Russian Entomol. J. 35(1): 100–120

Mosquitoes (Diptera: Culicidae) of Karelia (northwestern Russia): new distribution data

Кровососущие комары (Diptera: Culicidae) Карелии (северо-запад России): новые данные о распространении

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KEY WORDS: fauna, checklist, *Anopheles*, *Aedes*, *Culiseta*, *Culex*, *Coquillettidia*.
КЛЮЧЕВЫЕ СЛОВА: фауна, аннотированный список, *Anopheles*, *Aedes*, *Culiseta*, *Culex*, *Coquillettidia*.

ABSTRACT. The article provides an overview of the mosquito fauna of Karelia based on our field samples and on literature data (including archives data). We collected 39,501 mosquito specimens in all districts and urban areas of Karelia from May to September 2023–2025. The collections of IB KarRC RAS (Institute of Biology of the Karelian Research Centre of the Russian Academy of Sciences, 3,403 specimens) and of ZIN RAS (Zoological Institute of the Russian Academy of Sciences, 97 specimens) were examined. The updated checklist includes 39 mosquito species of the genera *Aedes*, *Anopheles*, *Culex*, *Culiseta*, and *Coquillettidia*, of which 33 species were collected in the field and identified by the external morphology of female, male genitalia or larva. The distribution of all mosquito species in ten biogeographic provinces of Karelia is reviewed. *Aedes geminus* was first recorded in Karelia, while *Ae. cantans*, *Ae. cinereus*, *Ae. communis*, *Ae. excrucians*, *Ae. euedes*, *Ae. punctor*, *Ae. diantaeus*, *Ae. hexodontus*, *Ae. nigrinus*, *Culiseta alaskaensis*, *Cs. bergrothi*, and *Cs. morsitans* are new records for southwestern Karelia. *Aedes vexans*, *Ae. hexodontus*, and *Ae. intrudens* are reported for the first time for central Karelia. The northern range borders were updated for *Ae. geminus*, *Ae. vexans*, *Ae. sticticus*, *Anopheles claviger*, *Culex torrentium*, and *Coquillettidia richiardii*.

РЕЗЮМЕ. Рассмотрена фауна кровососущих комаров Карелии, в т.ч. распространение каждого вида сем. Culicidae в десяти биогеографических провинциях юго-восточной Фенноскандиии. В работе использовались сборы авторов, коллекционные материалы и литературные данные (включая архивные). Нами собрано 39 501 экз. сем. Culicidae во всех районах и городских округах Карелии с мая по сентябрь 2023–2025 гг. Также были изучены коллекции ИБ КарНЦ РАН (Институт биологии Карельского научного центра РАН, 3403 экз.) и ЗИН РАН (Зоологический институт РАН, 97 экз.). Аннотированный список включает 39 видов из родов *Aedes*, *Anopheles*, *Culex*, *Culiseta* и *Coquillettidia*. Из них 33 вида собраны нами и определены по морфологическим признакам имаго, генитального аппарата самцов или личинок. *Aedes geminus* впервые отмечен в Карелии. *Aedes cantans*, *Ae. cinereus*, *Ae. communis*, *Ae. excrucians*, *Ae. euedes*, *Ae. punctor*, *Ae. diantaeus*, *Ae. hexodontus*, *Ae. nigrinus*, *Culiseta alaskaensis*, *Cs. bergrothi* и *Cs. morsitans* обнаружены впервые для юго-западной части Карелии, а *Ae. vexans, Ae. hexodontus* и *Ae. intrumens* – для центральной Карелии. Уточнены северные границы ареалов *Ae. geminus, Ae. vexans*, *Ae. sticticus*, *Anopheles claviger, Culex torrentium* и *Coquillettidia richiardii*.

How to cite this article: Khalin A.V., Aibulatov S.V., Lyutikova N.A., Fedorov D.D., Bespyatova L.A., Bugmyrin S.V. 2026. Mosquitoes (Diptera: Culicidae) of Karelia (northwestern Russia): new distribution data // Russian Entomol. J. Vol.35. No.1. P.100–120. doi: 10.15298/rusentj.35.1.06

Introduction

A total of 3,728 extant species of mosquitoes (Diptera: Culicidae) are currently formally recognised [Harbach, 2026], and only 105 species are known in Russia [Khalin, Gornostaeva, 2008]. Mosquito larvae and pupae breed in various water bodies; females of many species actively bite humans and animals. Some mosquito species are of medical or veterinary concern, since their females transmit pathogens. For example, specific mosquito-borne viruses are known to be endemic for Fennoscandia: Sindbis, Inkoo, Tahyna, Chatanga, and Batai viruses [Wilkman *et al*., 2023].

Forty-eight mosquito species are distributed in Fennoscandia, i.e. Norway [Mehl, 1996], Sweden [Lundström, 2013], Finland [Culverwell *et al*., 2021], and northwestern Russia [Khalin *et al*., 2021a, b]. The mosquito fauna of Karelia (the Republic of Karelia) has been studied for a hundred years and currently comprises 38 species [Khalin *et al*., 2021a, b, 2024; Aibulatov *et al*., 2025].

Regular research on the mosquito fauna in Karelia started in 1953. The first checklist, published in the 1960s, included 29 mosquito species from five genera: *Culiseta*, *Coquillettidia*, *Aedes*, *Cule*x, and *Anopheles* [Lobkova, 1964, 1965]. Based on their distribution, the species were subdivided into four groups according to their local distribution, i.e. occurring throughout Karelia (16 species); limited to southern and middle Karelia (2 species); limited to southern districts (8 species), and occurring only in the north (3 species) [Lobkova, 1964]. Later, research on the mosquito fauna was continued [Sharkov *et al*., 1984; Panyukova, Bespyatova, 2013]. In 2012, an updatable database of Diptera species occurring in Karelia was created, which included 38 mosquito species [Polevoi, 2026]. A revision of the literature data and material of ZIN RAS collections [Khalin *et al*., 2021a, b] as well as application of chromosomal and molecular diagnostic methods have resulted in an update of the mosquito fauna of Karelia [Moskaev *et al*., 2024; Aibulatov *et al*., 2025]. The result shows that Karelia has been unevenly covered by studies: there is a lack of data for central and northern districts and for the southwest. Furthermore, most studies are based on samples of human-seeking females, but not all species actively bite humans and thus can be underrepresented in literature data. *Culiseta morsitans*, for instance, mostly bites birds but can also contribute to the circulation of Sindbis virus [Francy *et al*., 1989]. Thus, additional research on mosquitoes of Karelia using other sampling methods is required to enlarge the catching range.

Study Area

Karelia is located in southeastern Fennoscandia and is bordered by the White Sea in the east, as well as by Lakes Ladoga and Onego in the south. The climate varies from marine to temperate continental; most of the territory is covered with coniferous or mixed forests. The sampling localities were classified by biogeographic provinces of Fennoscandia according to the zonation system suggested by Heikinheimo and Raatikainen [1971], keeping the original province delineation and abbreviations (Fig. 1). The floristic zonation scheme of Karelia largely coincides with the biogeographic provinces distinguished for Fennoscandia [Ramenskaya, 1983; Kravchenko, Kuznetsov, 2001]. These provinces are still commonly used when analysing both the flora [Ahti, Boychuk, 2006; Kravchenko, 2007] and the fauna of Karelia [Humala, 2003; Polevoi, 2003; Nartshuk *et al*., 2020].

We collected mosquitoes in all districts and urban areas of Karelia from May to September 2023–2025 (Table 1, Fig. 1).

Methods

We used standard techniques for sampling and preparation of mosquitoes [Khalin *et al*., 2021c; Khalin, Aibulatov, 2024]. Mosquito females were collected in various habitats (Table 1, Fig. 2) by human landing catch using a Krystal trap (Fig. 3) or by trapping using a Mosquito Magnet® trap (Pioneer design, Octenol as attractant). Sampling with Mosquito Magnet trap was performed with 2–24 h exposure time (examined at 2-h intervals) from May through September. Hibernating or resting females were collected with a chamber aspirator from outbuilding walls and ceiling. Larvae were sampled with a dipper and reared to adults in 500 or 1000 ml containers. Adults and larvae were identified using the keys of Becker *et al*. [2020] and Gutsevich *et al*. [1970]. We used SimpleMappr [Shorthouse, 2010] to generate a template for the map (Fig. 1).

We use the classification of Culicidae proposed by Wilkerson *et al*. [2021], in which the genus *Aedes* includes *Ochlerotatus* as a subgenus.

The examined specimens are deposited at the Zoological Institute of the Russian Academy of Sciences (ZIN RAS, St. Petersburg) and at the Institute of Biology of the Karelian Research Centre of the Russian Academy of Sciences (IB KarRC RAS, Petrozavodsk).

The studies were carried out using equipment of the Laboratory for the Study of Parasitic Arthropods of ZIN RAS (Olympus SZX7, and Leica DM5000B) and the Core Facility of KarRC RAS (Olympus BX53).

Results

The mosquito specimens (39,501 in total: 212 M, 34,698 F, and 4,591 L) were identified as belonging to 39 species of Culicidae. The annotated list includes the material examined by the authors (own samples and Collection of KarRC) as well as data from the literature (including archives records). The archives records are the field logbooks and reports stored in the Scientific Archives of the KarRC RAS (Petrozavodsk) that have not been previously published elsewhere. We deemed it necessary to include this information in the Annotated species list as Archive of KarRC (1981, 1982, 1995, 1996, 1997). Identification section is based on Gutsevich *et al*. [1970] and Becker *et al*. [2020].

Annotated species list

***Anopheles* (*Anopheles*) *beklemishevi* Stegniy et Kabanova, 1976**

LITERATURE SOURCES. Loukhsky District [Moskaev *et al*., 2024; Aibulatov *et al*., 2025]. Kemsky District [Perevozkin *et al*., 2012]. Belomorsky District [Perevozkin *et al*., 2012]. Segezhsky District [Perevozkin *et al*., 2012]. Medvezhegorsky Dis-

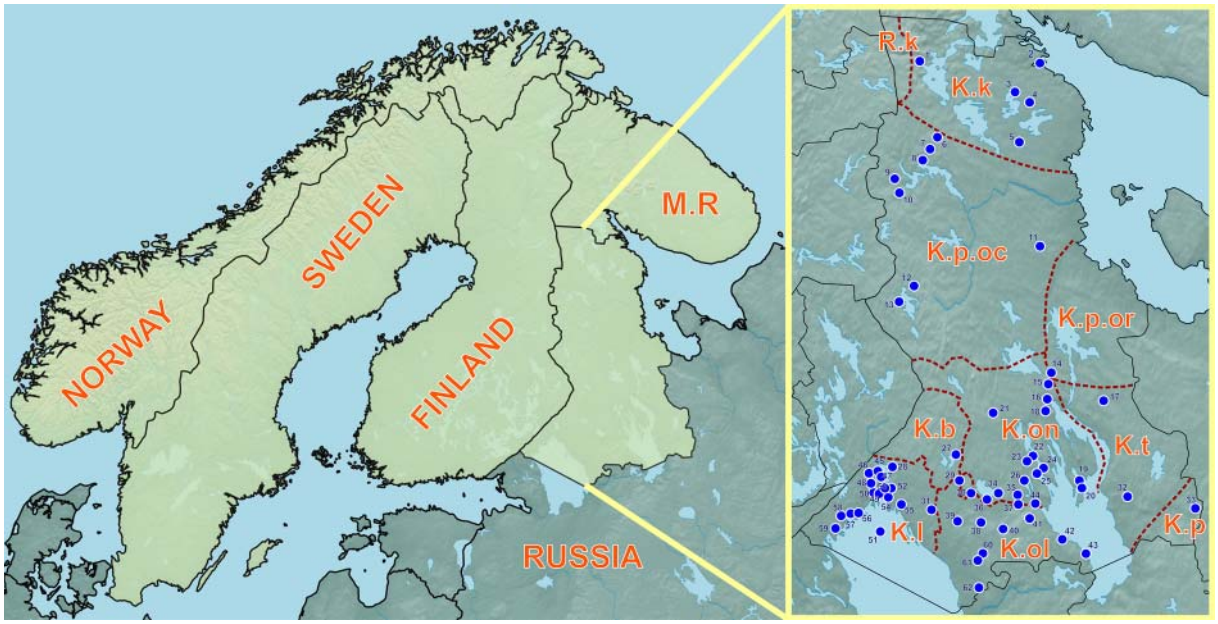

Fig. 1. Collection localities of mosquitoes in Karelia.
Designations: Karelia. *K.b* — Karelia borealis; *K.k* — Karelia keretica; *K.l* — Karelia ladogensis; *K.ol* — Karelia olonetsensis; *K.on* — Karelia onegensis; *K.p* — Karelia pudogensis; *K.p.oc* — Karelia pomorica occidentalis; *K.p.or* — Karelia pomorica orientalis; *K.t* — Karelia transonegensis; *R.k* — Regio kuusamoensis. *M.R* — Murmansk Region. The insert shows Karelia on a map of northern Europe.
Рис. 1. Точки сбора кровососущих комаров в Карелии.
Обозначения: Карелия. *K.b* — Karelia borealis; *K.k* — Karelia keretica; *K.l* — Karelia ladogensis; *K.ol* — Karelia olonetsensis; *K.on* — Karelia onegensis; *K.p* — Karelia pudogensis; *K.p.oc* — Karelia pomorica occidentalis; *K.p.or* — Karelia pomorica orientalis; *K.t* — Karelia transonegensis; *R.k* — Regio kuusamoensis. *M.R* — Мурманская область. Зеленым цветом выделена территория Фенноскандии. Вставка показывает положение Карелии в северной Европе.

trict [Perevozkin *et al*., 2012]. Kondopozhsky District [Moskaev *et al*., 2024; Aibulatov et al., 2025]. Prionezhsky District [Aibulatov *et al*., 2025]. Petrozavodsky Urban Okrug [Stegny *et al*., 1978; Perevozkin *et al*., 2012; Jakovlev *et al*., 2014].

Anopheles (*Anopheles*) *daciae* Linton, Nicolescu et Harbach, 2004

LITERATURE SOURCES. Prionezhsky District [Aibulatov *et al*., 2025].

COMMENTS. *Anopheles daciae* is widespread in southern Karelia up to 64° N according to Moskaev *et al*. [2024].

Anopheles (*Anopheles*) *claviger* (Meigen, 1804)

LITERATURE SOURCES. Kondopozhsky District [Khalin *et al*., 2024]. Petrozavodsky Urban Okrug [Khalin *et al*., 2024].

MATERIAL EXAMINED**.** KARELIA – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 17.VII–17.IX.2024, 21.VII.2025, 1.VIII.2025; 12 F, in ethyl alcohol – Pudozhsky District • Near the village of Pelusozero; 61.8423, 37.7637; 16–17.VII.2025; 1 F, in ethyl alcohol – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 3 F, in ethyl alcohol.

IDENTIFICATION. Females differs from *Anopheles maculipennis* s.l. in the absence of spots on the wings forming by dark scales, and from *An*. *plumbeus* Stephens, 1828 in the general body coloration (in *An*. *plumbeus* it is blackish gray and in *An*. *claviger* is brown). Analysis of ITS2 and COI sequences confirmed the identity of the collected females in Village of Gomselga and Petrozavodsk to *An*. *claviger* s.str. [Khalin *et al*., 2024].

Anopheles (*Anopheles*) *maculipennis* Meigen, 1818 s.l.

MATERIAL EXAMINED. KARELIA – Loukhsky District • The northeastern coast of Lake Boyarskoye; 65.9461, 33.4307; 9–12.VII.2025; 3 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 12–14.VII.2025; 36 F, in ethyl alcohol – Medvezhyegorsky District • Tikhvin Bor; 62.8467, 35.6345; 14–16.VII.2025; 2 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 70 F, in ethyl alcohol • Village of Gomselga; 13.V.–2.VIII.2025; 15 F, in ethyl alcohol – Pudozhsky District • Near the village of Pelusozero; 61.8423, 37.7637; 16–17.VII.2025; 2 F, in ethyl alcohol – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 109 F, in ethyl alcohol.

IDENTIFICATION. See the Identification section of the previous species. The material based only on morphological identification is considered as *Anopheles maculipennis* s.l. Analysis of ITS2 sequences confirmed the identity of the collected females in Village of Pinguba to *An*. *maculipennis* s.str. [Aibulatov *et al*., 2025].

Anopheles (*Anopheles*) *maculipennis* Meigen, 1818 s.str.

LITERATURE SOURCES. Kemsky District [Perevozkin *et al*., 2012]. Belomorsky District [Moskaev *et al*., 2024.] Segezhsky District [Perevozkin *et al*., 2012]. Medvezhegorsky District [Perevozkin *et al*., 2012]. Kondopozhsky District [Perevozkin *et al*., 2012; Moskaev *et al*., 2024]. Prionezhsky District [Aibulatov *et al*., 2025]. Petrozavodsky Urban Okrug [Perevozkin *et al*., 2012].

***Anopheles* (*Anopheles*) *messeae* Falleroni, 1926**

LITERATURE SOURCES. Loukhsky District [Moskaev *et al*., 2024]. Belomorsky District [Perevozkin *et al*., 2012]. Segezhsky District [Perevozkin *et al*., 2012]. Medvezhegorsky District [Perevozkin *et al*., 2012]. Kondopozhsky District [Lobkova, 1956; Perevozkin *et al*., 2012; Moskaev *et al*., 2024; Aibulatov *et al*., 2025]. Pudozhsky District [Lobkova, 1956]. Pryazhinsky District [Lobkova, 1956]. Prionezhsky District [Moskaev *et al*., 2024; Aibulatov *et al*., 2025]. Petrozavodsky Urban Okrug [Lobkova, 1956; Stegny *et al*., 1978; Perevozkin *et al*., 2012].

***Aedes* (*Aedes*) *cinereus* Meigen, 1818**

LITERATURE SOURCES. Loukhsky District [Lobkova, 1956; Krogerus, 1960]. Kemsky District [Lobkova, 1956]. Belomorsky District [Lobkova, 1956]. Segezhsky District [Lob-

Fig. 2. Biotopes of mosquito sampling.
A — collection locality 1, *B* — the same 11, *C*, *D*, *E*, and *F* — the same 14, 26, 58, and 60 (see Mosquito sampling, Tab. 1).
Рис. 2. Биотопы точек сбора кровососущих комаров.
A — точка сбора 1, *B* — точка 11, *C*, *D*, *E* и *F* — точки 14, 26, 58 и 60 (см.: Mosquito sampling, табл. 1).

Table 1. Mosquito sampling localities in Karelia.
Таблица 1. Точки сбора кровососущих комаров в Карелии.

No	Coordinates	Location	Habitat	Date	Technique
Louhsky District					
1	66.2437°N, 30.5639°E	Paanajärvi National Park	Mixed and spruce forests, meadow	25–29.06.2024	MT, KT
2	66.3364°N, 33.6460°E	Kartesh White Sea Biological Station	Mixed forest, puddle	1.06–4.08.2024	D
3	66.0835°N, 33.0978°E	Near the Town of Loukhi	Deciduous forest	12.06.2024	KT
4	65.9461°N, 33.4307°E	Northeastern shore of Lake Boyarskoye	Pine and mixed forests	13.06.2024, 9–12.07.2025	KT, MT
5	65.5138°N, 33.3242°E	Kuzema River	Deciduous forest	13.06.2024	KT
Kalevalsky District					
6	65.4718°N, 31.2647°E	Northwestern shore of Lake Regojarvi	Mixed forest	2–3.07.2024	MT
7	65.3562°N, 31.1093°E	Near Lake Kondijarvi	Mixed forest	4.07.2024	KT
8	65.2623°N, 30.9500°E	Near lakes Bolshoye Kis-Kis and Maloe Kis-Kis	Mixed forest	4.07.2024	KT
Kostomukshsky Urban Okrug					
9	65.0442°N, 30.3567°E	Near the Village of Pongaguba	Pine forest	18–19.07.2023	MT
10	64.8901°N, 30.5299°E	Village of Tolloreka	Mixed forest, meadow	20.07.2023	KT
Belomorsky District					
11	64.4014°N, 33.8651°E	Northwestern shore of Lake Shagozero	Pine and mixed forests	4.07.2023, 12–14.07.2025	KT, MT
Muezersky District					
12	63.9325°N, 31.1178°E	Near Lake Rovkulskoe	Mixed forest	17.07.2023	KT
13	63.7898°N, 30.8640°E	Western shore of Lake Leksozero	Pine forest	15–16.07.2023	MT, KT
Segezhsky District					
14	63.1913°N, 34.3754°E	Near Lake Vildozero	Pine forests, small puddle	28.05.2024	D
Medvezhyegorsky District					
15	63.1075°N, 34.3498°E	Near Lake Uchmalambi	Pine forest, large puddle	28.05.2024	D
16	62.9233°N, 34.3449°E	Kumsa River	Deciduous forest, backwater of Kumsa River	28.05.2024	D
17	62.8467°N, 35.6345°E	Near the Village of Tikhvin Bor	Pine forest	14–16.07.2025	MT
18	62.8291°N, 34.2667°E	Chebinka River	Mixed forest, small puddle	28.05.2024	D
19	62.1103°N, 35.2005°E	Western side of Volkostrov Island	Pine forest	29.05.2024	KT
20	62.0593°N, 35.2064°E	Village of Zharnikovo	Deciduous forest	29.05.,2024	KT
Kondopozhsky District					
21	62.7549°N, 33.3800°E	Semcha River	Pine forest	17–18.07.2025	MT
22	62.3031°N, 34.0973°E	Near the Village of Sopokha	Spruce forest, ditch	16.05.2023	D
23	62.2683°N, 33.9761°E	Kivach Nature Reserve	Spruce and mixed forests	1–2.08.2023	KT
24	62.2074°N, 34.3317°E	Near the Town of Kondopoga	Deciduous forest, small puddle	16.05.2023	D
25	62.1377°N, 34.2387°E	Near the Village of Yanishpole	Deciduous forest, ditch	16.05.2023	D
26	62.0683°N, 33.9592°E	Village of Gomselga, Research station of IB KarRC RAS	Mixed forest, meadow, puddles, backwaters of Sporki River and Lake Maloe Lindolampi	2023–2025	MT, KT, D
Suoyarvsky District					
27	62.2544°N, 32.3755°E	Near the Village of Turkhanvaara	Pine forest	4.09.2024	KT
28	62.0495°N, 30.9999°E	Near the Village of Soanlahti	Mixed forest	29.08.2024	KT
29	62.0127°N, 32.5702°E	Viiruoya River	Mixed forest, puddle	29.05.2024	D
30	61.9187°N, 32.8068°E	Village of Veshkelitsa	Water-filled house foundation pit	29.05.2024	D
31	61.6562°N, 31.9752°E	Near Lake Kyasnyasenjarvi	Mixed forest, puddle	17.05.2023	D
Pudozhsky District					
32	61.9420°N, 36.2233°E	Shalskoye village cluster	Pine forest	14–15.06.2023	KT

Table 1 (*continued*)

No	Coordinates	Location	Habitat	Date	Technique
33	61.8423 N, 37.7637 E	Near the Village of Pelusozero	Pine forest	16–17.07.2025	MT
Pryazhinsky District					
34	61.8907°N, 33.4143°E	Syapsya River	Deciduous forest, backwater of Syapsya River	29.05.2024	D
35	61.8884°N, 33.7574°E	Near Villagora Hill	Spruce and mixed forests, small puddle	29.05.2024	D
36	61.8663°N, 33.2622°E	Near the Village of Alekka	Mixed and pine forests, large puddle	29.05.2024 23.08.2023	D
37	61.7911°N, 33.8523°E	Near the Village of Matrosy	Raised bog, small puddle	15.05.2023	D
38	61.6104°N, 33.0623°E	Near the Village of Kutchezero	Mixed forest, puddle	17.05.2023	D
39	61.5888°N, 32.6136°E	Near Lake Oyalampi	Mixed forest, small puddle	17.05.2023	D
40	61.5501°N, 33.5768°E	Near the Village of Svyatozero	Meadow near Lake Lizhmenskoye, small puddle	15.05.2023	D
Prionezhsky District					
41	61.6701°N, 34.1696°E	Village of Lososinoe	An abandoned children's summer camp. Pine forest	27.10.2024	A
42	61.4688°N, 34.8722°E	Near Villages of Pedaselga and Shoksha	Mixed forest, large puddle	12.05.2023	D
43	61.3604°N, 35.4407°E	Near the Village of Sheltozero	Mixed forest, small puddle	12.05.2023	D
Petrozavodsk					
44	61.8106°N, 34.3301°E	City parks of Petrozavodsk	City parks with birch and aspen trees	7–19.08.2023, 11.06.2024	KT
Sortavalsky District					
45	61.9907°N, 30.7218°E	Near the Village of Kirkkolahti	Mixed and spruce forests, small puddle	13.05.2025	D
46	61.9462°N, 30.5967°E	Village of Ruskeala	Mixed and spruce forests, meadow, small puddle	13.05.2025	D
47	61.9453°N, 30.8026°E	Near Lake Yulyalampi	Mixed forest, ditch	13.05.2025	D
48	61.8252°N, 30.6168°E	Near the Village of Riuttiu	Mixed and spruce forests, meadow, puddle	12–14.05.2025 11–13.08.2025	MT, D
49	61.7823°N, 30.7419°E	Village of Kiryavalahti	Mixed and spruce forests, meadow, ditch	14.05.2025	D
50	61.7811°N, 30.6603°E	Near the Village of Rautakangas	Deciduous forest, ditch	17.05.2023	D
51	61.3691°N, 30.9027°E	Valaam Island	Mixed and spruce forests, wetland	5.06.2024 15.08.2024	KT
Pitkyarantsky District					
52	61.8726°N, 31.0374°E	Near the Village of Alattu	Mixed forest and meadow, large puddle	14.05.2025	D
53	61.8616°N, 30.9393°E	Near the Village of Hyamekoski	Alder forest and meadow, small puddle	14.05.2025	D
54	61.7518°N, 31.0440°E	Near the Village of Lyaskelya	Mixed forest and meadow, puddle	17.05.2023 14.05.2025	D
55	61.6978°N, 31.3158°E	Near Lake Hippolampi	Mixed forest, large puddle	17.05.2023	D
Lahdenpohsky District					
56	61.5689°N, 30.4355°E	Near the Village of Kortela	Mixed forest, large puddle	15.05.2025	D
57	61.5376°N, 30.2144°E	Lahdenpohya	Mixed forest and meadow, small puddle, ditch	12.05.2025 15.05.2025	D
58	61.5050°N, 30.0577°E	Near the Village of Ihala	Spruce forest, backwater of a stream, wetland	17.05.2023 15.05.2025	D
59	61.3840°N, 29.9919°E	Near the Village of Tervayarvi	Mixed forest, ditch	12.05.2025	D
Olonetsky District					
60	61.2673°N, 33.1704°E	Southwestern shore of Lake Villalskoye	Mixed forest, ditch	15.05.2023	D
61	61.1894°N, 33.1127°E	Near the Village of Torosozero	Deciduous forest, backwater of Olonka River	15.05.2023 27.05.2024	D
62	60.9037°N, 33.2187°E	Near Lake Kokhtinskoye	Mixed forest, small puddle	15.05.2023	D

Designations: MT — sampling of attacking females with a Mosquito Magnet® trap, KT — same with a Krystal trap, A — sampling of hibernating or resting females with a chamber aspirator from outbuilding walls, D — sampling of larvae with a dipper.

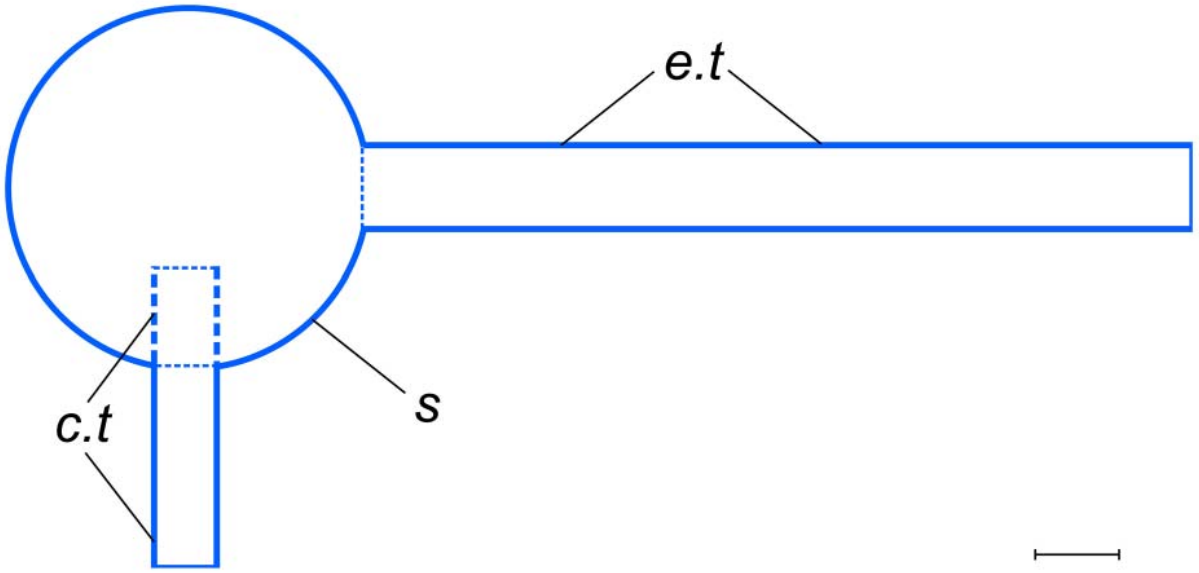

Fig. 3. Krystal trap. Scheme.
Designations: *c.t* — glass collection tube, *c.e* — glass extraction tube, *s* — glass sphere. Scale bar: 20 mm.
Рис. 3. Ловушка Крышталя. Схема.
Обозначения: *c.t* — стеклянная трубка для сбора насекомых, *c.e* — то же для извлечения насекомых из ловушки, *s* — стеклянная сфера. Масштабная линейка: 20 мм.

kova, 1956]. Medvezhegorsky District [Lobkova, 1956]. Kondopozhsky District [Lobkova, 1956; Jakovlev *et al*., 2014]. Pudozhsky District [Lobkova, 1956]. Pryazhinsky District [Lobkova, 1956; Lobkova, Makarova, 1961; Khalin *et al*., 2021b]. Prionezhsky District [Lobkova, 1956]. Petrozavodsky Urban Okrug [Shingareva, 1926; Lobkova, Makarova, 1961]. ARCHIVE DATA. Medvezhegorsky District: Archive of KarRC, 1997. Suoyarvsky District: Archive of KarRC 1995, 1996. Pudozhsky District: Archive of KarRC, 1997. Petrozavodsky Urban Okrug: Archive of KarRC, 1981, 1982.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 25–30.VI.2024; 662 F, in ethyl alcohol • The northeastern coast of Lake Boyarskoye; 65.9461, 33.4307; 9–12.VII.2025; 39 F, in ethyl alcohol – Kalevalsky District • The northwestern coast of Lake Regoyarvi; 2–3.VII.2024; 9 F, in ethyl alcohol • Near the lakes Bolshoye Kis-Kis and Maloe Kis-Kis; 65.2623, 30.9500; 04.VII.2024; 29 F, in ethyl alcohol – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 18–19.VII.2023; 23 F, in ethyl alcohol • Village of Tolloreka; 64.8901, 30.5299; 20.VII.2023; 4 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 12–14.VII.2025; 88 F, in ethyl alcohol – Muyezersky District • Near the Lake Rovkulskoe; 63.9325, 31.1178; 17.VII.2023; 19 F, in ethyl alcohol • The western coast of Lake Leksozero; 63.7898, 30.8640; 15–16.VII.2023; 8 F, in ethyl alcohol – Segezhsky District • Near the Lake Vildozero; 63.1913, 34.3754; 28.V.2024; 2 L, Euparal slides – Medvezhyegorsky District • Near the village of Tikhvin Bor; 62.8467 35.6345; 14–16. VII.2025; 308 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 702 F, in ethyl alcohol • Kivach NR; 62.2683, 33.9761; 1–2.VIII.2023; 7 F, in ethyl alcohol • Village of Gomselga; 62.0683, 33.9592; 23.V.2023; 2 L reared to M, in ethyl alcohol; 20.V.–18. VII.2024; 9 L, Euparal slides; 8.VI.–26.IX.2023, 5.VI.–19. IX.2024, 10.VI.–22.VIII.2025; 1091 F, in ethyl alcohol – Suoyarvsky District • Near the village of Turkhanvaara; 62.2544, 32.3755; 4.IX.2024; 1 F, in ethyl alcohol • Near the village of Soanlakhti; 62.0495, 30.9999; 29.VIII.2024; 1 F, in ethyl alcohol • Viiruoya River; 62.0127, 32.5702; 29.V.2024; 2 L, Euparal slides • Village of Veshkelitsa; 61.9187, 32.8068; 29.V.2024; 5 L, Euparal slides – Pudozhsky District • Shalskoye rural settlement; 61.9420, 36.2233; 14–15.VI.2023; 4 F, in ethyl alcohol • Near the village of Pelusozero; 61.8423 37.7637; 16–17.VII.2025; 12 F, in ethyl alcohol – Pryazhinsky District • Syapsya River; 61.8907, 33.4143; 29.V.2024; 3 L, Euparal slides • Near Villagora Hill; 61.8884, 33.7574; 29.V.2024; 2 L, Euparal slides – Petrozavodsky Urban Okrug • City parks of Petrozavodsk; 61.8106, 34.3301; 7–19.VIII.2023; 62 F, in ethyl alcohol – Sortavalsky District • Village of Ruskeala; 61.9462, 30.5967; 13.V.2025; 1 L, Euparal slide • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 224 F, in ethyl alcohol • Valaam Island; 5.VI.2024, 15.VIII.2024; 10 F, in ethyl alcohol – Pitkyarantsky District • Near the village of Khyamekoski; 61.8616, 30.9393; 14.V.2025; 2 L, Euparal slides – Lakhdenpokhsky District • Lakhdenpokhya; 61.5376, 30.2144; 15.V.2025; 2 L reared to M, in ethyl alcohol; 9 L, Euparal slides

IDENTIFICATION. Females and larvae are similar to *Aedes geminus*. Males with inner prong of the fork of gonostylus longer than the outer prong.

COMMENTS. Data on females and larvae belong to *Aedes cinereus* / *geminus* (Table 2).

Table 2. Distribution of mosquitoes in Karelia.
Таблица 2. Распространение кровососущих комаров в Карелии.

Mosquito species	**Regio kuusamoensis**	**Karelia keretica**	**K. pomorica occidentalis**	**K. pomorica orientalis**	**K. borealis**	**K. onegensis**	**K. transonegensis**	**K. ladogensis**	**K. olonetsensis**	**K. pudogensis**
Anopheles beklemishevi Stegniy et Kabanova, 1976	–	▲	▲	–	–	▲	–	–	▲	–
An. daciae Linton, Nicolescu et Harbach, 2004	–	–	–	–	–	▲	–	–	▲	–
An. claviger (Meigen, 1804)	–	–	–	–	–	▲●	–	●	▲	●
An. maculipennis Meigen, 1818 s.l.	–	●	▲●	–	–	▲●	●	●	▲	●
An. maculipennis Meigen, 1818 s.str.	–	–	▲	▲	–	▲	–	–	▲	–
An. messeae Falleroni, 1926	–	▲	–	▲	–	▲	–	–	▲	–
Aedes cinereus / geminus	▲	▲●	▲●	▲●	A●	▲●	▲●	●	▲●	●
Ae. cinereus Meigen, 1818	–	–	–	–	–	●	–	●	–	–
Ae. geminus Peus, 1970	–	–	–	–	●	●	–	●	–	–
Ae. vexans (Meigen, 1830)	–	–	●	–	–	▲●	▲	●	●	●
Ae. annulipes (Meigen, 1830)	–	–	–	–	–	●	–	–	▲●	–
Ae. behningi Martini, 1926	–	–	–	–	–	▲	–	–	–	–
Ae. cantans (Meigen, 1818)	–	●	●	–	▲●	▲●	▲●	●	●	●
Ae. cataphylla Dyar, 1916	▲	–	▲	–	–	▲	▲	–	▲●	–
Ae. communis (De Geer, 1776)	–	▲●	▲●	●	▲●	▲●	▲●	●	▲●	●
Ae. cyprius Ludlow, 1919	–	–	–	–	–	▲	▲	▲	▲	–
Ae. diantaeus Howard, Dyar et Knab, 1913	–	▲●	▲●	▲●	●	▲●	▲●	●	▲●	●
Ae. dorsalis (Meigen, 1830)	–	▲●	–	–	▲	▲	–	–	▲●	–
Ae. euedes Howard, Dyar et Knab, 1913	–	–	–	–	–	●	▲	●	▲●	–
Ae. excrucians (Walker, 1856)	▲	▲●	▲●	▲	▲	▲●	▲●	●	▲●	–
Ae. flavescens (Müller, 1764)	–	●	▲	–	▲	–	–	–	▲●	–
Ae. hexodontus Dyar, 1916	–	●	▲●	–	–	●	–	●	–	●
Ae. impiger (Walker, 1848)	▲	▲	–	–	–	–	–	–	▲	–
Ae. intrudens Dyar, 1919	–	●	●	–	▲	▲●	▲●	–	▲●	–
Ae. leucomelas (Meigen, 1804)	–	▲	▲	–	–	▲	▲	–	▲	–
Ae. nigrinus (Eckstein, 1918)	–	–	–	–	–	–	–	●	▲	–
Ae. nigripes (Zetterstedt, 1838)	▲	▲	▲	–	–	–	–	–	–	–
Ae. pionips Dyar, 1919	–	–	▲●	–	▲	▲●	▲	▲●	▲●	–
Ae. pullatus (Coquillett, 1904)	–	▲	▲	–	▲	▲●	▲	–	▲●	–
Ae. punctor (Kirby, 1837)	▲	▲●	▲●	●	▲●	▲●	▲●	●	▲●	●
Ae. riparius Dyar et Knab, 1907	–	–	▲	–	▲	–	–	–	▲●	–
Ae. sticticus (Meigen, 1838)	–	–	–	–	–	●	A	●	▲	–
Culex pipiens / *torrentium*	–	▲●	▲	–	▲	▲●	▲	●	▲●	–
Cx. pipiens Linnaeus, 1758	–	–	–	–	–	●	–	–	–	–
Cx. torrentium Martini, 1925	–	●	–	–	–	▲●	–	–	–	–
Cx. territans Walker, 1856	–	–	–	–	–	▲●	–	–	▲●	–
Culiseta alaskaensis (Ludlow, 1906)	–	●	▲	–	–	▲●	–	▲●	▲●	–
Cs. bergrothi (Edwards, 1921)	▲	▲	▲●	–	▲	▲●	●	●	▲●	–
Cs. fumipennis (Stephens, 1825)	–	–	–	–	–	▲	▲	–	–	–
Cs. morsitans (Theobald, 1901)	–	–	–	●	–	▲●	–	●	▲●	–
Cs. ochroptera (Peus, 1935)	–	–	–	–	–	▲	–	–	▲	–
Coquillettidia richiardii (Ficalbi, 1889)	–	–	▲●	–	●	▲●	–	●	▲●	●
Total	**7**	**19**	**22**	**8**	**15**	**34**	**19**	**21**	**33**	**10**

Designations: ▲ — literature, **A** — archive data (no literature available), ● — field samples and Collection of KarRC.

***Aedes* (*Aedes*) *geminus* Peus, 1970**

MATERIAL EXAMINED. KARELIA – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 16.V.–14.VI.2023; 26 L reared to M, Euparal slides – Suoyarvsky District • Village of Veshkelitsa; 61.9187, 32.8068; 29.V.2024; 3 L reared to M, Euparal slides – Lakhdenpokhsky District • Lakhdenpokhya; 61.5376, 30.2144; 15.V.2025; 2 L, in ethyl alcohol.

IDENTIFICATION. See the Identification section of the previous species. Males with outer prong of the fork of gonostylus longer than the inner prong (Fig. 4).

***Aedes* (*Aedimorphus*) *vexans* (Meigen, 1830)**

LITERATURE SOURCES. Pudozhsky District [Lobkova, 1964]. Prionezhsky District [Lobkova, 1964].

MATERIAL EXAMINED. KARELIA – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 04.VII.2023, 12–14.VII.2025; 6 F, in ethyl alcohol – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 25.VIII.2023, 17.VII.2024, 17.IX.2024, 2.VIII.2025; 2 F, in ethyl alcohol, 4 F, pinned – Pudozhsky District • Near the village of Pelusozero; 61.8423 37.7637; 16–17.VII.2025; 1 F, in ethyl alcohol – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 4 F, in ethyl alcohol.

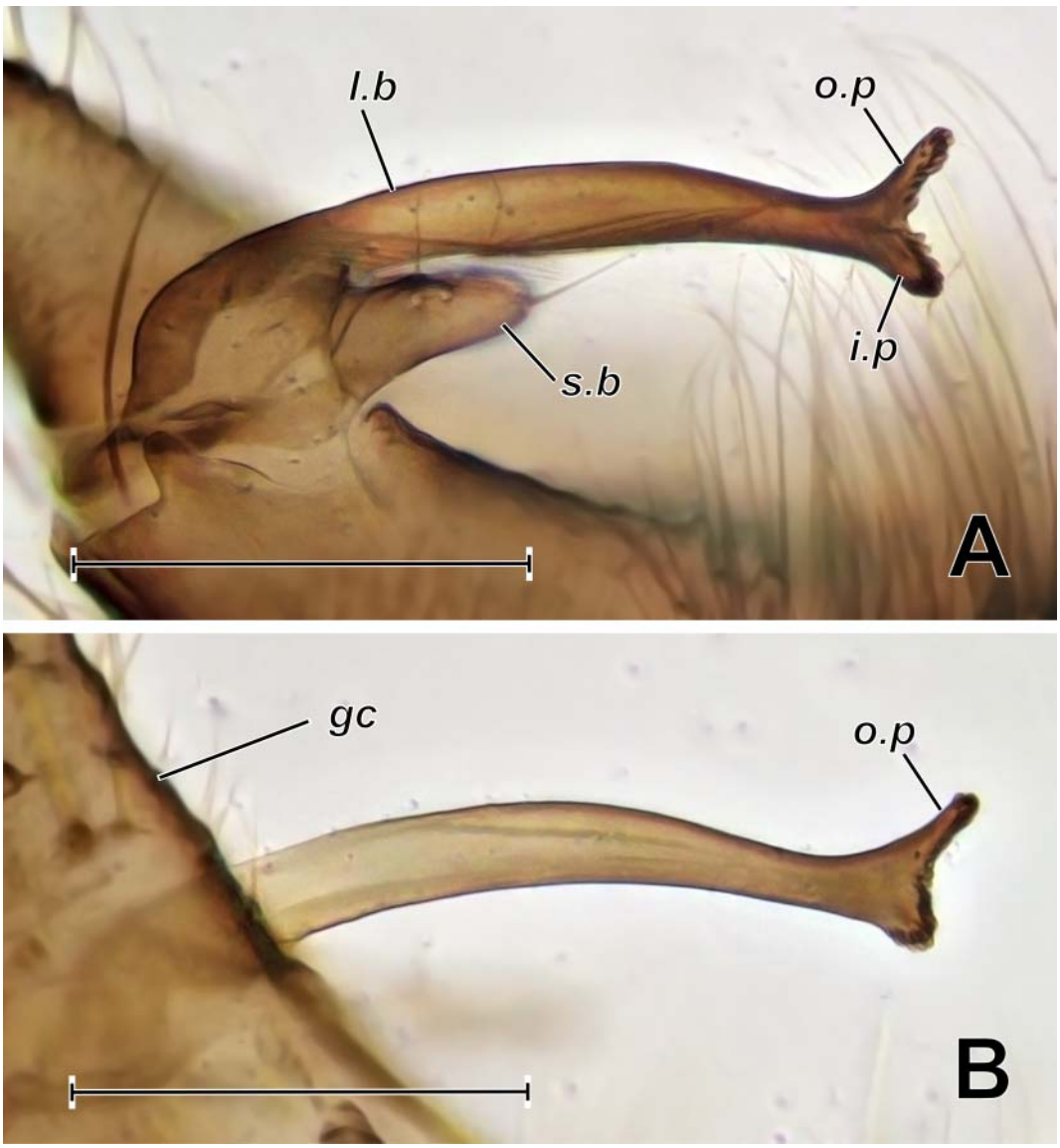

Fig. 4. *Aedes geminus*, male genitalia, gonistylus. Dorsal view. *A*, *B* — different specimens.
Designations: *gc* — gonocoxite, *i.p* and *o.p* — inner and outer prongs of the fork, *l.b* and *s.b* — longer and shorter branches of gonostylus. Scale bar: 0.1 mm.
Рис. 4. *Aedes geminus*, гениталии самца, стиль. Вид снизу. *A*, *B* — различные экземпляры.
Обозначения: *gc* — коксит, *i.p* и *o.p* — внутренний и наружный отростки вилки стиля, *l.b* и *s.b* — длинная и короткая ветви стиля. Масштабная линейка: 0,1 мм.

IDENTIFICATION. Adults with narrow pale rings on the tarsi (the length is usually less than 1/4 of the tarsomeres).

***Aedes* (*Ochlerotatus*) *annulipes* (Meigen, 1830)**

LITERATURE SOURCES. Petrozavodsky Urban Okrug [Lobkova, 1964].

MATERIAL EXAMINED. KARELIA – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 17.VII.2023, 1.VIII.2024; 2 F pinned.

IDENTIFICATION. Adults are almost similar to *Ae. riparius*, *Ae. cantans*, and *Ae. euedes*, but differ in the coloration of the scutum.

***Aedes* (*Ochlerotatus*) *behningi* Martini, 1926**

LITERATURE SOURCES. Medvezhegorsky District [Polevoi *et al*., 2005; Jakovlev *et al*., 2014].

***Aedes* (*Ochlerotatus*) *cantans* (Meigen, 1818)**

LITERATURE SOURCES. Medvezhegorsky District [Shingareva, 1926]. Kondopozhsky District [Khalin *et al*., 2021b]. ARCHIVE DATA. Medvezhegorsky District: Archive of KarRC 1997. Suoyarvsky District: Archive of KarRC, 1995, 1996. Pudozhsky District: Archive of KarRC, 19MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 25–30.VI.2024; 2 L, in ethyl alcohol • White Sea Biological Station "Kartesh"; 66.3364, 33.6460; 17.VI.2024; 1 L, Euparal slide – Kalevalsky District • The northwestern coast of Lake Regoyarvi; 4.VII.2024; 6 L, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 12–14.VII.2025; 35 L, in ethyl alcohol – Muyezersky District • The western coast of Lake Leksozero; 63.7898, 30.8640; 15–16.VII.2023; 22 F, in ethyl alcohol – Medvezhyegorsky District • Near the village of Tikhvin Bor; 14–16.VII.2025; 4 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18. VII.2025; 39 F, in ethyl alcohol • Near the village of Sopokha; 62.3031, 34.0973; 15.V.2023; 3 L, Euparal slides; • Village of Gomselga; 62.0683, 33.9592; 16.V.–25.VIII.2023, 12.VI.–18. IX.2024; 4.VI–23.VIII.2025; 8 L, Euparal slides, 38 F, pinned, 258 F, in ethyl alcohol – Suoyarvsky District • Near the village of Turkhavnvaara; 62.2544, 32.3755; 4.IX.2024; 1 F, in ethyl alcohol • Near the village of Soanlakhti; 62.0495, 30.9999; 29.VIII.2024; 8 F, in ethyl alcohol – Pudozhsky District • Near the village of Pelusozero; 61.8423 37.7637; 16–17.VII.2025; 2 F, in ethyl alcohol – Pryazhinsky District • Syapsya River; 61.8907, 33.4143; 29.V.2024; 6 L, Euparal slides • Near the village of Kutchezero; 61.6104, 33.0623; 17.V.2023; 3 L, Euparal slides – Petrozavodsky Urban Okrug • City parks of Petrozavodsk; 61.8106, 34.3301; 7.VIII.2023; 1 F; in ethyl alcohol – Sortavalsky District • Village of Ruskeala; 61.9462, 30.5967; 13.V.2025; 5 L, in ethyl alcohol • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 41 F, 5 L, in ethyl alcohol slides • Near the village of Rautakangas; 61.7811, 30.6603; 17.V.2023; 18 L, Euparal slide • Valaam Island; 15.VIII.2024; 11 F, in ethyl alcohol – Pitkyarantsky District • Near the village of Lyaskelya; 61.7518, 31.0440; 17.V.2023; 14.V.2025; 8 L, in ethyl alcohol, 4 L, Euparal slides – Lakhdenpokhsky District • Near the village of Kortela; 61.5689, 30.4355; 15.V.2025; 5 L, Euparal slides • Near the village of Tervayarvi; 61.3840, 29.9919; 12.V.2025; 15 L, Euparal slides – Olonetsky District • Near the village of Torosozero; 61.1894, 33.1127; 27.V.2024; 1 L, Euparal slide. **Collection of KarRC.** KARELIA – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 28.VI.1967, 14.VI.1968, 3.VI.1971; 18 L, Balsam slides – Pitkyarantsky District • Mantinsaari Island; 61.3712, 31.5656; VII.1966; 2 L, Balsam slides.

IDENTIFICATION. Adult: see the Identification section of *Ae. annulipes*. Larva differs from *Ae. annulipes* in the number of precratal and cratal setae, from *Ae. flavescens* in the siphonal index, and from *Ae*. *mercurator* Dyar, 1920 in the length of saddle seta and siphonal tuft.

***Aedes* (*Ochlerotatus*) *cataphylla* Dyar, 1916**

LITERATURE SOURCES. Loukhsky District [Krogerus, 1960]. Kemsky District [Rumsh, 1948]. Medvezhegorsky District [Shingareva, 1926; Polevoi *et al*., 2005; Jakovlev *et al*., 2014]. Kondopozhsky District [Khalin *et al*., 2021b]. Pudozhsky District [Humala, Polevoi, 2009]. Petrozavodsky Urban Okrug [Shingareva, 1926]. ARCHIVE DATA. Pudozhsky District: Archive of KarRC, 1997.

MATERIAL EXAMINED. **Collection of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.540146, 34.687003; 27.V.1971, 31.V.1971; 23 L, Balsam slides.

IDENTIFICATION. Larva with detached distal pecten teeth and simple frontal setae (5-C and 6-C).

***Aedes* (*Ochlerotatus*) *communis* (De Geer, 1776)**

LITERATURE SOURCES. Loukhsky District [Lobkova, 1956]. Kemsky District [Lobkova, 1956]. Kostomukshsky Urban Okrug [Bykova, Marshalova, 1997]. Belomorsky District [Lobkova, 1956]. Segezhsky District [Lobkova, 1956]. Medvezhegorsky District [Lobkova, 1956; Polevoi *et al*., 2005; Jakovlev *et al*., 2014]. Kondopozhsky District [Lobkova, 1956; Polevoi, 2006]. Suoyarvsky District [Rumyantsev *et al*., 1995]. Pudozhsky District [Lobkova, 1956; Humala, Polevoi, 2009]. Pryazhinsky District [Lobkova, 1956; Lobkova, Makarova, 1961]. Prionezhsky District [Lobkova, 1956, 1957]. Petrozavodsky Urban Okrug [Lobkova, Makarova, 1961]. ARCHIVE DATA. Medvezhegorsky District: Archive of KarRC 1997. Suoyarvsky District: Archive of KarRC, 1995, 1996. Pudozhsky District: Archive of KarRC, 1997. Petrozavodsky Urban Okrug: Archive of KarRC, 1981, 1982.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 25–30.VI.2024; 2660 F, in ethyl alcohol • White Sea Biological Station "Kartesh"; 66.3364, 33.6460; 31.V.2024, 04.VI.2024, 14.VI.2024; 5 L, Euparal slides • Near the urban locality of Loukhi; 66.0835, 33.0978; 12.VI.2024; 85 F, in ethyl alcohol • The northeastern coast of Lake Boyarskoye; 65.9461, 33.4307; 13.VI.2024, 9–12.VII.2025; 697 F, in ethyl alcohol • Kuzema River; 65.5138, 33.3242; 13.VI.2024; 94 F, in ethyl alcohol – Kalevalsky District • The northwestern coast of Lake Regoyarvi; 2–3.VII.2024; 564 F, in ethyl alcohol • Near the lakes Bolshoye Kis-Kis and Maloe Kis-Kis; 65.2623, 30.9500; 4.VII.2024; 702 F, in ethyl alcohol – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 18–19.VII.2023; 980 F, in ethyl alcohol • Village of Tolloreka; 64.8901, 30.5299; 20.VII.2023; 69 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 4.VII.2023, 12–14.VII.2025; 198 F, in ethyl alcohol – Muyezersky District • Near the Lake Rovkulskoe; 63.9325, 31.1178; 17.VII.2023; 125 F, in ethyl alcohol • The western coast of Lake Leksozero; 63.7898, 30.8640; 15–16. VII.2023; 129 F, in ethyl alcohol – Segezhsky District • Near the Lake Vildozero; 63.1913, 34.3754, 28.V.2024; 3 L, Euparal slides, 2 L reared to F, in ethyl alcohol, 2 L reared to F, pinned – Medvezhyegorsky District • Near the Lake Uchmalambi; 63.1075, 34.3498; 28.V.2024; 44 L, reared to F, in ethyl alcohol • Kumsa River; 62.9233, 34.3449; 28.V.2024, 14 L reared to F, in ethyl alcohol, 2 L, Euparal slides • Near the village of Tikhvin Bor; 62.8467 35.6345; 14–16.VII.2025; 69 F, in ethyl alcohol • Chebinka River; 62.8291, 34.2667; 28.V.2024, 6 L

reared to F, in ethyl alcohol, 3 L, Euparal slides • The west side of Volkostrov Island; 62.1103, 35.2005; 29.V.2024; 1F, in ethyl alcohol • Village of Zharnikovo; 62.0593, 35.2064; 29.V.2024, 25 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 541 F, in ethyl alcohol • Kivach NR; 62.2683, 33.9761; 1–2.VIII.2023; 36 F, in ethyl alcohol • Near the town of Kondopoga; 62.2074, 34.3317; 16.V.2023; 8 L, Euparal slides • Village of Gomselga; 62.0683, 33.9592; 16.V.2023–1.IX.2023, 21.V.2024–21.VIII.2024, 28.V.2025–22.VIII.2025; 3 L, Euparal slides; 10 L reared to M, Euparal slides; 12 L reared to F, in ethyl alcohol; 3733 F, in ethyl alcohol – Suoyarvsky District • Viiruoya River; 62.0127, 32.5702; 29.V.2024, 10 L, in ethyl alcohol; 34 L, Euparal slides • Village of Veshkelitsa; 61.9187, 32.8068; 29.V.2024; 9 L reared to F, in ethyl alcohol • Near Lake Kyasnyasenjarvi; 61.6562, 31.9752; 17.V.2023; 25 L, Euparal slides – Pudozhsky District • Shalskoye rural settlement; 61.9420, 36.2233; 14–15.VI.2023; 104 F, in ethyl alcohol • Near the village of Pelusozero; 61.8423 37.7637; 16–17.VII.2025; 56 F, in ethyl alcohol – Pryazhinsky District • Syapsya River; 61.8907, 33.4143; 29.V.2024; 7 L reared to F, in ethyl alcohol • Near Villagora Hill; 61.8884, 33.7574; 29.V.2024; 15 L reared to F, in ethyl alcohol, 6 L, Euparal slides • Near the village of Alekka; 61.8663, 33.2622; 29.V.2024; 51 L reared to F, in ethyl alcohol • Near the village of Kutchezero; 61.6104, 33.06623; 17.V.2023; 24 L, Euparal slides • Near the Lake Oyalampi; 61.5888, 32.6136; 17.V.2023; 21 L, Euparal slides • Near the village of Svyatozero; 61.5501, 33.5768; 15.V.2023; 3 L, Euparal slides – Prionezhsky District • Near villages of Pedaselga and Shoksha; 61.4688, 34.8722; 12.V.2023; 9 L, Euparal slides • Near the village of Sheltozero; 61.3604, 35.4407; 12.V.2023; 9 L, Euparal slides – Petrozavodsky Urban Okrug • City parks of Petrozavodsk; 61.8106, 34.3301; 16.VIII.2023, 11.VI.2024; 10 F; in ethyl alcohol – Sortavalsky District • Near the village of Kirkkolakhti; 61.9907, 30.7218; 13.V.2025; 23 L, in ethyl alcohol • Village of Ruskeala; 61.9462, 30.5967; 13.V.2025; 30 L, in ethyl alcohol • Near Lake Yulyalampi; 61.9453, 30.8026; 13.VIII.2025; 15 L, in ethyl alcohol • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 3 F, 30 L, in ethyl alcohol • Village of Kiryavalakhti; 61.7823, 30.7419; 14.V.2025; 23 L, Euparal slides • Near the village of Rautakangas; 61.7811, 30.6603; 17.V.2023; 23 L, Euparal slides • Valaam Island; 5.VI.2024, 15.VIII.2024; 47 F, in ethyl alcohol – Pitkyarantsky District • Near the village of Alattu; 61.8726, 31.0374; 14.V.2025; 41 L, Euparal slides • Near the village of Khyamekoski; 61.8616, 30.9393; 14.V.2025; 4 L, Euparal slides • Near the village of Lyaskelya; 61.7518, 31.0440; 17.V.2023, 14.V.2025; 7 L, Euparal slides, 12 L, in ethyl alcohol • Near Lake Khippolampi; 61.6978, 31.3158; 17.V.2023; 21 L, Euparal slides – Lakhdenpokhsky District • Near the village of Kortela; 61.5689, 30.4355; 15.V.2025; 19 L, Euparal slides • Lakhdenpokhya; 61.5376, 30.2144; 15.V.2025; 1 L, Euparal slide • Near the village of Ikhala; 61.5050, 30.0577; 12.V.2025, 15.V.2025; 11 L, Euparal slides, 3 L, in ethyl alcohol • Near the village of Tervayarvi; 61.3840, 29.9919; 12.V.2025; 15 L reared to M, Euparal slides – Olonetsky District • The southwestern coast of Lake Villalskoye; 61.2673, 33.1704; 15.V.2023; 6 L; Euparal slides • Near the village of Torosozero; 61.1894, 33.1127; 15.V.2023; 27.V.2024; 10 L, Euparal slides, 76 L reared to F, in ethyl alcohol • Near the Lake Kokhtinskoye; 60.9037, 33.2187; 15.V.2023; 15 L reared to M, Euparal slides. **Collection of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.540146, 34.687003; 15.V.1968, 14.V.–13.VII.1970, 17.V.–3.VI.1971, 26.V.–3.VI.1972, 16.V–28.VI.1973; 194 L, Balsam slides, 9 M, pinned – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 1.VI.1966, 31.VI.1968, 5.VI.–29.VI.1967, 12.V.–24.VI.1968, 24.V.–27.V.1969, 14.V.1970–20.VII.1970, 22.V.1973; 1221 L, Balsam slides – Pitkyarantsky District • Mantinsaari Island; 61.3712, 31.5656; 1.VI.1966, 1.VII.1966; 89 L, Balsam slides.

IDENTIFICATION. Adults resemble *Ae. pionips*, *Ae. punctor*, and *Ae. hexodontus*, but differ in the absence of the postprocoxal scales. Larva with X segment, not completely surrounded by the saddle, and simple frontal setae (5-C and 6-C).

Aedes (*Ochlerotatus*) *cyprius* Ludlow, 1919

LITERATURE SOURCES. Medvezhegorsky District [Lobkova, 1956; Khalin *et al*., 2021b.] Kondopozhsky District [Lobkova, 1956]. Pudozhsky District [Lobkova, 1965]. Pryazhinsky District [Lobkova, 1956; Khalin *et al*., 2021b]. Prionezhsky District [Lobkova, 1965]. Sortavalsky District [Lobkova, 1965]. Olonetsky District [Lobkova, 1965].

Aedes (*Ochlerotatus*) *diantaeus* Howard, Dyar et Knab, 1913

LITERATURE SOURCES. Loukhsky District [Lobkova, 1956]. Kemsky District [Lobkova, 1956]. Kostomukshsky Urban Okrug [Bykova, Marshalova, 1997]. Belomorsky District [Lobkova, 1956]. Segezhsky District [Lobkova, 1956]. Medvezhegorsky District [Lobkova, 1956; Polevoi *et al*., 2005; Jakovlev *et al*., 2014]. Kondopozhsky District [Lobkova, 1956; Polevoi, 2006; Jakovlev *et al*., 2014]. Pudozhsky District [Lobkova, 1956]. Pryazhinsky District [Lobkova, 1956; Lobkova, Makarova, 1961; Khalin *et al*., 2021b]. Prionezhsky District [Lobkova, 1956]. Petrozavodsky Urban Okrug [Lobkova, Makarova, 1961]. ARCHIVE DATA. Medvezhegorsky District: Archive of KarRC, 1997. Suoyarvsky District: Archive of KarRC, 1995, 1996. Pudozhsky District: Archive of KarRC, 1997. Petrozavodsky Urban Okrug: Archive of KarRC, 1981, 1982.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 25–30.VI.2024; 1229 F, in ethyl alcohol • Near the urban locality of Loukhi; 66.0835, 33.0978; 12.VI.2024; 1 F, in ethyl alcohol • The northeastern coast of Lake Boyarskoye; 65.9461, 33.4307; 13.VI.2024, 9–12.VII.2025; 87 F, in ethyl alcohol – Kalevalsky District • The northwestern coast of Lake Regoyarvi; 2–3.VII.2024; 114 F, in ethyl alcohol • Near the lakes Bolshoye Kis-Kis and Maloe Kis-Kis; 65.2623, 30.9500; 4.VII.2024; 121 F, in ethyl alcohol – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 18–19.VII.2023; 106 F, in ethyl alcohol • Village of Tolloreka; 64.8901, 30.5299; 20.VII.2023; 9 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 4.VII.2023, 12–14.VII.2025; 288 F, in ethyl alcohol – Muyezersky District • Near the Lake Rovkulskoe; 63.9325, 31.1178; 17.VII.2023; 103 F, in ethyl alcohol • The western coast of Lake Leksozero; 63.7898, 30.8640; 15–16.VII.2023; 654 F, in ethyl alcohol – Segezhsky District • Near the Lake Vildozero; 63.1913, 34.3754, 28.V.2024; 3 L reared to F, in ethyl alcohol – Medvezhyegorsky District • Near the Lake Uchmalambi; 63.1075, 34.3498; 28.V.2024; 29 L, reared to F, in ethyl alcohol, 3 L, Euparal slides • Tikhvin Bor; 62.8467 35.6345; 14–16.VII.2025; 52 F, in ethyl alcohol • The west side of Volkostrov Island; 62.1103, 35.2005; 29.V.2024; 41F, in ethyl alcohol • Village of Zharnikovo; 62.0593, 35.2064; 29.V.2024, 3 L, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 366 F, in ethyl alcohol • Kivach NR; 62.2683, 33.9761; 1–2.VIII.2023; 6 F, in ethyl alcohol • Near the town of Kondopoga; 62.2074,

34.3317; 16.V.2023; 3 L, Euparal slides • Village of Gomselga; 62.0683, 33.9592; 8.VI.2023–23.VIII.2023, 5.VI.2024–31.VII.2024, 10.VI.2025–22.VIII.2025; 227 F, in ethyl alcohol, 21 F, pinned • Near the village of Yanishpole; 62.1377, 34.2387; 15.V.2023; 14 L, Euparal slides – Pudozhsky District • Near the village of Pelusozero; 61.8423 37.7637; 16–17.VII.2025; 16 F, in ethyl alcohol – Pryazhinsky District • Near the village of Alekka; 61.8663, 33.2622; 29.V.2024; 12 L, Euparal slides – Lakhdenpokhsky District • Near the village of Kortela; 61.5689, 30.4355; 15.V.2025; 1 L, Euparal slide. **Collection of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.5401, 34.6870;15.V.1968, 14.V.–29.V.1970, 31.V.–7.VI.1971, 27.V–31.V.1972, 16.V.–26.VI.1973; 93 L, Balsam slides, 8 M, pinned – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 13.VI.–23.VI.1968, 27.V.–3.VI.1969, 15.V–3.VI.1970, 22.V.1973; 102 L, Balsam slides.

IDENTIFICATION. Adults resemble *Ae. communis*, but differ in the upper mesepisternal patch of scales that does not reach the anterior margin of the mesepisternum. Larva with antennae those are distinctly longer than the head.

Aedes (*Ochlerotatus*) *dorsalis* (Meigen, 1830)

LITERATURE SOURCES. Loukhsky District [Georgieva, 2004]. Kondopozhsky District [Lobkova, 1964]. Prionezhsky District [Lobkova, 1957]. Petrozavodsky Urban Okrug [Khalin *et al*., 2021b]. ARCHIVE DATA. Suoyarvsky District: Archive of KarRC, 1995.

MATERIAL EXAMINED. KARELIA – Loukhsky District • White Sea Biological Station "Kartesh"; 66.3364, 33.6460; 1.VI.–4.VIII.2024; 13 L, Euparal slides. **Collection of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.5401, 34.6870; 8.VI.1970; 1 L, Balsam slide – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 14.V.1970; 2 L, Balsam slides.

IDENTIFICATION. Larva with siphonal tuft situated below the middle of siphon (Figure 5) and saddle seta shorter than the saddle.

Aedes (*Ochlerotatus*) *euedes* Howard, Dyar et Knab, 1913

LITERATURE SOURCES. Pudozhsky District [Lobkova, 1964]. Pryazhinsky District [Lobkova, 1956; Khalin *et al*., 2021b]. Prionezhsky District [Lobkova, 1964].

MATERIAL EXAMINED. KARELIA – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 1.VIII.2024; 1 F, pinned – Pryazhinsky District • Syapsya River; 61.8907, 33.4143; 29.V.2024; 1 L, Euparal slide – Sortavalsky District • Near the village of Rautakangas; 61.7811, 30.6603; 17.V.2023; 1 L, Euparal slide.

IDENTIFICATION. Adult: see the Identification section of *Ae. annulipes*. Larva differs from *Ae. annulipes*, *Ae. flavescens*, *Ae*. *cantans*, and *Ae*. *excrucians* in the number of comb scales.

Aedes (*Ochlerotatus*) *excrucians* (Walker, 1856)

LITERATURE SOURCES. Loukhsky District [Lobkova, 1956; Krogerus, 1960]. Kemsky District [Lobkova, 1956]. Kostomukshsky Urban Okrug [Bykova, Marshalova, 1997]. Belomorsky District [Lobkova, 1956]. Segezhsky District [Lobkova, 1956]. Medvezhegorsky District [Lobkova, 1956; Polevoi *et al*., 2005; Jakovlev *et al*., 2014; Khalin *et al*., 2021b]. Kondopozhsky District [Lobkova, 1956; Jakovlev *et al*., 2014]. Pudozhsky District [Lobkova, 1956]. Pryazhinsky District [Lobkova, 1956; Lobkova, Makarova, 1961; Khalin *et al*., 2021b]. Prionezhsky District [Lobkova, 1956, 1957]. Petrozavodsky Urban Okrug [Lobkova, Makarova, 1961]. ARCHIVE DATA. Suoyarvsky District: Archive of KarRC, 1995. Pudozhsky District: Archive of KarRC, 1997.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 25–30.VI.2024; 8 F, in ethyl alcohol – Kalevalsky District • Near the lakes Bolshoye Kis-Kis and Maloe Kis-Kis; 65.2623, 30.9500; 04.VII.2024; 4 F, in ethyl alcohol – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 19.VII.2023; 1 F, in ethyl alcohol – Muyezersky District • Near the Lake Rovkulskoe; 63.9325, 31.1178; 17.VII.2023; 6 F, in ethyl alcohol • The western coast of Lake Leksozero; 63.7898, 30.8640; 16.VII.2023; 1 F, in ethyl alcohol – Medvezhyegorsky District • Tikhvin Bor; 62.8467 35.6345; 14–16.VII.2025; 1 F; in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 1 F, in ethyl alcohol • Village of Gomselga; 62.0683, 33.9592; 26.VII.–25.VIII.2023; 12.VI–21.VIII.2024; 21.VII.–2.VIII.2025; 35 F, in ethyl alcohol Suoyarvsky District • Near the village of Soanlakhti; 62.0495, 30.9999; 29.VIII.2024; 2 F; in ethyl alcohol – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 12.VIII.2025; 1 F, in ethyl alcohol • Valaam Island; 5.VI.2024, 15.VIII.2024; 2 F, in ethyl alcohol. **Collection of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.5401, 34.6870; 15.V.1968, 14.V.–8.VI.1970, 27.V.–10.VI.1971; 24.V.–5.VI.1972, 16.V.–1.VII.1973; 72 L, Balsam slides, 38 M, pinned – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 15.V.1968, 15.V–8.VI.1970, 27.V.1972; 25 L, Balsam slides.

IDENTIFICATION. Females resemble *Ae. annulipes*, *Ae. riparius*, *Ae. cantans*, and *Ae. euedes*, but differ the shape of the fore claws. Larva differs from *Ae. annulipes*, *Ae. flavescens*, and *Ae*. *cantans* in the morphology of seta on posterolateral flap of stigmal plate.

Aedes (*Ochlerotatus*) *flavescens* (Müller, 1764)

LITERATURE SOURCES. Kostomukshsky Urban Okrug [Bykova, Marshalova, 1997]. Kondopozhsky District [Khalin *et al*., 2021b]. Petrozavodsky Urban Okrug [Khalin *et al*., 2021b]. ARCHIVE DATA. Suoyarvsky District: Archive of KarRC, 1995.

MATERIAL EXAMINED. KARELIA – Loukhsky District • White Sea Biological Station "Kartesh"; 66.3364, 33.6460; 17.VI.2024; 4 L, Euparal slides.

IDENTIFICATION. See the Identification section of *Ae. excrucians*, *Ae. cantans*, and *Ae. euedes*.

Aedes (*Ochlerotatus*) *hexodontus* Dyar, 1916

LITERATURE SOURCES. Kemsky District [Lobkova, 1965].

MATERIAL EXAMINED. KARELIA – Loukhsky District • The northeastern coast of Lake Boyarskoye; 65.9461, 33.4307; 9–12.VII.2025; 16 F, in ethyl alcohol – Kalevalsky District • The northwestern coast of Lake Regoyarvi; 3.VII.2024; 2 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 4.VII.2023, 12–14.VII.2025; 18 F, in ethyl alcohol – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 7.VII–21.–21.VIII.2024, 22.VIII.2025; 9 F, in ethyl alcohol – Pudozhsky District • Shalskoye rural settlement; 61.9420, 36.2233; 15.VI.2023; 1 F, Euparal slide – Sortavalsky District • Near the village of Kirkkolakhti; 61.9907, 30.7218; 13.V.2025; 1 L, Euparal slide • Near the village of Riuttiu; 61.8252, 30.6168; 13.VIII.2025; 1 L, Euparal slide • Valaam Island; 5.VI.2024, 15.VIII.2024; 2 F, in ethyl alcohol – Lakhdenpokhsky District • Lakhdenpokhya; 61.5376, 30.2144; 15.V.2025; 1 L, Euparal slide.

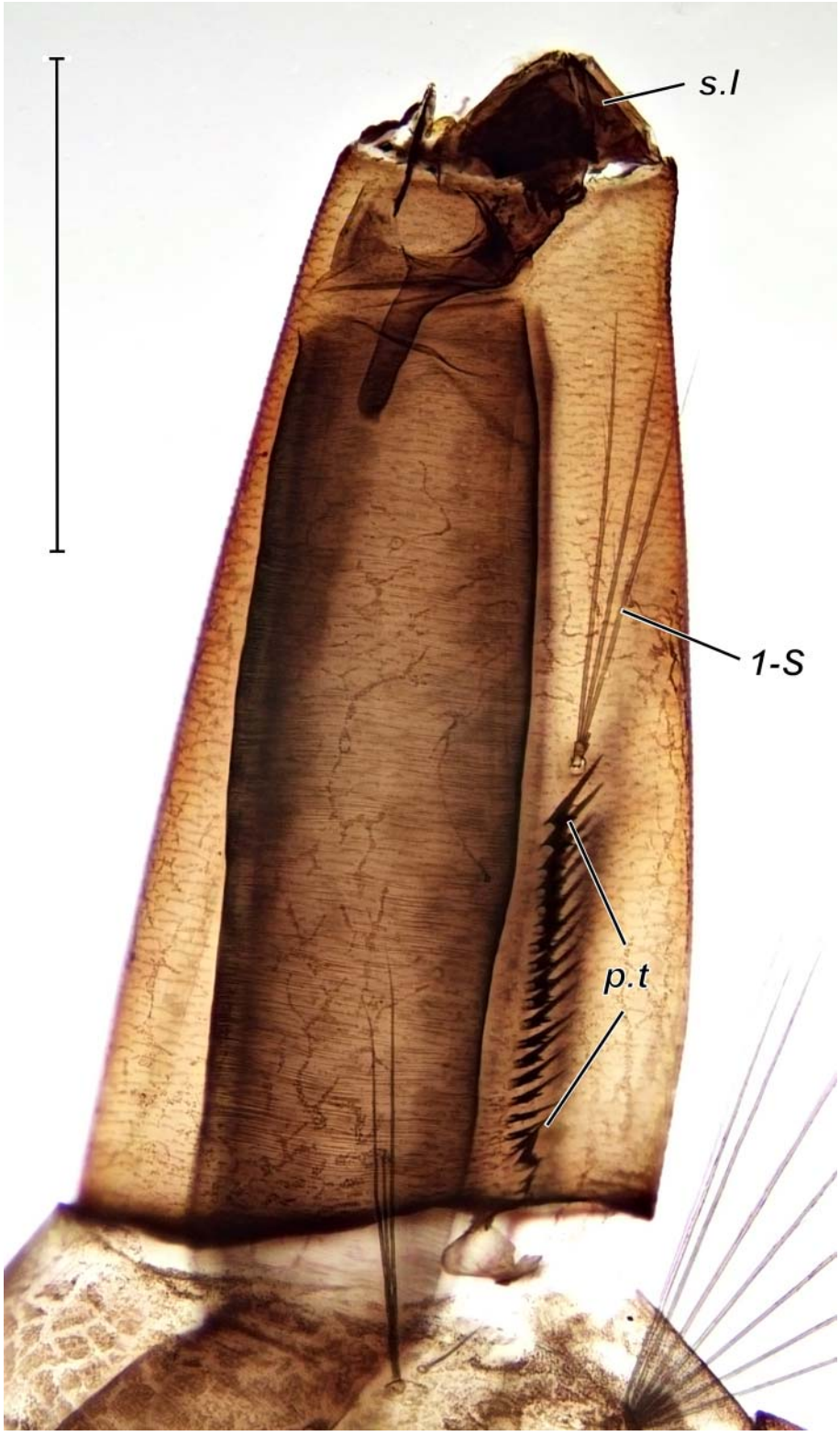

Fig. 5. *Aedes dorsalis*, larva, siphon. Lateral view.
Designations: *1-S* — siphonal tuft, *p.t* — pecten teeth, *s.l* — spiracular lobe. Scale bar: 0.5 mm.
Рис. 5. *Aedes dorsalis*, личинка, сифон. Вид сбоку.
Обозначения: *1-S* — пучок сифона, *p.t* — зубцы сифона, *s.l* — клапан стигмальной пластинки. Масштабная линейка: 0,5 мм.

IDENTIFICATION. See the Identification section of *Ae. communis*. Adults ressemble *Ae. pionips* and *Ae. punctor*, but differ in the coloration of the scutum and abdomen. Larva with X segment, completely surrounded by the saddle, and comb with 6–9 scales (Fig, 6, *A*).

Aedes (*Ochlerotatus*) *impiger* (Walker, 1848)

LITERATURE SOURCES. Loukhsky District [Krogerus, 1960; Lobkova, 1965].

Aedes (*Ochlerotatus*) *intrudens* Dyar, 1919

LITERATURE SOURCES. Medvezhegorsky District [Polevoi *et al*., 2005; Jakovlev *et al*., 2014]. Pryazhinsky District [Lobkova, Makarova, 1961; Khalin *et al*., 2021b]. ARCHIVE DATA. Medvezhegorsky District: Archive of KarRC, 1997. Suoyarvsky District: Archive of KarRC, 1995, 1996. Pudozhsky District: Archive of KarRC, 1997. Petrozavodsky Urban Okrug: Archive of KarRC, 1981, 1982.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 28–30.VI.2024; 8 F, in ethyl alcohol – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 19.VII.2023; 1 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 4.VII.2023; 8 F, in ethyl alcohol – Medvezhyegorsky District • Near the Lake Uchmalambi; 63.1075, 34.3498; 28.V.2024; 1 L, Euparal slide – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 8.VI.–10.VII.2023, 12.VI.–19.VI.2024, 19.VII.2025; 20 F, in ethyl alcohol – Pudozhsky District • Shalskoye rural settlement; 61.9420, 36.2233; 15.VI.2023; 2 F, pinned – Pryazhinsky District • Syapsya River; 61.8907, 33.4143; 29.V.2024; 3 L reared to F, Euparal slides. **Collection of KarRC.** Prionezhsky District • Pedaselga; 61.5401, 34.6870; 15.V.1970, 17.V.–7.VI.1971, 28–29.V1972, 18.V.1973; 53 L, Balsam slides, 1 M, pinned – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 27.VI.1967; 19 L, Balsam slides – Pitkyarantsky District • Mantinsaari Island; 61.3712, 31.5656; VII.1966; 2 L, Balsam slides.

IDENTIFICATION. Adults resemble *Ae. communis*, *Ae. pionips*, *Ae. punctor*, and *Ae. hexodontus*, but differ in the presence of the hypostigmal patch of scales and from *Ae. pullatus* in the form of the mesepimeral scale patch. Larva with detached distal pecten teeth and frontal setae (5-C and 6-C) with 3–5 branches.

Aedes (*Ochlerotatus*) *leucomelas* (Meigen, 1804)

LITERATURE SOURCES. Loukhsky District [Lobkova, 1956]. Kemsky District [Lobkova, 1956]. Belomorsky District [Lobkova, 1956]. Segezhsky District [Lobkova, 1956]. Medvezhegorsky District [Lobkova, 1956]. Kondopozhsky District [Lobkova, 1956]. Pudozhsky District [Lobkova, 1956; Humala, Polevoi, 2009]. Pryazhinsky District [Lobkova, Makarova, 1961]. Prionezhsky District [Lobkova, 1956]. Petrozavodsky Urban Okrug [Lobkova, Makarova, 1961; Khalin *et al*., 2021b].

Aedes (*Ochlerotatus*) *nigrinus* (Eckstein, 1918)

LITERATURE SOURCES. Olonetsky District [Khalin *et al*., 2021b].

MATERIAL EXAMINED. KARELIA – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 13.V.2025; 1 L, Euparal slide.

IDENTIFICATION. Larva with simple frontal setae (5-C and 6-C) and comb scales arranged in 2 rows.

Aedes (*Ochlerotatus*) *nigripes* (Zetterstedt, 1838)

LITERATURE SOURCES. Loukhsky District [Krogerus, 1960; Lobkova, 1964]. Kemsky District [Rumsh, 1948; Lobkova, 1964].

Aedes (*Ochlerotatus*) *pionips* Dyar, 1919

LITERATURE SOURCES. Kemsky District [Lobkova, 1965]. Belomorsky District [Lobkova, 1965]. Segezhsky District [Lobkova, 1965]. Medvezhegorsky District [Lobkova, 1965; Jakovlev *et al*., 2014]. Kondopozhsky District [Lobkova, 1965; Jakovlev *et al*., 2014]. Pudozhsky District [Lobkova, 1965]. Pryazhinsky District [Khalin *et al*., 2021b]. Prionezhsky District [Lobkova, 1965]. Sortavalsky District [Lobkova, 1965]. ARCHIVE DATA. Suoyarvsky District: Archive of KarRC, 1995.

MATERIAL EXAMINED. KARELIA – Muyezersky District • The western coast of Lake Leksozero; 63.7898, 30.8640; 16.VII.2023; 6 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 366 F, in ethyl alcohol • Kivach NR; 62.2683, 33.9761; 1.VIII.2023; 1 F, in ethyl alcohol – Pryazhinsky District • Near the village of Kutchezero; 61.6104, 33.06623; 17.V.2024; 1 L, Euparal slide – Pitkyarantsky District • Near the village of Alattu; 61.8726, 31.0374; 14.V.2025; 1 L, Euparal slide. **Collection of KarRC.** KARELIA – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 30.V.1967, 27.VI.1967, 14.VI.1968, 24.VI.1968, 27.V.1969, 29.V.–25.VII.1970, 25.VI.1973; 230 L, Balsam slides.

IDENTIFICATION. See the Identification section of *Ae. communis* and *Ae. hexodontus*. Larva with X segment, not completely surrounded by the saddle, and frontal setae (5-C and 6-C) with 3 and more branches.

Aedes (*Ochlerotatus*) *pullatus* (Coquillett, 1904)

LITERATURE SOURCES. Loukhsky District [Lobkova, 1956, 1964; Khalin *et al*., 2021b]. Kemsky District [Lobkova, 1956, 1964]. Kostomukshsky Urban Okrug [Bykova, Marshalova, 1997]. Belomorsky District [Lobkova, 1956]. Segezhsky District [Lobkova, 1956]. Medvezhegorsky District [Lobkova, 1956]. Kondopozhsky District [Lobkova, 1956]. Prionezhsky District [Lobkova, 1965]. ARCHIVE DATA. Medvezhegorsky District: Archive of KarRC, 1997. Suoyarvsky District: Archive of KarRC, 1995, 1996. Pudozhsky District: Archive of KarRC, 1997. Petrozavodsky Urban Okrug: Archive of KarRC, 1981, 1982.

MATERIAL EXAMINED. KARELIA – Kondopozhsky District • Near the village of Sopokha; 62.3031, 34.0973; 16.V.2023; 1 L, Euparal slide. **Collection of KarRC.** KARELIA – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 20.VI.1967, 11.VI.–6.VII.1970; 11 L, Balsam slides.

IDENTIFICATION. Larva ressemble *Ae. pionips*, but differs in the length of the antennae.

Aedes (*Ochlerotatus*) *punctor* (Kirby, 1837)

LITERATURE SOURCES. Loukhsky District [Lobkova, 1956; Krogerus, 1960; Khalin *et al*., 2021b]. Kemsky District [Lobkova, 1956]. Kostomukshsky Urban Okrug: [Bykova, Marshalova, 1997]. Belomorsky District [Lobkova, 1956]. Segezhsky District [Lobkova, 1956]. Medvezhegorsky District [Lobkova, 1956; Jakovlev *et al*., 2014]. Kondopozhsky District [Lobkova, 1956; Jakovlev *et al*., 2014]. Suoyarvsky District [Rumyantsev *et al*., 1995]. Pryazhinsky District [Lobkova, 1956; Lobkova, Makarova, 1961; Khalin *et al*., 2021b]. Prionezhsky District [Lobkova, 1956, 1957; Khalin *et al*., 2021b]. Petrozavodsky Urban Okrug [Lobkova, Makarova, 1961]. ARCHIVE DATA. Medvezhegorsky District: Archive

of KarRC, 1997. Suoyarvsky District: Archive of KarRC, 1995, 1996. Pudozhsky District: Archive of KarRC, 1997. Petrozavodsky Urban Okrug: Archive of KarRC, 1981, 1982.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 25–30.VI.2024; 65 F, in ethyl alcohol • Near the urban locality of Loukhi; 66.0835, 33.0978; 12.VI.2024; 13 F, in ethyl alcohol • The northeastern coast of Lake Boyarskoye; 65.9461, 33.4307; 13.VI.2024, 9–12.VII.2025; 388 F, in ethyl alcohol • Kuzema River; 65.5138, 33.3242; 13.VI.2024; 4 F, in ethyl alcohol – Kalevalsky District • The northwestern coast of Lake Regoyarvi; 2–3.VII.2024; 168 F, in ethyl alcohol • Near the lakes Bolshoye Kis-Kis and Maloe Kis-Kis; 65.2623, 30.9500; 4.VII.2024; 180 F, in ethyl alcohol – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 18–19.VII.2023; 233 F, in ethyl alcohol • Village of Tolloreka; 64.8901, 30.5299; 20.VII.2023; 24 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 4.VII.2023, 12–14.VII.2025; 436 F, in ethyl alcohol – Muyezersky District • Near the Lake Rovkulskoe; 63.9325, 31.1178; 17.VII.2023; 89 F, in ethyl alcohol • The western coast of Lake Leksozero; 63.7898, 30.8640; 15–16.VII.2023; 140 F, in ethyl alcohol – Segezhsky District • Near the Lake Vildozero; 63.1913, 34.3754, 28.V.2024; 1 L reared to F, in ethyl alcohol – Medvezhyegorsky District • Near the Lake Uchmalambi; 63.1075, 34.3498; 28.V.2024; 3 L, reared to F, in ethyl alcohol • Kumsa River; 62.9233, 34.3449; 28.V.2024, 3 L reared to F, in ethyl alcohol • Near the village of Tikhvin Bor; 62.8467 35.6345; 14–16.VII.2025; 1065 F, in ethyl alcohol • Chebinka River; 62.8291, 34.2667; 28.V.2024, 1 L, Euparal slide • The west side of Volkostrov Island; 62.1103, 35.2005; 29.V.2024; 1F, in ethyl alcohol • Village of Zharnikovo; 62.0593, 35.2064; 29.V.2024, 4 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 1623F, in ethyl alcohol • Kivach NR; 62.2683, 33.9761; 1–2.VIII.2023; 24 F, in ethyl alcohol • Near the town of Kondopoga; 62.2074, 34.3317; 16.V.2023; 3 L, Euparal slides • Village of Gomselga; 62.0683, 33.9592; 16.V.2023–26.IX.2023, 20.V.2024–1.IX.2024, 28.V.2025–22.VIII.2025; 3 L, Euparal slides; 15 L reared to M, Euparal slides; 14 L reared to F, in ethyl alcohol; 8260 F, in ethyl alcohol – Suoyarvsky District • Near the village of Turkhanvaara; 62.2544, 32.3755; 4.IX.2024; 3 F, in ethyl alcohol • Near the village of Soanlakhti; 62.0495, 30.9999; 29.VIII.2024; 1 F, in ethyl alcohol • Viiruoya River;

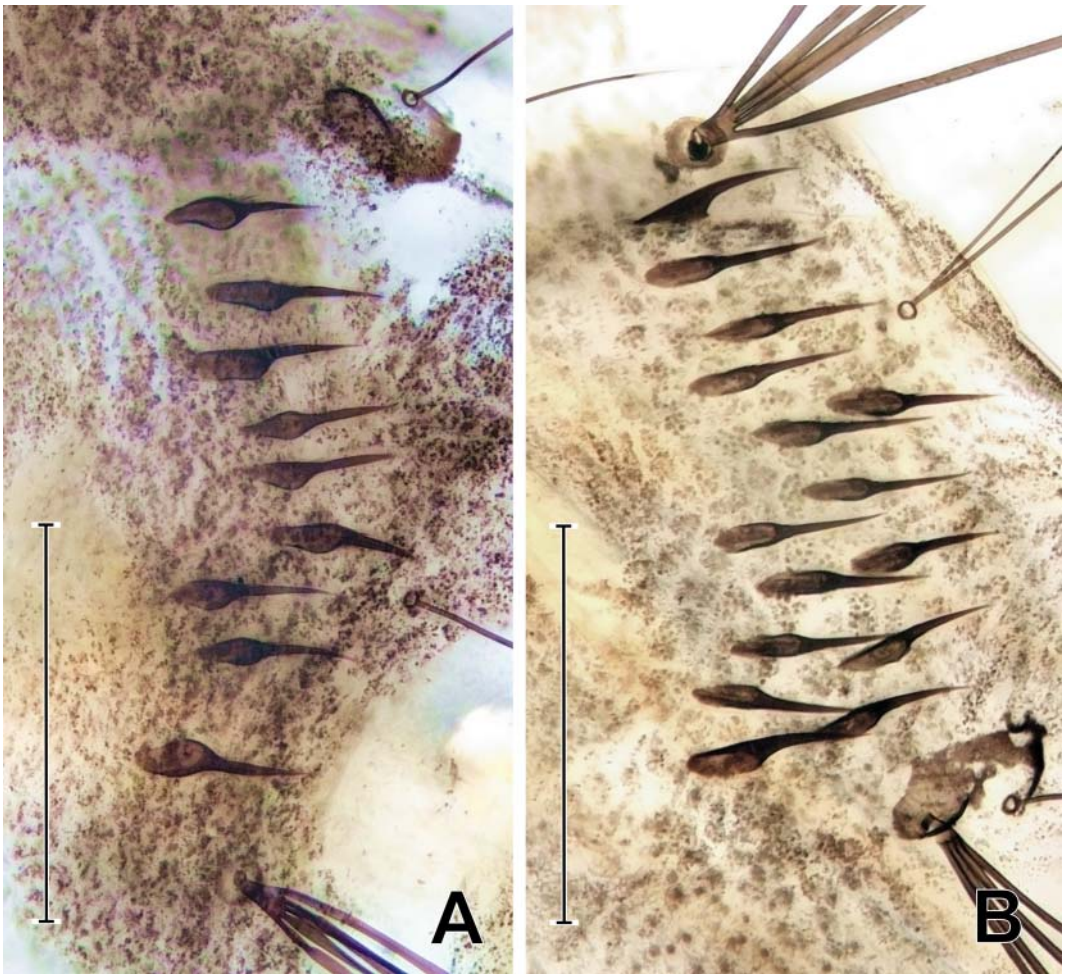

Fig. 6. *Aedes*, larva, comb. Lateral view.
A — Aedes hexodontus, *B — Aedes punctor*. Scale bar: 0.2 mm.
Рис. 6. *Aedes*, личинка, щетка. Вид сбоку.
A — Aedes hexodontus, *B — Aedes punctor*. Масштабная линейка: 0,2 мм.

62.0127, 32.5702; 29.V.2024, 2 L, in ethyl alcohol; • Village of Veshkelitsa; 61.9187, 32.8068; 29.V.2024; 1 L, Euparal slide – Pudozhsky District • Shalskoye rural settlement; 61.9420, 36.2233; 14–15.VI.2023; 2 F, in ethyl alcohol • Near the village of Pelusozero; 61.8423 37.7637; 16–17.VII.2025; 205 F, in ethyl alcohol – Pryazhinsky District • Syapsya River; 61.8907, 33.4143; 29.V.2024; 9 L reared to F, in ethyl alcohol • Near Villagora Hill; 61.8884, 33.7574; 29.V.2024; 11 L, Euparal slides • Near the village of Alekka; 61.8663, 33.2622; 29.V.2024; 2 L reared to F, in ethyl alcohol • Near the village of Matrosy; 61.7911, 33.8523; 15.V.2023; 5 L, Euparal slides • Near the village of Kutchezero; 61.6104, 33.06623; 17.V.2023; 7 L, Euparal slides • Near the village of Svyatozero; 61.5501, 33.5768; 15.V.2023; 2 L, Euparal slides – Petrozavodsky Urban Okrug • City parks of Petrozavodsk; 61.8106, 34.3301; 7.VIII–16.VIII.2023, 11.VI.2024; 38 F; in ethyl alcohol – Sortavalsky District • Village of Ruskeala; 61.9462, 30.5967; 13.V.2025; 10 L, in ethyl alcohol • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 16 F, 19 L, in ethyl alcohol • Valaam Island; 5.VI.2024, 15.VIII.2024; 7 F, in ethyl alcohol – Pitkyarantsky District • Near the village of Khyamekoski; 61.8616, 30.9393; 14.V.2025; 15 L, in ethyl alcohol • Near the village of Lyaskelya; 61.7518, 31.0440; 17.V.2023, 14.V.2025; 3 L, Euparal slides, 14 L, in ethyl alcohol – Lakhdenpokhsky District • Near the village of Kortela; 61.5689, 30.4355; 15.V.2025; 5 L, Euparal slides • Lakhdenpokhya; 61.5376, 30.2144; 15.V.2025; 11 L, Euparal slides • Near the village of Ikhala; 61.5050, 30.0577; 17.V.2023, 15.V.2025; 24 L, Euparal slides, 12 L, in ethyl alcohol – Olonetsky District • Near the village of Torosozero; 61.1894, 33.1127; 27.V.2024; 3 L, in ethyl alcohol. **Collection of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.540146, 34.687003; 15.V.1968, 14.V.–15.V.1970, 24.V.–3.VI.1971, 26.V.–6.VI.1972, 18.V–24.VI.1973; 27 L, Balsam slides, 1 M, pinned – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 1.VI.1966, 3.VI.1967, 24.V.–14.VI.1968, 24.V.–27.V.1969, 4.VI.1970–8.VI.1970; 145 L, Balsam slides – Pitkyarantsky District • Mantinsaari Island; 61.3712, 31.5656; VII.1966; 5 L, Balsam slides.

IDENTIFICATION**.** See the Identification section of *Ae. communis* and *Ae. hexodontus*. Larva with X segment, completely surrounded by the saddle, and comb with 10 or more scales (Figure 6, *B*).

COMMENTS. All examined larvae had the saddle completely surrounding X segment and frontal setae (5-C and 6-C) with mainly two branches. We consider the collected material as *Ae. punctor* (not *Ae. punctor* / *punctodes*).

Aedes (*Ochlerotatus*) *riparius* Dyar et Knab, 1907

LITERATURE SOURCES. Segezhsky District [Lobkova, 1964]. Kondopozhsky District [Lobkova, 1956, 1964]. Prionezhsky District [Lobkova, 1965]. ARCHIVE DATA. Suoyarvsky District: Archive of KarRC, 1995. Petrozavodsky Urban Okrug: Archive of KarRC, 1968.

MATERIAL EXAMINED. **Collection of KarRC.** KARELIA – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 15.V.–11.VII.1968; 7 L, Balsam slides.

IDENTIFICATION. Larva: frontal setae (5-C and 6-C) with 2–3 branches and comb with 6–12 scales.

Aedes (*Ochlerotatus*) *sticticus* (Meigen, 1838)

LITERATURE SOURCES. Olonetsky District [Khalin *et al*., 2021b]. ARCHIVE DATA. Pudozhsky District: Archive of KarRC, 1997.

MATERIAL EXAMINED. KARELIA – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 19.IX.2024, 1.VIII–22.VIII.2025; 2 F, in ethyl alcohol, 1 F, pinned – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 11–13.VIII.2025; 7 F, in ethyl alcohol.

IDENTIFICATION. Adults ressemble *Ae. communis*, *Ae. pionips*, *Ae. punctor*, and *Ae. hexodontus*, but differ in the form of the mesepimeral scale patch and from *Ae. nigrinus* in the coloration of the wing veins and the abdomen.

Culex (*Culex*) *pipiens* Linnaeus, 1758

LITERATURE SOURCES. Loukhsky District [Shub, Nikolaev, 1937; Lobkova, 1956]. Kemsky District [Shub, Nikolaev, 1937]. Belomorsky District [Shub, Nikolaev, 1937]. Medvezhegorsky District [Shingareva, 1926; Shub, Nikolaev, 1937; Khalin *et al*., 2021a]. Kondopozhsky District [Shub, Nikolaev, 1937; Lobkova, 1980; Polevoi, 2006; Khalin *et al*., 2021a]. Suoyarvsky District [Rumyantsev *et al*., 1995]. Pudozhsky District [Lobkova, 1980]. Pryazhinsky District [Shub, Nikolaev, 1937; Lobkova, 1956, 1980; Lobkova, Makarova, 1961; Khalin *et al*., 2021a]. Prionezhsky District [Lobkova, 1965]. Petrozavodsky Urban Okrug [Shub, Nikolaev, 1937; Lobkova, Makarova, 1961; Sharkov *et al*., 1984]. ARCHIVE DATA. Suoyarvsky District: Archive of KarRC, 1995. Petrozavodsky Urban Okrug: Archive of KarRC, 1981, 1982.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Near the urban locality of Loukhi; 66.0835, 33.0978; 12.VI.2024; 1 F, in ethyl alcohol – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 16.VII.–1.IX.2024, 10.VI.–22.VIII.2025; 6 F, in ethyl alcohol, 6 L reared to M, Euparal slides – Prionezhsky District • Village of Lososinoe; 61.6701, 34.1696; 20.X.2024, 27.X.2024; 10 F, in ethyl alcohol – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 11.VIII.2025; 1 F, in ethyl alcohol. **Collections of KarRC.** KARELIA – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 29.VI.1967, 22–28.VIII.1967; 4 L, 16 M, Balsam slides.

IDENTIFICATION. Females and larvae are similar to *Cx. torrentium*. Males with a weakly developed and slightly sclerotised ventral arm of paraproct.

COMMENTS. Data on females and larvae belong to *Cx. pipiens* / *torrentium* (Table 2).

Culex (*Culex*) *torrentium* Martini, 1925

LITERATURE SOURCES. Kondopozhsky District [Polevoi, 2006].

MATERIAL EXAMINED. KARELIA – Loukhsky District • White Sea Biological Station “Kartesh”; 66.3364, 33.6460; 9–11.VIII.2023, 23.VIII.2024; 14 L reared to M, Euparal slides – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 1.IX.2024; 2 L reared to M, Euparal slides – Pryazhinsky District • Near the Village of Alekka; 61.8663, 33.2622; 23.VIII.2023; 3 L reared to M, Euparal slides.

IDENTIFICATION. See the Identification section of *Cx. pipiens*. Males with a curved and srongly sclerotised ventral arm of the paraproct (Fig. 7).

Culex (*Neoculex*) *territans* Walker, 1856

LITERATURE SOURCES. Medvezhegorsky District [Jakovlev *et al*., 2014]. Kondopozhsky District [Lobkova, 1964; Khalin *et al*., 2021a]. Pryazhinsky District [Lobkova, 1964; Khalin *et al*., 2021a].

MATERIAL EXAMINED. KARELIA – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 24.VIII.2023, 1.IX.2024; 23 L, 2 L reared to M, Euparal slides. **Collections of KarRC.** KARELIA – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 31.V.–4.VII.1968, 10.VIII.1970; 11 L, Balsam slides.

IDENTIFICATION. Males without transparent scale-like setae on the gonocoxite subapical lobe (it is present in *Cx. pipiens* and *Cx. torrentium*). Larvae differ from *Cx. pipiens* and *Cx. torrentium* in the siphonal index.

Culiseta (*Culiseta*) *alaskaensis* (Ludlow, 1906)

LITERATURE SOURCES. Kostomukshsky Urban Okrug [Bykova, Marshalova, 1997]. Medvezhegorsky District [Jakovlev *et al*., 2014]. Suoyarvsky District [Natvig, 1948]. Kondopozhsky District [Khalin *et al*., 2021a]. Pryazhinsky District [Lobkova, 1961; Khalin *et al*., 2021a]. Prionezhsky District [Lobkova, 1957]. Petrozavodsky Urban Okrug [Shingareva, 1926; Lobkova, Makarova, 1961].

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 29.VI.2024; 1 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 2 F, in ethyl alcohol • Village of Gomselga; 62.0683, 33.9592; 16.V.2023, 23–27.V.2024; 13.V.–21.VII.2025; 20 F, in ethyl alcohol – Prionezhsky District • Village of Lososinoe; 61.6701, 34.1696; 27.X.2024; 23 F, in ethyl alcohol – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 12–14.V.2025, 11.VIII.2025; 8 F, in ethyl alcohol.

IDENTIFICATION. Females with white rings on the tarsi and without subapical pale rings on the femora.

Culiseta (*Culiseta*) *bergrothi* (Edwards, 1921)

LITERATURE SOURCES. Loukhsky District [Natvig, 1948; Rumsh, 1948; Krogerus, 1960; Khalin *et al*., 2021a]. Kostomukshsky Urban Okrug [Bykova, Marshalova, 1997].

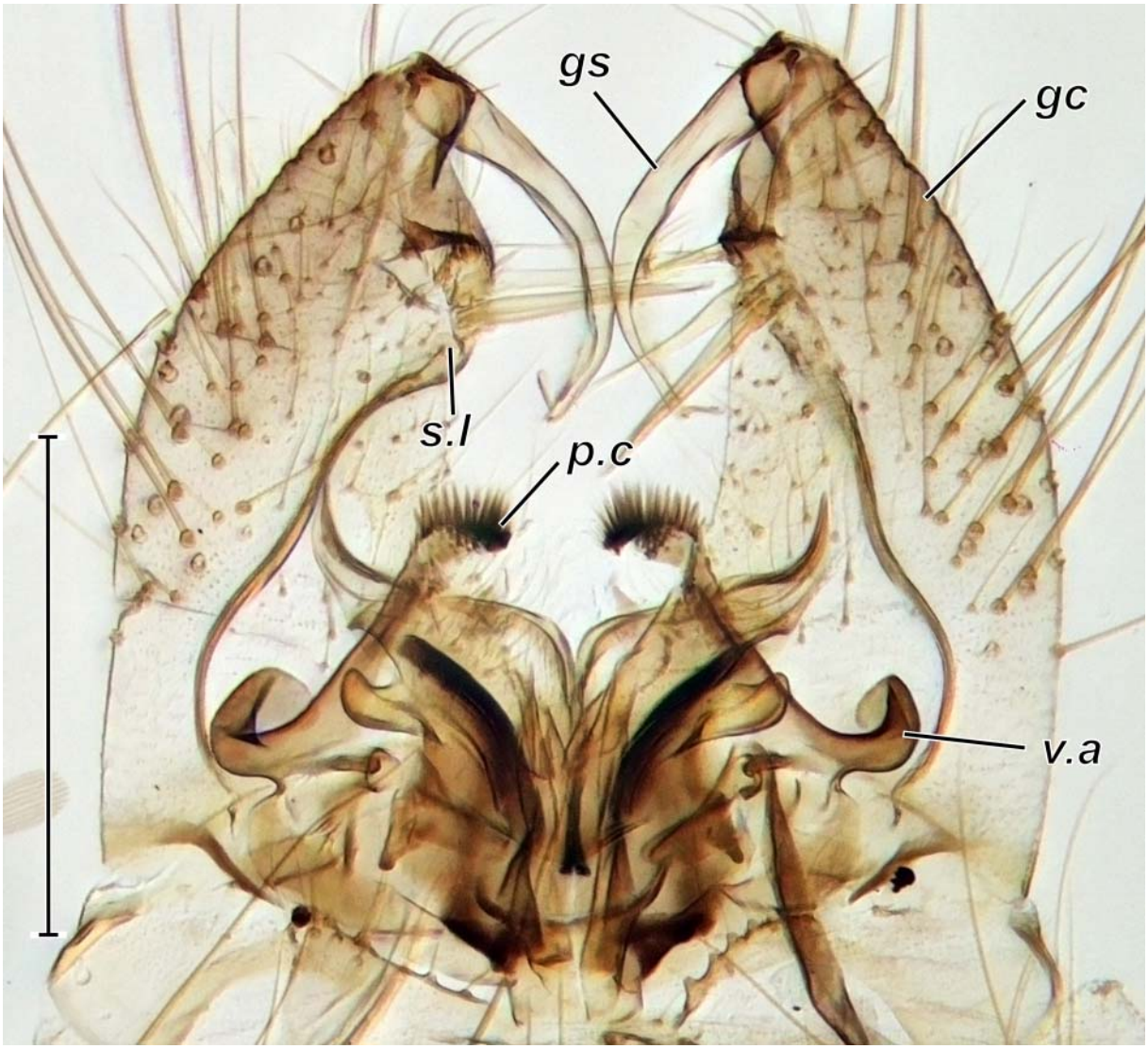

Fig. 7. *Culex torrentium*, male genitalia. Dorsal view.
Designations: *gs* — gonostylus, *p.c* — paraproct crown, *s.l* — subapical lobe of gonocoxite, *v.a* — ventral arm of paraproct. Other designation as on the Figure 4. Scale bar: 0.2 mm.
Рис. 7. *Culex torrentium*, гениталии самца. Вид снизу.
Обозначения: *gs* — стиль, *p.c* — зубцы парапрокта, *s.l* — бородавка коксита, *v.a* — базальный придаток парапрокта. Остальные обозначения как на рис. 4. Масштабная линейка: 0,2 мм.

Medvezhegorsky District [Khalin *et al*., 2021a]. Kondopozhsky District [Polevoi, 2006; Khalin *et al*., 2021a]. Pryazhinsky District [Lobkova, Makarova, 1961; Khalin *et al*., 2021a]. Prionezhsky District [Lobkova, 1957]. Petrozavodsky Urban Okrug [Lobkova, Makarova, 1961]. ARCHIVE DATA. Suoyarvsky District: Archive of KarRC, 1996.

MATERIAL EXAMINED. KARELIA – Loukhsky District • Paanajärvi NP; 66.2437, 30.5639; 26–29.VI.2024; 4 F, in ethyl alcohol • The northeastern coast of Lake Boyarskoye; 65.9461, 33.4307; 13.VI.2024, 9–12.VII.2025; 79 F, in ethyl alcohol – Kalevalsky District • The northwestern coast of Lake Regoyarvi; 3.VII.2024; 11 F, in ethyl alcohol • Near the lakes Bolshoye Kis-Kis and Maloe Kis-Kis; 65.2623, 30.9500; 4.VII.2024; 2 F, in ethyl alcohol – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 18–18.VII.2023; 2 F, in ethyl alcohol – Belomorsky District • The northwestern coast of Lake Shagozero; 64.4014, 33.8651; 13–14.VII.2025; 7 F, in ethyl alcohol – Medvezhyegorsky District • Tikhvin Bor; 62.8467 35.6345; 14–16.VII.2025; 28 F; in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 2 F, in ethyl alcohol • Village of Gomselga; 62.0683, 33.9592; 28.V.–6.VII.2024; 13.V–21.VII.2025; 48 F, in ethyl alcohol, 5 F, pinned – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 12–14.VIII.2025; 27 F, in ethyl alcohol. **Collections of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.540146, 34.687003; 6–27.VII.1970; 4 L, Balsam slides – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 11.VI.–16.VII.1968, 24.VII.–1.VIII.1969, 27.V.1970–31.IX.1970; 443 L, Balsam slides, 41 M, pinned.

IDENTIFICATION. Adults with scattered pale scales on the palps and without white rings on the tarsi. Larvae with the antenna half as long as the head and the ventral brush with 3–4 precratal setae; siphonal index 2.0–4.0.

***Culiseta* (*Culisella*) *fumipennis* (Stephens, 1825)**

LITERATURE SOURCES. Medvezhegorsky District [Jakovlev *et al*., 2014]. Pudozhsky District [Humala, Polevoi, 2009].

***Culiseta* (*Culisella*) *morsitans* (Theobald, 1901)**

LITERATURE SOURCES. Kondopozhsky District [Lobkova, 1964]. Prionezhsky District [Lobkova, 1965].

MATERIAL EXAMINED. KARELIA – Segezhsky District • Near the Lake Vildozero; 63.1913, 34.3754, 28.V.2024; 1 L, Euparal slide – Kondopozhsky District • Village of Gomselga; 62.0683, 33.9592; 16.V.–14.VIII.2023, 13.V.–21.VII.2025; 1 F, in ethyl alcohol, 5 L, Euparal slides, 7 L reared to M, Euparal slides – Pryazhinsky District • Near Villagora Hill; 61.8884, 33.7574; 29.V.2024; 1 L, Euparal slide – Sortavalsky District • Village of Ruskeala; 61.9462, 30.5967; 13.V.2025; 32 L, Euparal slides • Near the village of Riuttiu; 61.8252, 30.6168; 12.VIII.2025; 1 F, in ethyl alcohol • Village of Kiruavalakhti; 61.7823, 30.7419; 12.VIII.2025; 9 L, in ethyl alcohol – Lakhdenpokhsky District • Near the village of Kortela; 61.5689, 30.4355; 15.V.2025; 12 L, Euparal slides • Near the village of Ikhala; 61.5050, 30.0577; 12–15.V.2025, 15.V.2025; 16 L, Euparal slides, 1 L reared to M, in ethyl alcohol – Olonetsky District • The southwestern coast of Lake Villalskoye; 61.2673, 33.1704; 15.V.2023; 1 L reared to M, Euparal slides. **Collections of KarRC.** KARELIA – Prionezhsky District • Pedaselga; 61.540146, 34.687003; 3. VI.1971, 26.V.1972; 2 L, Balsam slides – Petrozavodsky Urban Okrug • Near the city of Petrozavodsk; 61.7497, 34.4683; 29.VI.1967, 5.X.1967, 31.V.–11.VII.1968, 7.V.–28.VI.1970; 90 L, Balsam slides.

IDENTIFICATION. Females with the proboscis covered with uniformly dark scales and with narrow basal pale bands on the terga. Males with 2–4 strong setae on the basal lobe of gonocoxite. Larvae with the antenna longer than the head and inner frontal seta with 2–4 branches; siphonal index wider than 5.0.

***Culiseta* (*Culisella*) *ochroptera* (Peus, 1935)**

LITERATURE SOURCES. Medvezhegorsky District [Jakovlev *et al*., 2014]. Kondopozhsky District [Polevoi, 2006]. Pryazhinsky District [Khalin *et al*., 2021a].

***Coquillettidia* (*Coquillettidia*) *richiardii* (Ficalbi, 1889)**

LITERATURE SOURCES. Kostomukshsky Urban Okrug [Aibulatov *et al*., 2023]. Medvezhegorsky District [Jakovlev *et al*., 2014]. Kondopozhsky District [Lobkova, 1956]. Prionezhsky District [Lobkova, 1956].

MATERIAL EXAMINED. KARELIA – Kostomukshsky Urban Okrug • Near the village of Pongaguba; 65.0442, 30.3567; 18–19.VII.2023; 45 F, in ethyl alcohol • Village of Tolloreka; 64.8901, 30.5299; 19.VII.2023; 2 F, in ethyl alcohol – Medvezhyegorsky District • Near the village of Tikhvin Bor; 62.8467 35.6345; 14–16.VII.2025; 24 F, in ethyl alcohol – Kondopozhsky District • Semcha River; 62.7549, 33.3800; 17–18.VII.2025; 179 F, in ethyl alcohol • Kivach NR; 62.2683, 33.9761; 1.VIII.2023; 1 F, in ethyl alcohol • Village of Gomselga; 62.0683, 33.9592; 10.VII.–11.VIII.2023; 5.VII–18.IX.2024, 6.VII.–22.VII.2025; 2082 F, in ethyl alcohol – Suoyarvsky District • Near the village of Turkhanvaara; 62.2544, 32.3755; 4.IX.2024; 1 F, in ethyl alcohol • Near the village of Soanlakhti; 62.0495, 30.9999; 29.VIII.2024; 1 F, in ethyl alcohol – Pudozhsky District • Near the village of Pelusozero; 61.8423 37.7637; 16–17.VII.2025; 25 F, in ethyl alcohol – Petrozavodsky Urban Okrug • City parks of Petrozavodsk; 61.8106, 34.3301; 16–19.VIII.2023; 40 F, in ethyl alcohol – Sortavalsky District • Near the village of Riuttiu; 61.8252, 30.6168; 12–14.V.2025, 11.VIII.2025; 49 F, in ethyl alcohol.

IDENTIFICATION. Females with simple claws (without subbasal tooth) and short cerci, but without postspiracular setae and pulvilli.

Discussion

The updated checklist of the mosquitoes of Karelia comprises 39 mosquito species of genera *Aedes*, *Anopheles*, *Culex*, *Culiseta*, and *Coquillettidia*, including 33 species collected by us and identified by the external morphology of female, male genitalia, or larva (Table 2). *Aedes geminus* is the first record for Karelia, while *Ae. cantans*, *Ae. cinereus*, *Ae. communis*, *Ae. excrucians*, *Ae. euedes*, *Ae. punctor*, *Ae. diantaeus*, *Ae. hexodontus*, *Ae. nigrinus*, *Cs. alaskaensis*, *Cs. bergrothi*, and *Cs. morsitans* were recorded for the first time for southwestern Karelia. Some species common in Fennoscandia, such as *Ae. vexans*, *Ae. hexodontus*, and *Ae. intrudens*, are new for central Karelia. The northern range borders were updated for *Ae. geminus*, *Ae. vexans*, *Ae. sticticus*, *An. claviger*, *Cx. torrentium*, and *Cq. richiardii* (versus archives data and our previously published data).

Aedes geminus was found in three sampling locations (No. 27, 31, and 59, Table 1, Fig. 1); these records lead to a revision of the northern border of the species'

range. The closely located records of *Ae. geminus* come from the Leningrad Region of Russia (near St. Petersburg, [Khalin *et al*., 2021b]) and from Finland [Culverwell *et al*., 2021]. In Finland, this species is widespread, up to the northern Lapland. If males become regularly sampled, the distribution of *Ae. geminus* may be significantly revised for Karelia as well as Russia in general.

The record of *Cx. torrentium* near the Arctic Circle (sampling location No. 2, Table 1, Fig. 1) is the northernmost one in Russia, but its distribution in Finland extends to northern Lapland [Culverwell *et al*., 2021].

Aedes vexans was recorded in central Karelia (sampling location No. 11). This is the northernmost location in Karelia, shifting the species' range border futher north. It is distributed in southern and eastern Finland up to 63° N [Culverwell *et al*., 2021], as well as in the Arkhangelsk Region of Russia [Khalin *et al*., 2021b].

The locations where *Ae. annulipes*, *Ae. euedes*, and *Ae. sticticus* were collected (Karelia onegensis, Village of Gomselga) are the northernmost ones in Karelia, lying beyond the previously recognized northern border of the species' ranges. These species are also known for Finland [Culverwell *et al*., 2021] and the Arkhangelsk Region of Russia [Khalin *et al*., 2021b].

Records of *Ae. cantans*, *Ae. flavescens*, *Ae. hexodontus*, *Ae. intrudens*, and *Cs. alaskaensis* in Karelia keretica, as well as records of *Cs. morsitans* in Karelia pomorica occidentalis are the northernmost ones in Karelia. They do not entail a revision of the northern distribution border since there are records directly to the north — in the Murmansk Region [Khalin *et al*., 2021b].

Our research greatly updates the mosquito fauna of Karelia ladogensis: 18 species new for this province have been found (Table 2). This province features a high diversity of vascular plants: 1,036 species, which includes Karelia's highest number of native species (680) and the highest number of differential species (32) [Kravchenko, Kuznetsov, 2001]. We have also produced a first assessment of the fauna of Fennoscandia' southeastern province — Karelia pudogensis, with 9 species.

Overall, the mosquito fauna of Karelia is similar to that of Finland [Culverwell *et al*., 2021]: all species found in Karelia except for *Cs. fumipennis* are known for Finland. The Finnish fauna additionally contains *Ae. rossicus* Dolbeskin, Gorickaja at Mitrofanova, 1930; *Ae. geniculatus* (Olivier, 1791); *Ae. caspius* (Pallas, 1771); *Ae. punctodes* Dyar, 1922*, Cs. annulata* (Schrank, 1776); *Cs. subochrea* (Edwards, 1921), as well as *Cx. modestus* Ficalbi, 1890 [Culverwell, Vapalahti, 2023]. These species were mostly encountered in southern Finland (except for *Ae. punctodes*), but *Ae. rossicu*s and *Cs. subochrea* were missing from recent samples [Culverwell *et al*., 2021].

Mosquito monitoring collections in Karelia spanning three years (2023–2025) showed 33 species, including five *Anopheles* species [Khalin et al., 2024; Aibulatov et al., 2025]. Our samples did not contain *Ae. behningi*, *Ae. impiger*, *Ae. leucomelas*, *Ae. nigripes*, *Cs. fumipennis*, and *Cs. ochroptera*, which had been previously reported in the literature (Table 2). These species rarely occur in samples, whether in Karelia or in Northwest Russia in general [Khalin *et al*., 2021a, b]. For example, *Ae. behningi*, *Cs. fumipennis*, and *Cs. ochroptera* are known only by two records from Karelia onegensis [Jakovlev *et al*., 2014; Polevoi, 2025]. Our checklist updates the distribution of mosquitoes in Fennoscandia. Nevertheless, since the ranges of many species are changing in line with global climatic trends, constant monitoring of blood-sucking arthropods as potential vectors of pathogens in our study area is recommended.

Acknowledgements. We are grateful to A.O. Tolstoguzov (IB KarRC RAS), A.V. Lyutikov (Institute of Geology KarRC RAS), P.S. Tyurina, and A.S. Martiyanova (Petrozavodsk State University) for helping with mosquito sampling. The authors are grateful to staff of the Paanajärvi National Park and Kivach Nature Reserve for their help in organising fieldwork. We thank the White Sea Biological Station "Kartesh" and the Marine Expeditions Research Resource Center of ZIN RAS (https://ckp-rf.ru/ckp/3057738/) for their support in collecting mosquitoes. We thank Olga Kislova (KarRC RAS) for linguistic assistance. We also thank reviewer for thorough examination of the manuscript and valuable comments.

Funding

This work was funded by the Russian Science Foundation and Karelian Venture Capital Fund grant #23-14-20020, https://rscf.ru/project/23-14-20020/ (fieldwork, preparation and identification of mosquitoes), and under State Assignment no. 125013001089-0 (updating methodology for species identification).

Author contributions

Alexei Khalin: Conceptualisation; investigation; visualisation; writing – original draft preparation; writing – review and editing. Sergey Aibulatov: Conceptualisation; investigation; writing – original draft preparation. Natalia Lyutikova: Investigation; data curation; writing – original draft preparation (supporting). Daniil Fedorov: Investigation; writing – original draft preparation (supporting). Liubov Bespyatova: Investigation. Sergey Bugmyrin: Conceptualisation; investigation; writing – original draft preparation (supporting); writing – review and editing; funding acquisition; project administration.

Conflict of interest

The authors of this work declare that they have no conflicts of interest.

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