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Brief review of the species of the genus *Helius* Lepeletier et Serville, 1828 (Diptera: Limoniidae) of Russia, with description of a new species from Far East of Russia

Краткий обзор видов рода *Helius* Lepeletier et Serville, 1828 (Diptera: Limoniidae) фауны России с описанием нового вида с Дальнего Востока России

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KEY WORDS: short-palped craneflies, new geographical record, systematic position, taxonomy, Jewish Autonomous Oblast.
КЛЮЧЕВЫЕ СЛОВА: комары-болотницы, новая находка, систематическое положение, таксономия, Еврейская автономная область.

ABSTRACT. A new species, *Helius* (*Helius*) *sidorenkoi* **sp.n.**, is described from the Jewish Autonomous Oblast. The genus *Helius* is recorded in the region for the first time. Based on morphological features, we consider the form *Helius* (*Helius*) *ussuriensis* Savchenko, 1983 **stat.n.** as a species and its redescription is given. A review of the literature on the systematic position of the genus within the family Limoniidae is presented. A key to species of the genus *Helius* of Russia is given.

РЕЗЮМЕ. Описан новый вид *Helius* (*Helius*) *sidorenkoi* **sp.n.** из Еврейской Автономной области. Род *Helius* впервые приводится для фауны указанного региона. На основании морфологических характеристик повышен ранг формы *Helius* (*Helius*) *ussuriensis* Savchenko, 1983 **stat.n.** до видового и приведено её переописание. Представлен обзор литературы, касающейся систематического положения рода в семействе Limoniidae. Приведена определительная таблица для видов рода *Helius* фауны России.

Introduction

The Jewish Autonomous Oblast (JAO) is located in the southern part of the Far East of Russia. True flies (Diptera) of the JAO have been poorly studied. Information on this territory is available only for several families [Grichanov, 2006, 2021; Mutin, 2012; Makarchenko *et al.*, 2014; Nartshuk, 2017]. On crane flies (Tipuloidea), there is only one article [Paramonov, 2019], in which three species of the family Limoniidae, eight species of Tipulidae and one species of Cylindrotomidae are recorded. For comparison, the fauna of crane flies (including Pediciidae) in the nearby Primorsky Kray includes 340 species, and more than 600 species have been recorded in the Far East of Russia [Oosterbroek, 2025].

Helius Lepeletier et Serville, 1828 is a large genus comprising 233 species and subspecies in nine subgenera and distributed in all zoogeographical regions [Oosterbroek, 2025]. In the Palearctic, 23 species of this genus from the nominative subgenus have been recorded. Seven species have been found in the Far East of Russia, four of which (*H. corniger* Savchenko, 1983, *H. flavus* (Walker, 1856), *H. gracillimus* Alexander, 1938, and *H. ussuriensis* Savchenko, 1983 **stat.n.**) were recorded in the southern part of Primorsky Kray, and two (*H. nawaianus* Alexander, 1929, *H. obliteratus* (Alexander, 1920)) were recorded on Sakhalin Island and the Kuril Islands. *H. polionotus* Alexander, 1938 was described from Korea based on females and was subsequently recorded in Amur Oblast of the Far East of Russia and in China [Alexander, 1938; Savchenko, 1989; Podenas, Byun, 2014].

Larvae are known only for a few Western Palearctic (*H. longirostris* (Meigen, 1818), *H. flavus*, and *H. pallirostris* Edwards, 1921) and Nearctic (*H. mainensis*

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(Alexander, 1916), *H. flavipes* (Macquart, 1855)) species [Alexander, 1920; Krivosheina, Krivosheina, 2011; Olsen *et al.*, 2018]. The larvae are amphibious and live in eutrophic marsh soil or in the littoral zone of lakes in mud among roots of aquatic plants or among the plants that fell into the water [M. Krivosheina, 2012]. For references to the larval biology of the European species *H. flavus* and *H. longirostris*, see Olsen *et al.* [2018].

Literature on the taxonomy, biology of adults, and paleontology of *Helius* is given in Lv *et al.* [2024]. For general morphological description of imago, larva and pupa, see [Podenas, Byun, 2014], and for diagnosis see [Theischinger, 1994].

Currently, the genus is actively studied in the adjacent territories. For the Korean Peninsula, faunal lists, identification keys, and redescriptions of species have been compiled [Podenas, Byun, 2014; Podenas *et al.*, 2015; Podenas *et al.*, 2017]. Species new to science have been described from China [Xu *et al.*, 2023; Ma *et al.*, 2024], and new species for China have been recorded [Lv *et al.*, 2024]. New species for Japan have also been recorded [Kato, 2020]. An identification key has been provided for the species of Mongolia [Podenas, Gelhaus, 2007]. The genus *Helius* has not yet been recorded in JAO. We report this genus for the first time for JAO and describe a new species from this region.

Systematic position

The systematic position of the genus *Helius* in the family Limoniidae is controversial. The foremost specialist in crane flies, C. Alexander, when determining the position of the genus within the family Limoniidae, was guided mainly by the features of adult morphology. In his early works, Alexander (e.g., [1913, 1915, 1916, 1919]) placed the genera *Helius*, *Elephantomyia* Osten-Sacken, 1860 and others (see [Alexander, 1913]) in the tribe Antochini within Limnobiinae (=Limoniidae) (modern names are given in brackets). Later, Alexander [1920] assigned for *Helius* (Alexander's *Rhamphidia* Meigen, 1830) a separate subtribe, Rhamphidaria, within Limnobiini (=Limoniinae) and noted that this subtribe might also include a few tropical genera. Alexander also mentioned that the genus *Helius* is close, on the one hand, to the subtribe Dicranoptycharia with the only genus *Dicranoptycha* (also part of Limnobiini (=Limoniinae)), and, on the other hand, to Hexatomini (=Limnophilinae). The genus *Elephantomyia* Alexander, together with *Toxorhina*, was placed in the subtribe Elephantomyaria within Eriopterini (=Chioneinae) (see also [Hynes, 1997]). In other studies, Alexander [1927, 1943] placed *Helius* in the subtribe Heliaria, which was included in Limoniini (=Limoniinae), and placed *Elephantomyia* in the subtribe Elephantomyaria within Hexatomini (=Limnophilinae). Describing the genus *Taiwanina*, Alexander [1928] admited that it might belong to the subtribe Heliaria. In describing the second species of *Taiwanina*, Alexander [1932] pointed out that this genus was apparently closer to the genus *Toxorhina* than to Heliaria (the author placed the genus *Toxorhina* into the monotypical subtribe Toxorhinaria within Chioneinae [Alexander, 1932, 1947]). But if we take into account that the genus *Toxorhina* is close to the genera *Helius* and *Elephantomyia* (see below), then, according to Alexander, the genus *Taiwanina* is also close to *Helius* and *Elephantomyia*. Alexander [1948] united the three genera *Helius*, *Elephantomyia*, and *Toxorhina* and places them in Hexatomini (=Limnophilinae). In one of his last works, Alexander (together with Byers – [Alexander, Byers, 1981]) placed the genus *Helius* in Limoniinae and the genus *Elephantomyia* in Limnophilinae. Edwards [1938] placed the genus *Helius* in the Limoniini (= Limoniinae) based on some adult features, but noted that other features allow the genus to be considered in the tribe Hexatomini (=Limnophilinae).

Tjeder [1981] considered the genus *Toxorhina* in the separate tribe Toxorhinini within Tipulidae: Limoniinae (=Limoniidae), and the genus *Elephantomyia* separately from *Toxorhina* within Hexatomini (=Limnophilinae).

In his earlier works, Savchenko (e.g., [Savchenko, Krivolutskaya, 1976]) considered the genus *Elephantomyia* as part of Hexatominae (=Limnophilinae): Limnophilini, and considered *Helius*, following Alexander, as part of Limoniinae: Antochini, but "traditionally, conditionally", and noted that in fact this genus should be included in Hexatominae (=Limnophilinae) or Eriopterinae (=Chioneinae). Subsequently, Savchenko ([1983, 1986, 1989] and other works), based primarily on adult morphology, believed that *Helius* and *Elephantomyia* formed the tribe Elephantomyiini and transfered the tribe from Limoniinae to Hexatominae (=Limnophilinae), but noted that the genus *Helius* was conditionally included in this tribe, being univocally part of Limnophilinae.

Based on his analysis of adult morphological features, Starý [1992] transferred *Helius* and *Elephantomyia* from Limnophilinae to Limoniinae. This decision was followed by Krzemiński [1993]. Savchenko *et al.* [1992] also combined *Elephantomyia*, *Helius*, and *Protohelius* Alexander, 1928 into the tribe Elephantomyiini within Limoniinae. Ribeiro and Amorim [2002] discussed the systematic position of the genera *Helius* and *Elephantomyia* and also combined these genera into the tribe Elephantomyiini, but the position of this tribe in any subfamily of the family Limoniidae remained uncertain. According to Ribeiro and Amorim, Elephantomyiini can be placed in Hexatominae (=Limnophilinae) or Limoniinae. Based on a study of many features of adult morphology, Ribeiro [2008] places both genera *Helius* and *Elephantomyia* in the subfamily Limoniinae. He considers these genera relatively close, but not sister groups. Petersen *et al.* [2010] based on the study of adult, larval and pupal morphology and two nuclear genes, united *Helius* and *Elephantomyia* into Elephantomyiinae (according to the authors, the genus *Toxorhina* may also be included in this group, but this genus was not included in their analysis), but Starý [2021] did not accept this subfamily and considered *Helius* and *Elephantomyia* as sister genera within Limoniinae.

In the study by Oosterbroek and Theowald [1991], *Helius* is treated as a separate branch outside Limoniinae, but as a sister group to Limoniinae, Cylindrotominae,

Tipulidae, and several other genera (based on the study of larval morphology). N. Krivosheina [Krivosheina, Krivosheina, 2011; N. Krivosheina, 2012] after studying the morphology of larvae, considered the tribe Elephantomyiini as monotypic with the only genus *Elephantomyia* and placed it in Hexatominae (=Limnophilinae). She excluded the genus *Helius* from Elephantomyiini and conditionally placed it in Eriopterinae (=Chioneinae), noting that the larvae of these two genera have few common features. According to N. Krivosheina, *Helius* occupies a separate position in Limoniidae, with its larvae combining characteristics of Limnophilinae, Chioneinae, and Limoniinae.

Kang *et al.* [2023], based on mtDNA analysis, substantiated the monophyly of the tribe Elephantomyiini with the genera *Helius*, *Elephantomyia*, *Toxorhina*, and *Protohelius* (although only the first two genera were included in their analysis) without a definite position in any subfamily. Xu *et al.* [2023] considered *Helius* as part of Limoniinae, and Lv *et al.* [2024] considered *Helius* as part of Elephantomyiini in Limoniinae. According to the online catalogue of Tipuloidea [Oosterbroek, 2025], the genera *Helius* and *Elephantomyia* belong to the subfamily Limoniinae.

Notes on the morphology of *Helius*

a. In both specimens of *H. sidorenkoi* **sp.n.** vein *Sc* ending freely in the wing, only vein *sc-r* connects it to R_1, but the distal part of *Sc* ("Sc_1" in Savchenko's works) is missing (Fig. 12). Such venation is typical for Palearctic species of the related family Tipulidae. In thirty males and five females of *H. longirostris* from Moscow Oblast and Republic of Mordovia (European Russia), in one male and two females of *H. flavus* from Moscow Oblast and Republic of Mordovia, in seven males and four females of *H. ussuriensis* **stat.n.** from Primorsky Kray (Far East of Russia), and in twelve males of *H. gracillimus* from Primorsky Kray we found individual variability in this feature: most of specimens have the same venation as both specimens of the new species; some specimens have normally developed distal part of *Sc* or only a "stump"; finally, two males of *H. longirostris* from Republic of Mordovia have a normally developed distal part of *Sc* in one wing and lack it in the other. Several species of the probably closely related genus *Elephantomyia* were examined. A similar situation was found in four males and two females of *E.* (*Elephantomyia*) *edwardsi* Lackschewitz, 1932 from Moscow Oblast, three males and three females of *E.* (*E.*) *krivosheinae* Savchenko, 1976 from the Moscow Oblast, and nine males and two females of *E.* (*E.*) *hokkaidensis* Alexander, 1924 from Primorsky Kray: in most specimens, the distal part of *Sc* strongly narrowed and almost disappears near wing margin; in some specimens, the distal part of *Sc* is completely absent or represented by a "stump"; in some specimens, the distal part of *Sc* is normally developed.

b. All specimens we examined, listed above, lack arculus, a transverse vein, which is traditionally considered as reduced vein *MA* [Cumming, Wood, 2017]; it connects the longitudinal veins *R* and *M* near the base of the wing. Arculus is also absent in all studied species of the genus *Elephantomyia*. Arculus is present in most genera of crane flies, but may disappear in some genera of Limoniidae (e.g., *Austrolimnophila*, *Epiphragma*, *Dactylolabis*, and *Gonomyia*) [Savchenko, 1986].

c. Females of all studied species of the genus (*H. longirostris*, *H. ussuriensis* **stat.n.**, *H. flavus*, *H. nawaianus*, *H. gracillimus*, *H. calviensis* Edwards, 1928) have an additional suture on tergite 8, which begins at the anterior margin of the tergite and runs near the posterior margin (Fig. 5, *ad s*). The same suture was found by Tjeder [1958: fig. 1] in *Idioptera pulchella* (Meigen, 1830) (his *Limnophila* (*Idioptera*) *macropteryx* Tjed.) (Limoniidae: Limnophilinae) and designated as an "apodeme" without further explanation. The same suture is depicted in Starý, Rozkošný [1970: Fig. 19] in *Helius flavus* and not designated. In the genus *Elephantomyia* (*E.* (*Elephantomyia*) *zonata* Savchenko, 1976 and *E.* (*E.*) *hokkaidensis* Alexander, 1924 were examined) such a suture was not found.

Material and Methods

Adult crane flies were collected by an insect net and preserved in 96% ethanol or pinned. Male and female terminalia were examined after boiling in 10% NaOH for 1 minute, rinsed in distilled water, and placed in glycerol. Cleared parts were preserved in glycerol-filled microvials together with the rest of the specimen, in ethanol-filled tubes. The material was studied with an Olympus SZ61 microscope. A Nikon Z50 digital camera equipped with a Tamron 70–300 /4–5.6 and an EL-Nikkor 50/2.8 enlarger lens or a Mitutoyo M Plan Apo 10X microscope objective lenses were used to capture stacked images, which were then combined using the Helicon Focus software (www.heliconsoft.com/heliconsoft-products/helicon-focus). All images were adjusted and assembled into plates using Adobe Photoshop CS2.

The distribution of species is given according to Oosterbroek [2025]. The general morphological terminology follows Cumming, Wood [2017]; terminology for wing venation follows de Jong [2017].

The type specimens are stored in 80–85% ethanol at the Zoological Institute, Russian Academy of Sciences (Saint Petersburg).

Taxonomic account

Checklist of species of the genus *Helius* of Russia

Helius (*Helius*) *calviensis* Edwards, 1928
Helius (*Helius*) *corniger* Savchenko, 1983
Helius (*Helius*) *flavus* (Walker, 1856)
Helius (*Helius*) *gibbifer* Savchenko, 1981
Helius (*Helius*) *gracillimus* Alexander, 1938
Helius (*Helius*) *hispanicus* Lackschewitz, 1928
Helius (*Helius*) *longirostris* (Meigen, 1818)
Helius (*Helius*) *nawaianus* Alexander, 1929
Helius (*Helius*) *obliteratus* (Alexander, 1920)
Helius (*Helius*) *pallirostris* Edwards, 1921
Helius (*Helius*) *polionotus* Alexander, 1938
Helius (*Helius*) *sidorenkoi* **sp.n.**
Helius (*Helius*) *ussuriensis* Savchenko, 1983 **stat.n.**

Key to species of the genus *Helius* of Russia

1. One pair of gonostyli present .....*Helius* (*Helius*) *corniger*
– Two pairs of gonostyli present 2
2. Outer gonostylus triangular and bearing three teeth at apex ..... *Helius* (*Helius*) *gibbifer*
– Outer gonostylus elongated, with one or two teeth at apex or without any teeth 3
3. Flagellomeres strongly elongate, cylindrical: at least flagellomeres 2–4 5–10 times as long as greatest wigth 4
– Flagellomeres oval: length of proximal flagellomeres 1.3–2 times greater than greatest width 6
4. Gonocoxite complicated, with three lobes: small darkened subbasal, long narrow medial, and large subapical on dorsal surface ..... *Helius* (*Helius*) *obliteratus*
– Gonocoxite simple, without any lobes 5
5. Wing cord and origin of *Rs* surrounded by distinctly darkened area. Outer gonostylus without any teeth at apex .... *Helius* (*Helius*) *gracillimus*
– Wing cord and origin of *Rs* not darkened. Outer gonostylus with two hook-shaped teeth at apex .... *Helius* (*Helius*) *nawaianus*
6. Rostrum three times as long as height of head. Male inner gonostylus thin, without any spine .... *Helius* (*Helius*) *hispanicus*
– Rostrum shorter 7
7. Tip of wing broadly (but inconspicuous) darkened .... *Helius* (*Helius*) *polionotus*
– Wing clear except stigma in some species 8
8. Rostrum light. Outer gonostylus very short, half as long as inner gonostylus or shorter, with single curved spine at apex. Posterior margin of tergite 9 with two little rounded hairy projections medially. Base of gonocoxite with falcate dorsomesal projection ....*Helius* (*Helius*) *pallirostris*
– Rostrum dark. Outer gonostylus more than half length as long as inner gonostylus, with two teeth at apex. Posterior margin of tergite 9 with more or less broad notch. Base of gonocoxite without such projection..... 9
9. Outer gonostylus conspicuously widened towards apex, at apex with two widely spaced broad teeth .... *Helius* (*Helius*) *sidorenkoi* **sp.n.**
– Outer gonostylus of same width throughout, not widening towards apex (middle of outer gonostylus wider in some aspects, but in these aspects, apex narrower than middle) 10
10. Prescutum without dark longitudinal stripes, sometimes only with small indistinct darkening medially on frontal margin. Thorax ochre-yellow to yellowish brown .... *Helius* (*Helius*) *flavus*
– Prescutum with distinct dark longitudinal stripes (in some cases, lateral stripes inconspicuous) 11
11. Gonocoxite in basal part ventrally with clearly conspicuous rounded pubescent protrusion. Stigma well marked .... *Helius* (*Helius*) *calviensis*
– Gonocoxite in basal part ventrally with poorly conspicuous protrusion. Stigma poorly defined 12
12. Prescutum gray with dark medial stripe, lateral stripes inconspicuous. Notch at posterior margin of tergite 9 U-shaped. Inner tooth of outer gonostylus located at acute angle to inner tooth ....*Helius* (*Helius*) *ussuriensis* **stat.n.**
– Prescutum yellowish brown with three brownish gray stripes. Notch at posterior margin of tergite 9 narrower, V-shaped. Inner tooth perpendicular to outer tooth and to whole outer gonostylus ..... *Helius* (*Helius*) *longirostris*

Note. Savchenko [1983] mentions the finding near Vladivostok (southern Primorsky Kray, Far East of Russia) of a single female of an unknown species, similar to *H. flavus*, on the one hand, and to *H. infirmus* Alexander, 1932, which is known from Sichuan, China, on the other hand. This "*Helius* sp." is also included in the identification key by Podenas, Gelhaus [2007]. We do not include this unidentified species in our identification key, since its morphological features are described rather poorly.

Helius (*Helius*) *ussuriensis* Savchenko, 1983 **stat.n.**
Figs 1–7, 17.

MATERIAL EXAMINED. Russia, Primorsky Kray, Lazovsky Nature Reserve, Proselochnaya Bay (Ta-Chingouza), 1 ♂, 2 ♀♀, 15–16.VII.2005, V. Sidorenko leg.; 1 ♂, 1–7.VII.2006, Y. Sundukov leg.; 2 ♂♂, 2 ♀♀, 16.VII.2006, V. Pilipenko leg.; Shkotovsky distr., 5 km E Steklyanukha vill., Shkotovka riv., 2 ♂♂, 24.VI.2023, I. Solodkii leg.

DIAGNOSIS. Rostrum 1.3 times as long as rest of head. Proximal flagellomeres spherical to oval. Stigma pale, brownish. Posterior margin of tergite 9 with rounded U-shaped notch. Inner tooth of outer gonostylus located at acute angle to inner tooth.

DESCRIPTION. Male. Body length around 7 mm, wing length 9 mm.

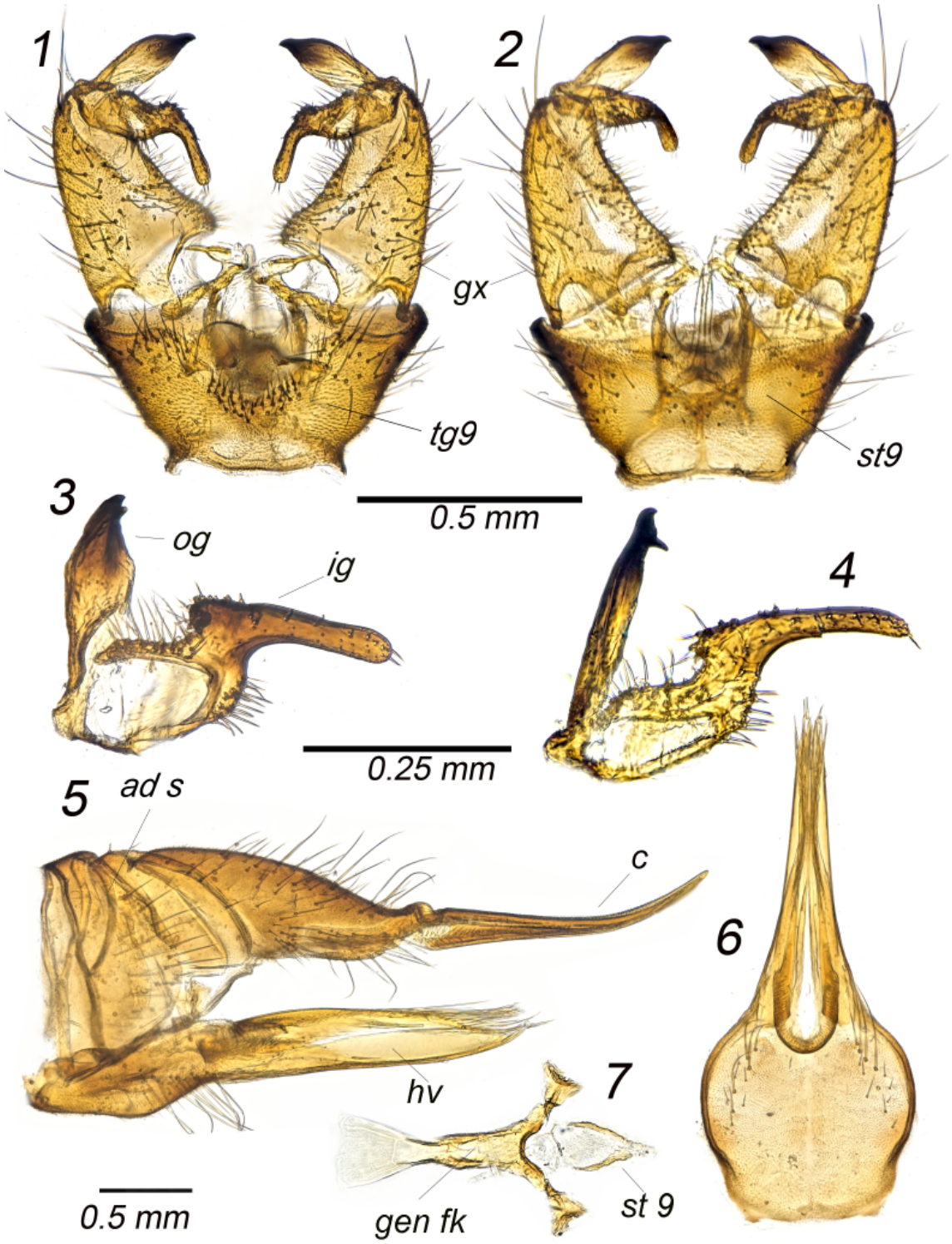
Head gray. Rostrum brown, 1.3 times as long as head. Mouth parts brown. Antennae entirely brown, base of first flagellomere lighter, yellowish. Scape elongate, 1.2 times as long as wide. Proximal flagellomeres almost spherical, rest from oval to elongated. Verticils slightly longer than corresponding flagellomeres.

Thorax. Prescutum gray, with dark gray medial stripe. Postsutural scutum and scutellum of same color as prescutum, gray. Mediotergite brownish gray. Laterally thorax grayish brown. Coxae and trochanters of all legs yellow. Femurs of all legs in basal one third yellow, otherwise brownish yellow, apices darkened. Tibiae and tarsi of all legs brownish yellow. Wing grayish, veins brownish gray, stigma very pale, brownish. Venation varying between different specimens: *Sc* ending opposite fork of *Rs*, *Rs* of different lengths: almost equal to R_4 or 2 times shorter than R_4. Distance between R_4 and R_5 1.6 times greater than distance between R_1 and R_4. Cross-vein *r-m* present or absent (in this case, vein R_5 fused with M_{1+2} over some length), 2–3 as long as R_5 from fork *Rs* to *r-m*. Cell *dm* about 1.5–2 times as long as wide; *m-cu* conspicuously distal to base of *dm*. Halteres yellowish.

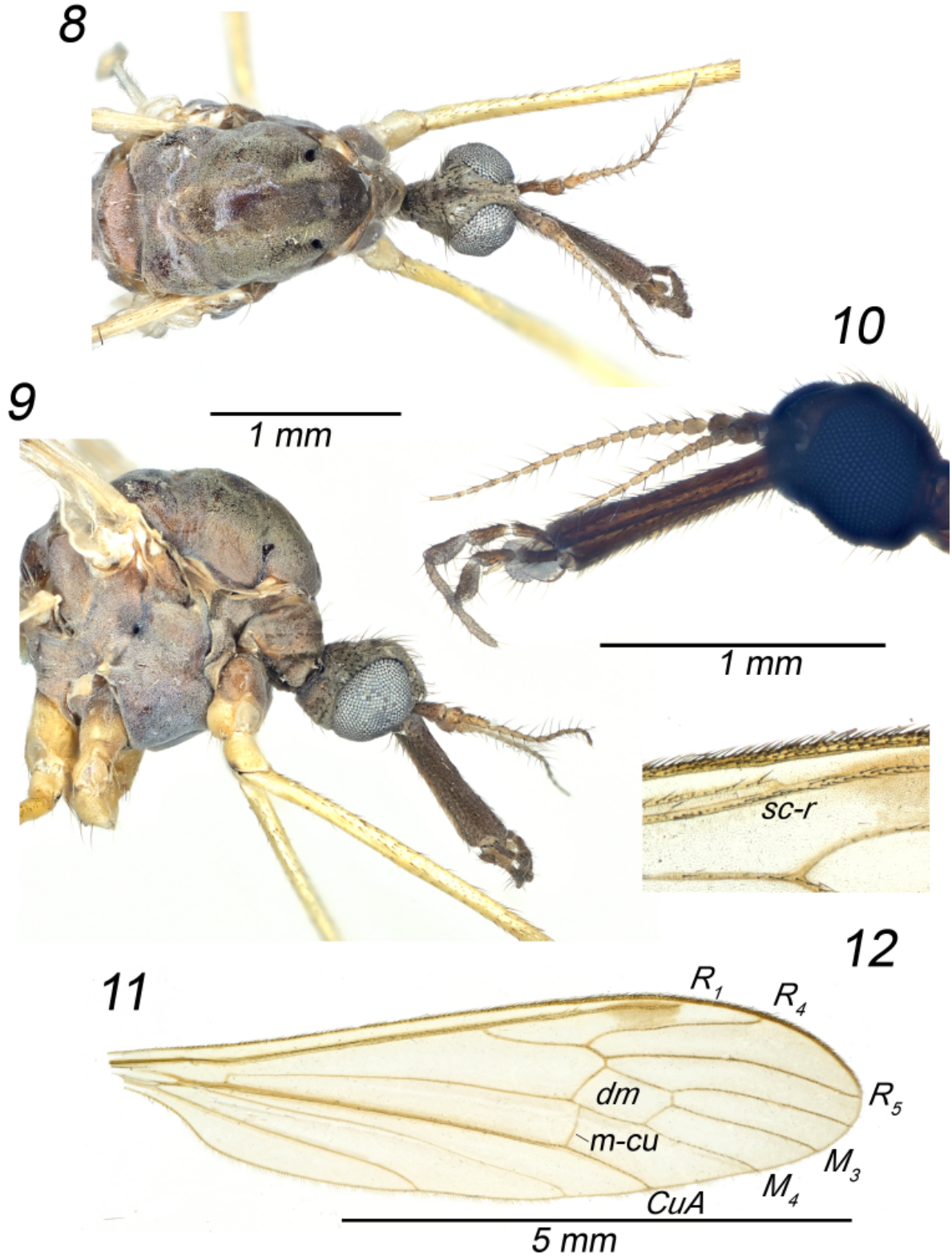
Abdomen brown. Hypopygium (Figs 1–3) lighter than abdomen, yellowish brown. Posterior margin of tergite 9 with rounded U-shaped notch. Gonocoxite elongated. Inner gonostylus sharply curved, at bend outer margin bearing several noticeable teeth. Outer gonostylus blackened at apex and bearing two teeth; inner tooth located at acute angle to inner tooth. Interbase curved at right angle, its distal half quite narrow, at apex extended into beak-shaped outgrowth.

Female. Colored like male. Ovipositor (Figs 5–7): cercus and hypogynial valve brownish yellow. Hypogynial valve reaching one third of length of cercus. Genital fork and sternite 9 similar to those of other species of *Helius*.

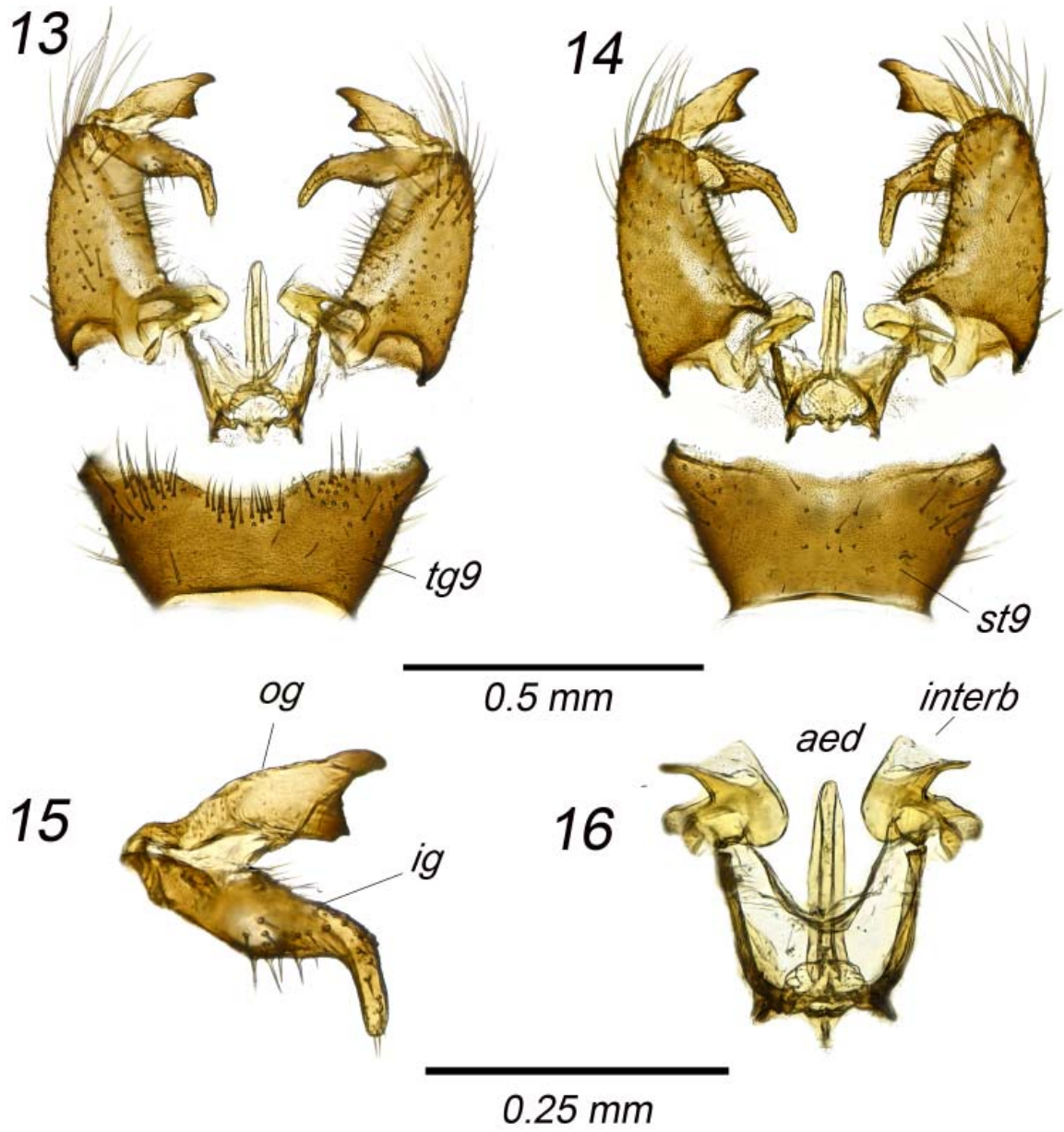
DIFFERENTIAL DIAGNOSIS. Most similar to *H. longirostris*, differing from it in wider U-shaped notch of tergite 9 (in *longirostris* notch is narrower, V-shaped), as well as that in *ussuriensis* inner tooth of outer gonostylus located at acute angle to inner tooth (in *longirostris* inner tooth perpendicular to outer tooth and whole outer gonostylus) (Figs 3, 4). Also, these species differ in the



Figs 1–7. *Helius* (*Helius*) spp., male, female terminalia and their parts (in glycerol): 1–3, 5–7 — *H.* (*H.*) *ussuriensis* **stat.n.**, 4 — *H.* (*H.*) *longirostris*. 1, 2 — hypopygium, dorsal view (1) and ventral view (2); 3, 4 — inner and outer gonostyli; 5 — ovipositor, lateral view; 6 — sternite 8 and hypogynial valve, dorsal view; 7 — sternite 9 and genital fork, ventral view. Abbreviations: *ad s* — additional suture; c — cerci; *gx* — gonocoxite; *gen fk* — genital fork; *hv* — hypogynial valve; *ig* — inner gonostylus; *og* — outer gonostylus; *st9* — sternite 9; *tg9* — tergite 9.
Рис. 1–7. *Helius* (*Helius*) spp., терминалии самцов, самок и их части (в глицерине): 1–3, 5–7 — *H.* (*H.*) *ussuriensis* **stat.n.**, 4 — *H.* (*H.*) *longirostris*. 1, 2 — гипопигий сверху (1) и снизу (2); 3, 4 — внутренний и внешний гоностили; 5 — яйцеклад сбоку; 6 — стернит 8 и гиповальвы сверху; 7 — стренит 9 и генитальная вилка снизу. Сокращения: *ad s* — дополнительный шов; *c* — церки; *gx* — гонококсит; *gen fk* — генитальная вилка; *hv* — гиповальвы; *ig* — внутренний гоностиль; *og* — наружный гоностиль; *st9* — стернит 9; *tg9* — тергит 9.



Figs 8–11. *Helius* (*H.*) *sidorenkoi* **sp.n.**: 8–9 — male thorax and head (paratype, temporarily dried), dorsal view (8) and lateral view (9); 10 — head and antenna, lateral view (in ethanol); 11 — wing (holotype, in ethanol); 12 — part of wing.
Рис. 8–11. *Helius* (*H.*) *sidorenkoi* **sp.n.**: 8–9 — самец, грудь и голова (паратип, временно высушено) сверху (8) и сбоку (9); 10 — голова и антенна сбоку (в этаноле); 11 — крыло (голотип, в этаноле); 12 — часть крыла.



Figs 13–16. *Helius* (*H.*) *sidorenkoi* **sp.n.**, male terminalia (paratype) and their parts (in glycerol): 13–14 — hypopygium, dorsal view (13) and ventral view (14); 15 — inner and outer gonostyli, dorsal view; 16 — aedeagal complex. Abbreviations: *aed* — aedeagus; *ig* — inner gonostylus; *interb* — interbase; *og* — outer gonostylus; *st9* — sternite 9; *tg9* — tergite 9.
Рис. 13–16. *Helius* (*H.*) *sidorenkoi* **sp.n.**, терминалии самца (паратип) и их части (в глицерине): 13–14 — гипопигий сверху (13) и снизу (14); 15 — внутренний и внешний гоностили сверху; 16 — эдеагальный комплекс. Сокращения: *aed* — эдеагус; *ig* — внутренний гоностиль; *interb* — интербаза; *og* — наружный гоностиль; *st9* — стернит 9; *tg9* — тергит 9.

color of the prescutum (gray with a darker stripe in *ussuriensis* and yellowish brown with three brownish stripes in *longirostris*).

DISTRIBUTION. Russia (Primorsky Kray).

ECOLOGY. Specimens from the Shkotovka River were collected in a meadow among the grass near the river with cold water (Fig. 17).

Helius (*Helius*) *sidorenkoi* **sp.n.**
Figs 8–16.

MATERIAL. Holotype ♂, Russia, Jewish Autonomous Oblast, Obluchensky distr., Bidjan Fish Hatchery env., Bidjan River Basin, upper reaches of Lopatinsky stream, N 48º37′810″, E 131º39′114″, 19.V.2017, E. Makarchenko leg.

Paratype 1 ♂, same data as holotype.

DIAGNOSIS. Rostrum 1.5 times as long as rest of head. Proximal flagellomeres oval. Stigma pale brown. Posterior margin of tergite 9 with shallow wide notch. Outer gonostylus widening towards apex, with two large widely spaced teeth at apex. Inner gonostylus curved, at point of curve outer margin bearing several very small teeth.

DISCRIPTION. Male. Body length about 6 mm, wing length 7.5 mm. General coloration brown (specimens in ethanol) or grayish brown (dry specimens).

Head (Figs 8–10). In specimen in ethanol, brown, vertex darker. In dry specimen, gray, with darker stripe running down middle of head. Scape and pedicel brown, lighter than head. Flagellum pale, yellowish brown. Scape elongated, 2 times longer than wide. Pedicel oval, its apex wider than base. Flagellomeres 1–4 oval, 5–14 cylindrical. Verticils slightly longer than corresponding flagellomeres. Rostrum 1.5 times as long as rest of head, brown, slightly paler than head. First segment of palps same color as rostrum, each subsequent segment paler than previous one.

Thorax (Figs 8, 9). Same color as head. In specimens in ethanol, brown. Prescutum with three poorly visible darker stripes. Anterior surface of katepisterns darkened. Medial part of postsutural sctutum, anterior part of scutellum and mediotergite lighter, pale brown. Posterior part of scutellum pale yellow. In dry specimens, prescutum and postsutural scutum gray, prescutum with brown medal stripe bordered by light gray stripe. Lateral stripes very poorly visible, dark gray. Scutellum light brown. Laterally thorax brown-gray. In specimens in ethanol, fore coxa brown, same color as thorax. Mid and hind coxae pale yellow. In dry specimens, fore coxa gray-brown, mid and hind coxae yellowish brown. Trochanters of all legs pale yellow. Fore femora pale yellow in basal part, brownish yellow in middle, light brown distally. Hind femora paler, whitish in basal part, brownish distally. Fore tibia whitish, narrowly darkened basally and distally. Wing (Fig. 11) very pale brown, without pattern. Veins light brown. Stigma pale. Venation: *Sc* ending freely in wing at level of branching of *Rs*, shows no traces of entering *C* (Fig. 12). Distance between R_4 and R_5 1.4 times greater than distance between R_1 and R_4. Cross-vein *r-m* well developed, 2.7 as long as R_5 from fork *Rs* to *r-m*. Cell *dm* about 1.5 times as long as wide; *m-cu* slightly distal to base of *dm*. Stem of halter white; knob yellow.

Abdomen. Monochromatic, brown. Posterior margins of tergites and sternites darkened. Hypopygium (Figs 13–16) slightly lighter than abdomen. Posterior margin of tergite 9 (Fig. 13) with shallow, broad notch. Posterior margin of tergite 9 bearing three groups of relatively short, strong setae. Gonocoxite elongated, bearing long, light setae; base of gonocoxite wider than apex, with small rounded lateral outgrowth. Outer gonostylus (Fig. 15) flat, widening greatly toward apex. Apex of outer gonostylus bidentate, outer tooth longer. Both teeth and edge of gonostylus between teeth blackened. Inner gonostylus (Fig. 15) curved slightly distal to middle of its length. Small tubercle on outer margin of inner gonostylus bearing several very small teeth at bend. Interbase (Fig. 16) large, flat, with long, thin, slightly curved outgrowth.

Female. Unknown.

DIFFERENTIAL DIAGNOSIS. A new species is most similar to such Palearctic species as *H. longirostris*, *H. us-*

Fig. 17. Habitat of *Helius* (*H.*) *ussuriensis*: Russia, Primorsky Kray, Shkotovsky distr., 5 km E Steklyanukha vill., Shkotovka riv., 24.VI.2023.
Рис. 17. Местообитание *Helius* (*H.*) *ussuriensis*: Россия, Приморский край, Шкотовский р-н, 5 км В д. Стеклянуха, р. Шкотовка, 24.VI.2023.

suriensis, *H. flavus*, and *H. calviensis*, which also have oval proximal flagellomeres, pale stigma, and teeth at the bend of inner gonostylus. It differs from all these species in the outer gonostylus widening toward apex (in the other species it has the same width), and in the very small teeth at the bend of the inner gonostylus (very large in *H. flavus*, clearly visible in *H. calviensis*, *H. longirostris*, and *H. ussuriensis*). It also differs from *H. flavus* in the coloration of the thorax (ochre-yellow in *flavus*, gray or brown in dry specimen or in ethanol, respectively, in *sidorenkoi* **sp.n.**), as well as in the more conspicuous stigma (absent or very poorly visible in *flavus*). It differs from *H. longirostris* in the broader U-shaped notch on the posterior edge of tergite 9 (narrower, V-shaped in *longirostris*). It differs from *H. calviensis* in the poorly visible protrusion at the base of the gonocoxite (clearly conspicuous in *calviensis*).

The dry specimens are similar to the East Palearctic *H. polionotus* in their gray thorax, but differ from it in the absence of a darkening at the wing tip (tip of wing darkened in *polionotus*) and a shorter cell *dm*, the length of which is only 1.5 times longer than wide (in *polionotus*, cell *dm* is longer, 2 times longer than wide). The new species differs from the other East Palearctic species in its large outer gonostyle, which widens towards the apex.

ETYMOLOGY. The new species is named in honor of the dipterologist Vasily Sergeevich Sidorenko (1965–2010), who made a great contribution to the study of dipterans of Far East of Russia and neighboring countries.

DISTRIBUTION. Russia (Jewish Autonomous Oblast).

ECOLOGY. The new species was collected near a stream in a mixed forest. This stream does not freeze in winter; the water temperature throughout the year is 4–6°C. In Far East of Russia, this species has the earliest period of activity (all known specimens were collected on May 19). All other species of the genus known from this area are found from mid-June and later.

Competing interests. The authors declare no competing interests.

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