

## Contributions to the knowledge of the entomofauna of the Sikhote-Alin Biosphere Reserve. II. New records of *Chionea* Dalman, 1816 (Diptera: Limoniidae) in Primorsky Krai

### К познанию энтомофауны Сихотэ-Алинского биосферного заповедника. II. Новые находки *Chionea* Dalman, 1816 (Diptera: Limoniidae) в Приморском крае

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КЛЮЧЕВЫЕ СЛОВА: хионя, Россия, Дальний Восток, распространение, новые данные.

ABSTRACT. New data on the distribution of the genus *Chionea* in the Primorsky Krai are presented. For the Sikhote-Alin Nature Reserve, the species *Chionea crassipes* Boheman, 1846 and *Chionea pusilla* Savchenko, 1983 were recorded for the first time.

РЕЗЮМЕ. Приведены новые данные о распространении рода *Chionea* в Приморском крае. Впервые для Сихотэ-Алинского заповедника отмечены виды *Chionea crassipes* Boheman, 1846 и *Chionea pusilla* Savchenko, 1983.

The genus *Chionea* Dalman, 1816 includes small-sized, spider-like and wingless (the wings are in fact extremely short) nematocerous Diptera from the family Limoniidae with 36 known species and two subspecies, of which 18 (+ two subsp.) of which are the Palearctic Region; nine of these are from the Eastern Palearctic (+ two subsp.) [Zhang et al., 2012; Suh et al., 2014; Oosterbroek, 2021]. Two of the Eastern Palearctic taxa (*Ch. araneoides* Dalman, 1816, *Ch. crassipes* Boheman, 1846) have wide Palearctic ranges. The subspecies *Ch. crassipes gracilistyla* Alexander, 1936 is known from Russia: Far East (Amur oblast, Primorsky Krai), North and South Korea, Japan (Honshu, Hokkaido) and China (Heilongjiang, Jilin). In China, besides *Ch. crassipes gracilistyla*, there are three more species: *Ch. sphaerae* Zhang,

Wang et Yang, 2012 and *Ch. tianhuashana* Zhang, Wang et Yang, 2012, known only from China, and *Ch. pusilla* Savchenko, 1983, known from Primorsky Krai and subsequently also found in China. On the other hand, four species are known from the Korean peninsula: the aforementioned subspecies *Ch. crassipes gracilistyla* and *Ch. kanenoi* Sasakawa, 1986 (also known from Japan), *Ch. mirabilis* Vanin, 2008 (also Primorsky Krai) and *Ch. deogyusana* Suh, Kwon et Kwon, 2014 (described and known so far only from South Korea). There are eight species of the snow cranefly genus *Chionea* in Russia [Pilipenko et al., 2016; Vertyankin, 2017; Stolbov et al., 2018]. The occurrence of *Chionea* in Russia, including the Far East, has been critically discussed by Pilipenko et al. [2016]. Two taxa have been described from the Far East of Russia: *Ch. pusilla* Savchenko, 1983 (except Primorsky Krai, but also recorded in China) and *Ch. crassipes magadanensis* Narchuk, 1998 (endemic to Magadan) [Narchuk, 1998]. In addition, to the four above-mentioned taxa from Primorsky Krai, the species *Ch. nipponica* has also been recorded there [Savchenko, 1983, 1989; Savchenko et al., 1992].

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of the East Asia Terrestrial Biodiversity (Far Eastern Branch of the Russian Academy of Sciences) from Vladivostok, which started in the summer of 2018.

The material for this work was collected incidentally, during winter coleopterological surveys carried out by the third author. A total of 21 specimens of *Chionea* were picked off the snow surface by hand. The species was identified by Nikolay Paramonov and Roland Dobosz by direct examination of the specimens. The apex of the abdomen was macerated in a cold, saturated KOH solution for ca 4–8 h. After rinsing the KOH with acetic acid and water, the apex of the abdomen was transferred to glycerin for further dissection and examination. The male (Fig. 1) and female (Fig. 2) genital structures were imaged using a Nikon Eclipse E-600 biological microscope with a Nikon DS-Fi2 digital camera and NIS Elements 4.10 software. After examination, the genitalia were placed in fresh glycerin and stored in a microvial placed in sealed tubes in the ethanol (“wet”) collection of the Upper Silesian Museum, Bytom (USMB) and in the Zoological Institute, Russian Academy of Sciences, St. Petersburg (ZIN).

*Chionea crassipes* Boheman, 1846

Figs 1–3.

MATERIAL. 3♂3♀ — 19 XII 2016, Primorsky Krai, Terneyskiy distr., Sikhote-Alin Biosphere Reserve, at kordon Ust'-Serebryanyi 45°8'25"N/136°22'43"E, Serebryanka river env., Maxim Sergeev leg. (USMB Dipt. 001/A1); 1♂ 3♀ — 21 XII 2016, Primorsky Krai, Terneyskiy distr. Sikhote-Alin Biosphere Reserve, vicinity of Lake Blagodatnoe 44°57'14"N/136°32'50"E, Maxim Sergeev leg., Roland Dobosz det. (USMB Dipt. 001/A2); 2♂1♀, with the same data as the previous one, Nikolay Paramonov det. (ZIN); 1♂ — 01 III 2018, Primorsky Krai, Terneyskiy distr., Sikhote-Alin Biosphere Reserve, env. Terney 45°02'N/136°38'E, Gromyko leg., Roland Dobosz det. (USMB Dipt. 001/A3); 2♂1♀ — 10 XII 2019, Primorsky Krai, near the village of Terney, [floodplain of the River Skrytaya], [45°03'12"N/136°37'16"E], Maxim Sergeev & Georgy Nacharkin leg., Nikolay Paramonov det. (ZIN); 1♀ — 30 XII 2019, Primorsky Krai, Terneyskiy distr., Sikhote-Alin Biosphere Reserve, env. Terney, Maxim Sergeev leg.

NOTE. The nominotypical subspecies is distributed from Fennoscandia, Northwest Russia, Khanty-Mansi Autonomous Okrug, Tyumen Oblast to Russian Far East [Oosterbroek, 2021; Oosterbroek, Reusch, 2008; Savchenko, 1989; Stolbov et al., 2018]. Pilipenko et al. [2016] believed that all three taxa in species *Ch. crassipes* do not deserve subspecies status, but at the same time, the eastern population of *Ch. crassipes* differs from the western one in an increased and unstable number of antenna segments. The



Figs 1–3. *Chionea crassipes*: 1–2 — male (kordon Ust'-Serebryanyi, 19 XII 2016) genitalia; 3 — female (env. of Lake Blagodatnoe, 21 XII 2016) ovipositor; 1, 3 — lateral; 2 — dorsal.

Рис. 1–3. *Chionea crassipes*: 1–2 — гениталии самца (кordon Усть-Серебряный, 19 XII 2016); 3 — яйцеклад самки (окр. оз. Благодатное, 21 XII 2016); 1, 3 — сбоку; 2 — сверху.

specimens of *Ch. crassipes* collected in the Sikhote-Alin Biosphere Reserve in 2016–2019 confirm the occurrence of this rare and interesting species of snow crane-fly in Primorsky Krai. In all collected specimens of *Ch. crassipes* (both sexes), antenna with 9 segments. In all published data, the number of antennal segments in *Ch. crassipes* ranges from 5 to 7.

*Chionea pusilla* Savchenko, 1983

MATERIAL. 1♂2♀ — 30 XII 2019, Primorsky Krai, near the village of Terney, [floodplain of the River Skrytaya], [45°03'12"N/136°37'16"E], Maxim Sergeev leg., Nikolay Paramonov det. (ZIN)

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