, 2016), Russia (Primorskii krai) (new record).

REMARKS. This species belongs to the *Deuteragenia vechti* species-group representatives of which posses the clypeus with a distinct preapical ridge and strongly depressed apical rim in females and the S6 with a pair of large lateral hooks in males (Shimizu & Ishikawa, 2002).



Figs 1–2. *Deuteragenia albithrix* (Shimizu et Ishikawa), female: 1 – clypeus, frontal view; 2 – habitus, lateral view. Scale bar: 0.1 mm for 1; 1.0 mm for 2.

***Stigmatodipogon khinganicus* Kochetkov et Loktionov, sp. n.**

http://zoobank.org/NomenclaturalActs/75DF33C5-3A47-4AC8-9B79-1A234C0AE173

Figs 3–12

TYPE MATERIAL. Holotype – ♀, **Russia**: Amurskaya oblast, Khinganskiy Nature Reserve, Cluster Khinganskiy, Dyrovatka River, 49°10′45″N, 130°32′44″E, mixed forest, 28–29.VIII 2016 (D. Kochetkov) [EATB]. Paratype – 1♀ with same label [EATB].

DIAGNOSIS. The female of the new species can be easily separated from those of all congeners by the combination of the following characters: the frons densely punctate, interspace of punctures polished (Fig. 4); POD : OOD = 1.56; F1 length 3.6× its maximum width; T1 with short not parallelsided petiole (Fig. 7); the metaclaw with a strong inner tooth; the body entirely black, including the head and legs (Figs 3–10).

DESCRIPTION. FEMALE (measurements for holotype given in parenthesizes). Body length 5.2(5.5) mm; fore wing length 3.9(4.1) mm. Body black (Figs 3–10); mandible brown apically. Fore wing slightly infuscate with brownish basal and subapical spots, with indistinct enclosed subapical area; pterostigma brown (Fig. 11). Hind wing slightly infuscate (Fig. 12).

Figs 3–12. *Stigmatodipogon khinganicus* Kochetkov et Loktionov, **sp. n.**, holotype, female: 3 – habitus, dorsal view; 4 – head, frontal view; 5 – head and mesosoma, lateral view; 6 – clypeus and mandibles, frontal view; 7 – propodeum and T1, dorsal view; 8 – S1–S3, ventral view; 9 – mesoscutellum, metanotum, metapostnotum and propodeum, dorsal view; 10 – head and pronotum, dorsal view; 11 – fore wing; 12 – hind wing. Scale bar: 0.1 mm for 4, 6; 0.2 mm for 5, 7–12.

Head and mesosoma punctate and somewhat polished. Frons (Fig. 4) densely punctate, with indistinct median line in basal half; interspace of punctures polished. Clypeus with large and coarse preapical setiferous pores (Fig. 6). Pronotum punctate more delicate than frons. Disc of mesoscutum minutely punctate. Discs of mesoscutellum and metanotum rarely punctate. Propodeum irregularly punctate, punctures coarser and larger than on frons; antero-median portion impunctate. Mesopleuron densely punctate. Metasoma very minutely and densely punctate. Metapostnotum polished with fine transverse striae. Body mostly without setae except following: frons along inner orbit with one long and few shorter brown setae; clypeus with two long light brown setae postero-medially; mandible with nine suberect brown setae; prementum with two tufts of long brown setae; gena with few very short setae; procoxa with scattered short erect setae; propodeum postero-laterally with few short erect setae; S1–S5 posteriorly with scattered long light brown setae; T6 and S6 with very dense, long and short erect setae. Body with sparse somewhat brownish pubescence.

Head width in frontal view 1.1(1.1)× its height. Vertex slightly convex between eyes tops (Fig. 4). Frons moderately and evenly convex (Fig. 5). Inner orbits weakly convergent above and subparallel below (Fig. 4). Half of MID 1.50(1.55)× eye width. Posterior margin of vertex concave (dorsal view). POD : OOD = 1.55(1.56). Clypeus as wide as LID; width 2.75(2.70)× its height; moderately convex medially; anterolateral corner rounded; anterior margin straight in frontal view; anterior rim normal shaped (Fig. 6). Malar space very short and linear. Gena in lateral view well developed, evenly narrowing towards mandible and vertex (Fig. 5). Length relation of scape, pedicel and all flagellomeres in holotype: 26 : 11 : 26 : 21 : 20 : 18 : 18 : 17 : 16 : 16 : 15 : 19. F1 length 3.3(3.6)× its maximum width and 0.63(0.65)× UID. Apical flagellomere pointed apically. Pronotum posterior margin subangulate medially. Discs of mesoscutellum and metanotum barely convex, not raised above level of mesoscutum and propodeum (Fig. 5). Metapostnotum very short and deep (Fig. 9). T1 with short petiole (Fig. 7). S2 with simple transverse groove (Fig. 8).

Fore wing (Fig. 11) with pterostigma 1.45(1.6)× as long as SMC2 on vein *M*; SMC2 receiving crossvein *1m-cu* at middle; SMC2 0.78(0.75)× SMC3 length on vein *M*, and 1.25(1.3)× on vein *Rs*; SMC3 receiving crossvein *2m-cu* in 0.32(0.35) basad; crossveins *2rs-m* and *3rs-m* curved outwardly; crossvein *cu-a* hardly post-furcal. Hind wing as in Fig. 12. Pro- and mesotibia with short spines apically. Pro-, meso- and metatarsomere 1, and metatarsomeres 2–4 with short spines ventrally. Meso- and metatibia with few minute spines dorsally and laterally (on outer face). Metatibia longer spur 0.42(0.40)× metatarsomere 1. Proclaw with weak inner tooth, meso- and metaclaw with strong inner tooth.

MALE. Unknown.

DISTRIBUTION. Russia (Amurskaya oblast).

ETYMOLOGY. The specific name originates from Khingan Mountain Ridge, with reference to the area where the new species was collected.

***Anoplius* (*Anoplius*) *sundukovi* Loktionov et Lelej, 2014**
Figs 13–20

Anoplius (*Anoplius*) *eous*: Loktionov, 2010: 11, ♀♂ (part., Primorskii krai); Loktionov, 2011: 83 (part.); Lelej & Loktionov, 2012: 411 (part.); Shlyakhtenok *et al*., 2012: 456, ♀♂ (part.).

Anoplius (*Anoplius*) *sundukovi* Loktionov & Lelej, 2014: 304, 322, ♂ (holotype – ♂, Russia, Primorskii krai, Lazovskii Natural Reserve, Prosyolochny, 21–24.VII.2008 (Yu. Sundukov) [EATB]).

MATERIAL EXAMINED. **Russia**: Amurskaya oblast, 27 km W of Arkhara, Khinganskiy Nature Reserve, Dolgoe Lake, 49°23′34″N, 129°40′04″E, 3.X 2018, 1♀ (D. Kochetkov); 24 km W of Arkhara, Khinganskii Nature Reserve, Klyoshenskoe cordon, 49°23′50″N, 129°43′29″E, 4.VII 2018, 1♂ (D. Kochetkov).

DIAGNOSIS. FEMALE. The female can be separated from those of all other species of nominotypical subgenus by the following characters: the pterostigma small (Fig. 19); SMC3 trapezoid, Rs_3 3.5× Rs_4 (Fig. 19); the head in frontal view with the temples well developed and gently rounded (Fig. 16); the head, pro- and mesopleuron, procoxa, propodeum and T1 with dense long dark setae; F1 length 5.7× its maximum width; the head, mesosoma and metasoma with abundant patches of silver pubescence. MALE. The male can be separated from those of all other species of nominotypical subgenus by the following characters: the pterostigma normal-sized; S4 and S5 without specialized erect setae; the hypopygium wide and rounded, narrowing basally, its apical margin weakly emarginated medially; meso- and metaclaw with inner tooth distinctly obliquely truncate (Loktionov & Lelej, 2014).

DESCRIPTION. FEMALE (hitherto unknown). Body length 16.0 mm; fore wing length 11.2 mm. Body entirely black (Figs 13–18). Fore wing brown; pterostigma dark-brown (Fig. 19). Hind wing somewhat lighter than fore wing (Fig. 20).

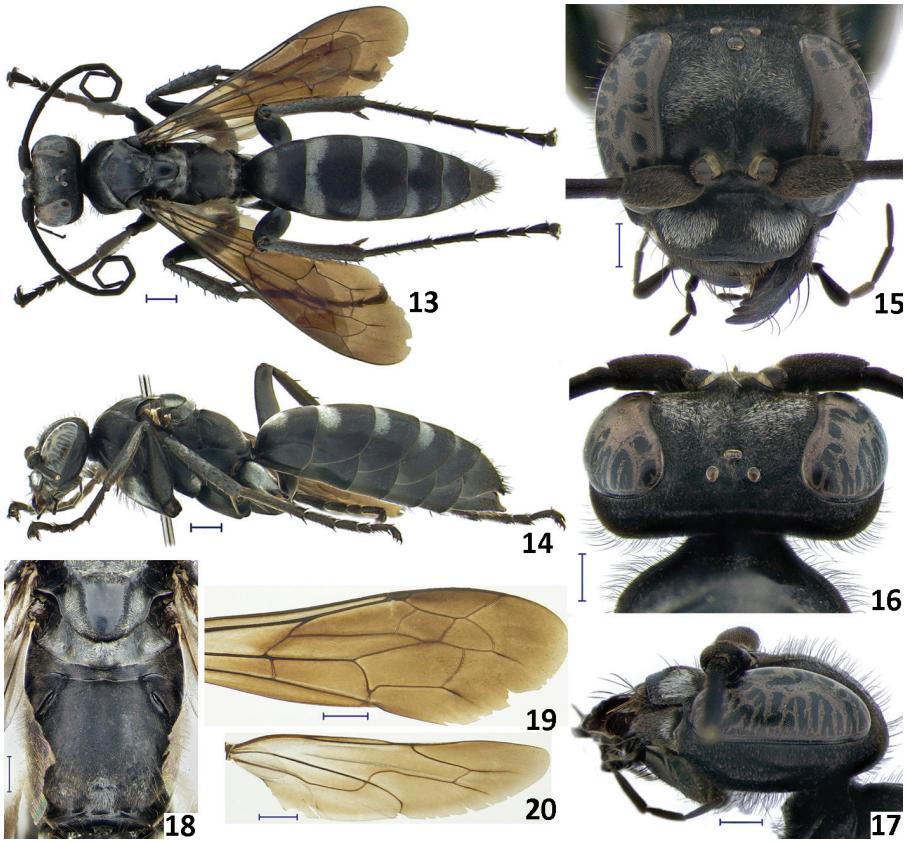
Body matt with hardly visible microsculpture. Clypeus minutely punctate, with apical rim impunctate. Frons, mesoscutum, mesoscutellum and metanotum very minutely punctate. Metapostnotum with transverse striae, of them extreme anterior one whole, others disconnected medially. Propodeum microshagreenate.

Body with abundant dark erect setae. Frons, vertex, gena, pronotum, pro- and mesopleuron, propodeum laterally, T1 baso-laterally with dense long setae. Mesoscutum and metanotum with scattered setae. Procoxa with dense and longer setae than on frons. Meso- and metacoxa with scattered short setae. Other parts of leg without setae. S1–S5 and T5 with scattered long setae posteriorly. S6 with dense long and short erect setae. T2–T4 with few short setae posteriorly. T6 with long setae and hard bristles.

Body with iridescence brownish micropubescence and more intensive silver pubescence forming patches on: clypeus and frons (Fig. 15), mesosoma (Figs 13, 14, 18), coxae (Fig. 14) and T1–T5 (Figs 13, 14).

Head width in frontal view 1.1× its height. Vertex raised between eyes tops, gently convex (Fig. 15). Frons moderately convex (Fig. 17). Inner orbits convergent above and below (Fig. 15). Half of MID 1.25× eye width. Posterior margin of vertex

slightly concave (dorsal view) (Fig. 16). POD : OOD = 0.7. Clypeus noticeably wider than LID; width 2.25× its height; moderately convex medially; anterolateral corner slightly rounded; anterior margin almost straight in frontal view (Fig. 15). Malar space short. Gena in lateral view well developed, evenly narrowing towards mandible and vertex, 0.5× eye width medially (Fig. 17). Length relation of scape, pedicel and all flagellomeres: 20 : 6 : 30 : 21 : 19 : 16 : 16 : 16 : 15 : 14 : 13 : 15. F1 length 5.7× its maximum width and as long as UID. Apical flagellomere pointed apically. Pronotum posterior margin subangulate medially. Disc of mesoscutum barely convex. Disc of mesoscutellum strongly convex and raised above level of mesoscutum and metanotum. Metapostnotum 0.42× metanotum medially (Fig. 18).



Figs 13–20. *Anoplius* (*Anoplius*) *sundukovi* Loktionov et Lelej, female: 13 – habitus, dorsal view; 14 – habitus, lateral view; 15 – head, frontal view; 16 – head, dorsal view; 17 – head, lateral view; 18 – mesoscutellum, metanotum, metapostnotum and propodeum, dorsal view; 19 – fore wing; 20 – hind wing. Scale bar: 0.1 mm for 13, 14, 19, 20; 0.5 mm for 15–18.

Fore wing (Fig. 19) with pterostigma small; SMC2 receiving crossvein *1m-cu* in 0.6 basad; SMC2 0.8× SMC3 length on vein *M*, and 3.5× on vein *Rs*; SMC3 receiving crossvein *2m-cu* in 0.48 basad; crossveins *2rs-m* slightly curved medially; crossvein *3rs-m* curved outwardly; crossvein *cu-a* postfurcal. Hind wing as in Fig. 20. Meso- and metafemur with small scattered spines dorso-apically and dorso-laterally on outer face. Protibia laterally on outer face, meso- and metatibia dorsally and laterally on outer face with scattered spines, longest one on metatibia dorso-medially 0.55× width of metatibia medially in lateral view. All tarsomeres with spines ventrally. Metatibia longer spur 0.57× metatarsomere 1. Tarsal claws symmetrical with small inner tooth.

DISTRIBUTION. Russia (Amurskaya oblast, Primorskii krai) (Loktionov & Lelej, 2014; Kochetkov, 2019).

REMARKS. The female of *Anoplius sundukovi* is similar to that of *A. eous* Yasumatsu, 1936, but can be distinguished by the following characters: the propodeum with a patch of silver pubescence postero-medially (Fig. 18) and the pronotum with a band of silver pubescence along posterior margin (Fig. 13).

BIOLOGY. In Amurskaya oblast the female was observed transporting a paralyzed spider (Pisauridae: *Dolomedes* sp.) on leafs of the aquatic plant, *Nelumbo komarovii* Grossh. This female and spider were collected by a net. Male specimen of the species was caught by yellow pan trap nearby, on shore of neighboring lake located 4.0 km away.

CONCLUSION

New finds were enriched our knowledge on spider wasps of the Russian Far East. *Stigmatodipogon khinganicus* Kochetkov et Loktionov, **sp. n**. is a third species of the genus known from the Russian Far East and a seventh species of the genus. Due to discovery of hitherto unknown female of *Anoplius sundukovi* Loktionov et Lelej, 2014, all far eastern species of the genus *Anoplius* Dufour are currently known by both sexes.

Currently 248 species of spider wasps from 37genera are destributed in Russia, of them 123 species from 25 genera are known for the Russian Far East.

ACKNOWLEDGEMENTS

We are thankful to Dr. Akira Shimizu (Tokyo Metropolitan University, Japan) for valuable suggestions on the species and a gift of comparative materials. We would like to thank Daniil Osipov (Moscow Zoo, Russia) for identification of the spider. The work was supported by the Russian Foundation of Basic Research (17–04–00259 and 18–54–00011).

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